INTERNATIONAL INVENTION INNOVATION COMPETITION IN CANADA

iCAN

TORONTO, CANADA

5th Anniversary Edition

CATALOGUE

WELCOME MESSAGES x EVENT INFO x LIST OF EXHIBITS

TORONTO CANADA

ICAN 2020

60 COUNTRIES

#iCAN2020 #The5thAnniversary #BecauseWeCan

The mind is like a parachute: it only works if it opens

Albert Einstein

THE PATENT™

Invention Magazine

International Invention Innovation Competition in Canada

iCAN - TORONTO, CANADA

WELCOME TO THE 5TH ANNIVERSARY EDITION

THE 5TH INTERNATIONAL INVENTION INNOVATION COMPETITION IN CANADA, iCAN 2020

MOONSUK CHANG / The Organizer

Dear all participants, members of the committee, partners and international delegations, “Greetings! Welcome to the 5th Anniversary of iCAN 2020”. This year has been tough for everyone in every corners of the world. Many types of industries and areas of professions were critically affected by the pandemic, and we were forced to self-isolate ourselves from who we love and what we love. However, despite the negative impact of the coronavirus, we can still do our part as inventors, innovators and creators for a better world. And honestly, I was very surprised to see so many of you take part in iCAN 2020. Your passion towards innovation was something else, and I was deeply touched, inspired, and energized by all of your involvements.

This only showed that no matter what happens, at least us the inventors and innovators will survive and fight for the right reason. This is the time when creative people like us need to really take a step forward in the face of the world and accept all challenges that’s being thrown at us and fight against all doubts and obstacles. So with that mindfulness set inside my heart, I also decided to join the war and fight for the right reason. Organizing iCAN is what I can do and what I needed to do. I show my respect to all of you. You are all warriors, you are heroes and heroines for the worldwide community. So please, continue to create and innovate, help those people who need your abilities. And I will also continuously set the tone for iCAN and support your heroic missions as inventors as long as iCAN! #WorkWithHonesty

Moonsuk Chang
Chairman & Chief Exhibition Officer
Toronto International Society of Innovation & Advanced Skills (TISIAS)
International Invention Innovation Competition in Canada, iCAN Organizing Committee & Team

BOB HUYBRECHTS / Co-Chairman of the Jury

Dear Inventors and iCAN Participants, I am so happy that iCAN 2020 is taking place this year, notwithstanding the known crisis we are all experiencing. Unfortunately, we are not meeting in Toronto as usual, but remember, inventing never stops! I believe a much larger opportunity is being offered to us, thanks to the use of technology and the power of the internet. I must admire Moonsuk and his team for their quick adaptability in switching so effectively from 4 years of successful physical events to a new realm of celebrating innovation virtually!

At this point, we should also be reminded that this is only possible, thanks to one of the greatest inventors of this century, namely Timothy Berners-Lee, who single-handedly invented the WorldWideWeb in 1989! You can visit this link to learn more: www.w3.org/People/Berners-Lee.

I realize the whole concept will be different, but I envision, as inventors ourselves there are no limits to what can be achieved. We will still be connecting and learning about each other’s creations, we will still receive satisfaction and the awards for our unique ability to innovate.

I warmly congratulate all of you, inventors and organizers, for participating in the first on-line version of the iCAN 2020. Let’s do it, Because We Can!

Co-operatively Yours,

Bob Huybrechts
Founder/President of Innovation Initiative Co-operative Inc.
iCAN 2020 Co-Chairman of the Jury

HOWARD A. LIM / Co-Chairman of the Jury

Special thanks to iCAN for hosting online globally the 5th anniversary of the 2020 International Invention Innovation Competition. I'd like to give a shout out and thank Moonsuk, along with the organizing committee members, for yet again, producing the 5th anniversary of the 2020 International Invention Innovation Competition event. Thank you for giving us an amazing opportunity that allows both inventors and business owners to exchange concepts, learn, and collaborate!

As a visionary, thought leader, and influencer, it is your innovations that bring a reality for a better future. Though it is not an easy task or load to bear, we do rely on your creative process to propel us forward as an ever-growing world. It is through your continuous hard work and persistence in the faces of unforeseen challenges, setbacks, and defeats that allows us to develop a higher standard of living.

On behalf of iCAN, I'd like to leave you with a final thought in the words of *Walt Disney*, "The way to get started is to quit talking and begin doing." To each and every one participating, congratulations. You are one of the few courageous souls that seek and strive for greatness, all while making a difference in other peoples' lives. Inventors, welcome to iCAN 2020 "The 5th Anniversary"!

Sincerely,

Howard A. Lim
President of HOW Creative
iCAN 2020 Co-Chairman of the Jury

HOW CREATIVE.
We Design Businesses.

ALIREZA RASTEGAR / President of IFIA

On behalf of International Federation of Inventors Associations (IFIA), I would like to take this opportunity to extend our congratulations to Toronto International Society of Innovation & Advanced Skills (TISIAS) for successfully organizing the International Invention Innovation Competition in Canada, "iCAN" for the last 4 years and we are going to celebrate the 5th anniversary of iCAN 2020 this year.

Due to Coronavirus (COVID-19) pandemic that is still affecting the whole world, most of IFIA events including iCAN 2020 will be held via online method because we believe that invention and innovation will not stop under any circumstances, but rather helps the mankind in these times of crisis.

In order to this approach, IFIA offers its unconditional support to iCAN 2020 for its underlying concept of disseminating the culture of invention and innovation nationally and internationally which is in parallel with IFIA's mission.

IFIA members and inventors from all over the world are highly encouraged to take part in iCAN 2020 which offers an exceptional chance to display your innovative accomplishments and connect with technology seekers. I hope all participants will enjoy this great event.

Sincerely Yours,

Alireza Rastegar
IFIA President

IFIA
INTERNATIONAL FEDERATION OF INVENTORS' ASSOCIATIONS

MANLI HSIEH / President of WIIPA

On behalf of World Invention Intellectual Property Associations (WIIPA), I would like to advance my sincere appreciation and gratitude to Toronto International Society of Innovation & Advanced Skills (TISIAS) for the great deal of effort and time they have devoted in organizing an amazing event, “International Invention Innovation Competition in Canada, iCAN” which continues to thrive in the culture of global innovation for 5 consecutive years. It is my honor to congratulate the event’s 5th anniversary.

TISIAS is one of the biggest characters in WIIPA for representing its base in Canada. Their dedication to bring inventors and entrepreneurs together from many countries around the world is truly remarkable.

WIIPA supports this event and our honorable member “TISIAS” represented by Moonsuk Chang, and urges all inventors, invention associations, entrepreneurs, industry representatives and manufacturers to take the best advantage of this milestone in the tradeshow and play a significant role in the success that such event will bring about.

Yours Truly,

Manli

Manli Hsieh
President of World Invention Intellectual Property Associations (WIIPA)

MIKE MCFARTHING / Vice-President of the Jury

With the unprecedented events of 2020 and the Global Societal shifts both in travel and in the way we interact, I must first express my sincere admiration for Mr. Moonsuk Chang and the iCAN Team for their commitment and resilience to go boldly forward with a Virtual Awards event. So many other events have been cancelled or delayed, rather than reinvent themselves. I am sure like so many who have attended the iCAN Awards over the last 5 years, will agree that we look forward to being present in person for 2021 (if and when that is possible).

But for 2020, we will all experience great value in the shift to a Virtual event, I am hoping that we will all grow in our abilities and open mindedness to new ideas and new ways of working. In fact, I would like to encourage everyone to consider several benefits that this global pandemic has given Inventors.

Firstly, with restricted travel, one can easily justify a Zoom, or telephone based meeting with prospective clients, partners or investors. Traditionally, this would have been a costly and time consuming trip. Secondly, due to the associated global slowdown, many key professionals and prospective clients are more receptive to talking than when it was 'business as usual'. Thirdly, many countries that would import solutions from the cheapest or biggest suppliers are now rethinking local manufacturing and designs due to the risk of travel bans on international supply chains. Lastly, is the human or psychological aspect of the Covid-19 outbreak, We need to understand that things do change and not always for the better. We need to recognize the need for co-operation, innovation to meet this and many more global challenges to come.

As Inventors, I encourage and applaud you in your efforts. And I would encourage us all to embrace the sentiment of Robert A. Heinlein to see that, “everything is theoretically impossible, until it is done”, that it is Inventors, like yourself that society needs more than ever to make the world a better place.

Thank you for your Ideas, Time and Efforts

Mike McFarthing
Director of Education, Innovation Initiative Co-operative Inc.
iCAN 2020 Vice-President of the Jury

ANDREI VICTOR SANDU / Vice-President of the Jury

An important step on Canadian soil to highlight the innovation and to create an opportunity on market for the brightest ideas from all over the world! We congratulate the entire team and mainly the Chairman Mr. Moonsuk CHANG for the tremendous work accomplished, especially in this pandemic times.

The Romanian Inventors Forum is a professional association with the purpose to support, stimulate, develop and valorize the scientifically, technically and artistically creativity of individuals or institutions from Romania and abroad. In this respect, we highly support Toronto International Society of Innovation and Advanced Skills (TISIAS) and its privileged annual event, iCAN as the main partner from Romania.

I wish that iCAN will continuously become one of the best international events available for inventors worldwide and encourage everyone to continuously use its beneficial platform to promote your great and unique ideas to be introduced on this special stage and platform.

Assoc.Prof.Phd.Eng. Andrei Victor SANDU
President of Romanian Inventors Forum
Gheorghe Asachi Technical University of Iasi
iCAN 2020 Vice-President of the Jury

BABAK KHODAPARAST / Local Partner & Jury Member

As the President of the Representative office of IFIA in Canada and the National Inventors' Team of Canada, I would like to extend my best wishes for iCAN 2020. During the past few years, iCAN brought numerous inventors from many countries around the world into Canada. It is without a doubt that organizing an international event needs extensive efforts, time and resources. I would like to send my warmest regards to Mr. Moonsuk Chang, the Organizing Chairman of iCAN for all of his great efforts and endeavors.

Good luck to all inventors who compete in this amazing competition.

Babak Khodaparast
President of the First Institute of Canadian Inventors (FICI)
National Inventors' Team of Canada

OMAR BILONASHVILI / Delegation of Georgia

I congratulate all participants and award winners of iCAN 2020 and wish nothing but the best to our dear friend and partner Moonsuk Chang and his leading organization, TISIAS. On behalf of our Inventors Club of Georgia, we would like to celebrate the 5th Anniversary of iCAN this year and support this event.

Omar Bilonashvili
CEO & Founder / Inventors Club of Georgia

YOSHIRO NAKAMATS / Honorable Member of the Committee

I, “The Father of Invention”, the chairman of International Invention & Innovation Institute and World Genius Convention (WGC) congratulate the 5th Anniversary of iCAN in Toronto, Canada. I sincerely wish you all the best and success.

The creation is the parent of progress. The person who invents is a genius. My hope is that the progress you engender will benefit all people for centuries in a world of freedom, prosperity and peace.

We are welcome geniuses from Canada and all over the world to the 34th World Genius Convention in Tokyo, Japan. Let’s invent the world together!

Sir Dr. Yoshiro NakaMats
Chairman
International Invention & Innovation Institute
World Genius Convention (WGC)

WORLD GENIUS CONVENTION

YEVHEN KUDRIAVETS / Delegation of Ukraine

On behalf of UNESCO Center Junior Academy of Sciences of Ukraine (JASU), I congratulate Toronto International Society of Innovation and Advanced Skills (TISIAS) on the occasion of the 5th anniversary of International Invention Innovation Competition in Canada, iCAN!

We are convinced that this competition is a brilliant opportunity for young inventors and innovators to exhibit, promote, display their ideas internationally and do network with colleagues, experts, inventors, and mentors from all over the world.

We strongly believe that this event and the global community of inventors will motivate and inspire all participants to develop their projects harder and create multicultural teams to solve the great majority of modern global problems and strengthen social welfare.

We want to express the deepest gratefulness and respect to TISIAS for the opportunity to become a part of this incredible global platform to share innovative, extraordinary, and revolutionary ideas. It is an honor for our organization to collaborate with you.

JASU wishes you prosperity and best of luck for the global mission of inspiring inventors and innovators to make a better world.

Congratulations on reaching the milestone of your 5th anniversary.

Best regards,

UNESCO
UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

JUNIOR ACADEMY OF SCIENCES OF UKRAINE UNDER THE AUSPICES OF UNESCO

Yevhen Kudriavets
Deputy Director for International Relations in UNESCO Center JASU
Advisor to CERN Council Members
MILSET Europe Executive Committee Member

MITHONA LUY / Delegation of Cambodia

On behalf of Norton University, Cambodia, I would like to congratulate the 2020 International Invention, Innovation Competition in Canada iCAN on your 5th anniversary, organized by the Toronto International Society of Innovation & Advanced Skills (TISIAS).

TISIAS is known across the globe for supporting students, inventors, innovators, entrepreneurs, and researchers to promote creative ideas and innovative projects through making numerous participations in international invention exhibitions, conferences, and other relevant events. I am grateful to the TISIAS for their work and for demonstrating the continued support and create such an annual event like the 5th iCAN 2020.

I recognize the effort of the International Invention, Innovation Competition in Canada iCAN since 2016 when they organize a new opportunity for the world inventor through their overseas invention shows for international delegations to participate.

As the representative of Cambodia, I would like to congratulate the organizers for hosting this great event and I look forward to supporting the event as a Cambodia participant.

Best wishes to all the participants and for a successful iCAN 2020.

Your sincerely,

Mithona Luy
Norton University, Cambodia

DANNY LAI PAK KEONG / Delegation of Macao

On behalf of Macao Innovation & Invention Association (MiiA), I would like to express my appreciation to Toronto International Society of Innovation & Advanced Skills (TISIAS) for the great deal of efforts, they have devoted to organize the 5th International Invention Innovation Competition in Canada, iCAN 2020. To persevere this well-established culture of innovation for 5 consecutive years.

iCAN is truly one of the biggest North America fairs to be held in Canada, a region of large and civilized Canada dedicated to bring inventors and entrepreneurs together and facilitate marketing, licensing and manufacturing of the products.

MiiA supports this event as well as urges all inventors, invention associations, entrepreneurs, industry representatives and manufacturers to take the best advantage of this professional and experienced trade show and play a role in the change that such events will bring about.

Yours Sincerely,

Danny Lai Pak Keong
President of Macao Innovation & Invention Association (MiiA)

澳門創新發明協會
Macao Innovation & Invention Association

SONNY D. VALENZUELA / Partner & Jury Member

The young inventors from the Republic of the Philippines have the honor to congratulate Toronto International Society of Innovation and Advanced Skills (TISIAS) for this extraordinary and delightful iCAN's 5th Anniversary, your unparalleled and glorious celebration of 5 years of great achievements in the field of invention and innovations. We admire and we would like to express our heartfelt appreciation and commendation for your vital contribution to the growth and progress of the culture of invention and innovation in Canada and around the world. Through your leadership, iCAN is at the Top Level among the international exhibitions. You have passionately dedicated your unwavering support to inventor and innovators in the international level.

As President of the Manila Young Inventors Association (MYIA) and also the National Secretary of the Filipino Inventors Society Inc. (FIS), I learn to emulate and to be inspired with the cutting-edge inventions of other inventors showcased in the international invention exhibitions. We salute the meaningful activities being spearheaded by the your organization TISIAS to the support and encouragement you have offered to the inventions.

Thus, the Manila Young Inventors Association (Philippines) look up to you as an epitome of creativity and inspiration and in the promotion of scientific and technological culture in your prosperity by efficiently and effectively relying and investing on the intellectual capital of the people in their through their entrepreneurial spirit.

To the iCAN participants, continue to conquer the world with your amazing ideas. Be the solution to the problems and inspire others to be the best through your initiatives. To TISIAS and all the people behind the success of iCAN – our great respect and immense gratitude!

Sonny D. Valenzuela
President, Manila Young Inventors Association (MYIA)
National Secretary, Filipino Inventors Society Inc. (FIS)
IFIA Corresponding Member

MANILA YOUNG INVENTORS ASSOCIATION
Invention Development in Education Advocacy

MAJID EL BOUAZZAOUI / Delegation of Morocco

This year is certainly a very challenging period due to COVID-19 pandemic, but also, it's the year where inventors demonstrated their huge potential and capabilities to save and protect human been more than ever by creativity and innovation.

iCAN 2020 is here to demonstrate once again this reality to the whole world and I thank the Honorable Chairman and inventors' Great Friend Moonsuk Chang and the whole TISIAS organizing team for facing all the huge challenges to make this excellent event happen despite of all difficulties.

I also congratulate all participants for taking up the challenge and all the winners for their magnificent achievements.

May this honorable event remain forever engraved in our history and I deeply believe in its perpetual and obvious success.

Majid EL BOUAZZAOUI
President of OFEED Morocco

OFEED
WHERE INVENTIONS ARE BORN!

UZOMA ONYEMA / iCAN 2020 Committee Member

On behalf of Foundation for Creativity in Agriculture, Science and Technology (FOCAST), a foremost reputable organization in Nigeria that promotes creativity and innovativeness among students and youths, I wish to profoundly congratulate you on the 5th anniversary of iCAN. Since its debut in 2016, iCAN has steadily grown in leaps and bounds, and has gained reputation as a prestigious international event that inventors from all over the world look forward to. Not only has the number of participants risen tremendously, but the number of participating countries has also shot up very significantly. This is truly laudable, and we sincerely congratulate you and your team on this achievement.

And to all of you, highly esteemed participants at this 5th anniversary of iCAN, we heartily congratulate all you great inventors and innovators. We commend you for rising above the challenges posed by the COVID-19 pandemic in order to participate in this reputable event. We are confident that your participation has afforded you an exceptional opportunity to widen your horizon; and that you did enjoy the rich and rewarding experience that marks TISIAS events.

We are proud to partner with TISIAS and we sincerely congratulate you and the Organizing Committee on your resounding success in the iCAN 2020 event. We wish you continued growth and more achievements in future. Once again, please accept our hearty congratulations.

Sincerely,

Uzoma Onyema
President
Foundation for Creativity in Agriculture, Science and Technology (FOCAST)

UNCHALEE SANGUANPONG / Delegation of Thailand

On this special occasion, I would like to wish the 5th anniversary celebration of iCAN a fruitful and memorable event.

iCAN continued to make remarkable contributions to inspire many professionals and young inventors around the world to build a desirable invention and innovation for a better future.

I applaud iCAN team and TISIAS for successfully fostering in its competition to benefit our community. In celebration of its 5th anniversary, I would like to express my gratitude to all supporting staff and members of iCAN continued success in their future endeavors.

Good luck and Cheers!

Dr. Unchalee SANGUANPONG, Assoc. Prof.
President & Founder
Association of Thai Innovation and Invention Promotion (ATIP)

WAGDY RIZK GHALI & VICTORIA RAMZY HABIB / Jury Members

iCAN from our point of view and from the heart of our belief is an annual feast and festival where the elite caliber inventors and innovators of the world in various fields gather together. It is more than a forum, more than an assembly, and more than a gathering point where the products of innovators and inventors and promising ideas converge.

Congratulating iCAN on its special day is a must. Let us extend our congratulations to iCAN 2020 organizers and participants on celebrating the 5th Anniversary, wishing them permanent success and continuous progress in the service of invention and innovation.

This year, we have been denied our presence in person to Toronto because of Covid-19, but online communication has compensated us – and that in itself is maintaining a great form of innovation and professional mentality by the organizer. Thanks to all iCAN members for their sincere efforts and continued interest. Happy Competition iCAN!

Dr. Wagdy Rizk Ghali (Left, Judge) & **Dr. Victoria Ramzy Habib** (Right, Judge)

BUGS TAN / Honorable Member & Advisor of the Committee

It is my great pleasure to celebrate with you on the 5th Anniversary of iCAN 2020. I'm particularly very impressed with the great achievement iCAN has accomplished in such a short time. iCAN has brought people from all over the world to congregate on a platform to meet and discuss their creations. Such effort has brought significant benefit to many people. Over the past 5 years iCAN has turned dreamer into innovator. Also like to pay our gratitude to the men and women behind the scene who has worked tirelessly to make this possible. With the warmth of my hearth I would like to express my sincere thanks. THANK YOU iCAN!

Be cre8tive always,

Dr. Bugs Tan
Principal of Uncle Bugs Inventor Academy

UNCLE BUGS INVENTOR ACADEMY

NAJIA A. ALZANBAGI / Delegation of Saudi Arabia

This is our enthusiastic praise for your success in the 5th Anniversary for iCAN 2020. The Highly Innovative Unique Foundation (HIUF) from Jeddah, Kingdom of Saudi Arabia hopes you to get numerous successful events in your work, and we will consistently remain with you to support your effective proceedings and devotion to your work that never lose certainty and to proceed in your wonderful dependably way.

Congratulations to iCAN 2020 Organizing Committee & Team for their work of excellence to provide this valuable platform iCAN as a special opportunity for many inventors around the world.

Prof. Dr. Najia A. Alzanbagi
President of Highly Innovative Unique Foundation (HIUF)
Jeddah, Saudi Arabia

HIUF

PHAN QUOC NGUYEN / Delegation of Vietnam

On behalf of Institute for Invention and Innovation, Vietnam (SANVIC), we would like to express our warmest congratulations for Toronto International Society of Innovation and Advanced Skills (TISIAS) for the great efforts to organize the International Invention Innovation Competition in Canada (ICAN) for the five successful years consecutively. We also express our sincere thanks to TISIAS and its President Mr. Moonsuk Chang for their great supports for Vietnamese inventors in the really extraordinary contest held in Toronto by both USA and Canada with the presence of nearly 70 countries in the world under the agies of World Invention Intellectual Property Associations (WIIPA).

We wish TISIAS become more and more one of the biggest and leading invention and innovation contest in the world. With the support of WIIPA, SANVIC and other partners all over the world, TISIAS plays a significant role in the success of WIIPA.

Dr. Phan Quoc Nguyen
President and Founder, SANVIC
Representative of WIIPA in Vietnam

SANViC

BARBARA HALLER / Delegation of Poland

Dear iCAN 2020 Organizers,
Dear Inventors and Innovators,

On behalf of Eurobusiness-Haller, organizer of International Invention and Innovation Show INTARG®, I would like to congratulate to TISIAS, for the successful organizing the 5th edition of iCAN.

Due to Coronavirus (COVID-19) pandemic that is still affecting the worldwide, the most of events will be held with online method. I hope that the inventions and innovations presented will meet with wide interest of recipients, will obtain a high jury rating and achieve market success.

The pandemic has influenced each aspect of our economic and social life. It brought a crisis which we all have to face together. The difficult times we are currently experiencing make everyone realize in a unique way how important the role in the modern world is for scientists, inventors and innovators who, thanks to their knowledge and inventiveness, can help and rescue, fulfilling the hopes placed in them by millions of people. We hope that scientific discoveries, innovations, including those presented at iCAN 2020 Online, will bring in this particularly difficult reality the hope of a quick return to normality - both in the social and economic dimension, and will protect us in the future from similar experiences.

I wish all participants health, satisfaction and recognition for their work and a significant contribution to social and economic progress and development.

Barbara Haller de Hallenburg-Illg
Chairman of EUROBUSINESS-HALLER,
Organizer of the International Invention and Innovation Show INTARG® POLAND

INTARG

30 1990-2020 Eurobusiness – Haller

AMEDEO POZZEBON / iCAN Committee & Jury Member

Hello Fellow Inventors and iCAN Organizers & Participants,

I would like to welcome all this year's participants for another invention competition! I have been a part of iCAN every year since the very beginning in 2016 and I enjoyed meeting the inventors and sharing our experiences.

I realize that this year the format will be very different and not in person, but I believe that we may get a more special exposure for our products, since it will all be shown online. I wish all contenders the best of luck and I thank Moons and his IT Team for the opportunity to be part of iCAN 2020 again!

Warm regards,

Amedeo Pozzebon / CEO of Deo Innovations
Member of the Innovation Initiative Co-operative

InventorsCircle.org

innovation initiative
A non-profit forum supporting innovative business

HOSSEIN VAEZI ASHTIANI / Delegation of I.R. Iran

On behalf of the First Institute Researchers and Inventors in I.R. IRAN (FIRI), I would like to extend my sincere congratulations to Toronto International Society of Innovation & Advanced Skills (TISIAS) for the 5th year's successful implementation of International Invention Innovation Competition in Canada - iCAN and wish you further progress and prosperity.

This year is the 5th edition of iCAN and the crossing from this year is accompanied with the best wishes for the organization committee of iCAN to gain more success and a higher position in the years to come.

It's worth mentioning that the cooperation between TISIAS and FIRI dates back to 2016 in first edition of iCAN, when for the first time a group of Iranian inventors took part in the event. The bilateral collaboration continued since the Iranian inventors gained successful results in that year and iCAN was professionally organized.

With over 15,000 members, FIRI has established close partnership with the universities, science and technology parks, research centers and individual inventors for 20 years creating a bridge between the inventors on one hand and international scientific entities on the other hand. Not only has FIRI facilitated the participation of Iranian inventors in the international invention exhibitions but has organized training workshops on how to become an inventor, Intellectual property protection and development of ideas. In addition, every year FIRI will publish the educational books in the area of inventions for encouraging a large number of people and students in Iran to enter the world of innovation.

Finally, it is a big pleasure for us to continue our collaboration with TISIAS and we will actively take part in the event to showcase our country's creative achievements.

Yours Sincerely,

Hossein Vaezi Ashtiani
Head of Public & International Affairs
The First Institute Inventors and Researchers in I.R. Iran (FIRI)

AUREL MIHAIL TITU / iCAN Committee & Jury Member

As a university professor and PhD supervisor, inventor and European expert in Intellectual Property, it is a great honor to be able to collaborate very closely with well-known names of inventors worldwide such as those participating to iCAN 2020 in Toronto.

I would like to congratulate the organizers for making this 5th Edition, a very special one, as the effort and work done are very difficult to measure. Special congratulations to Mr. Moonsuk Chang and his entire team of big-hearted and honest people, professionals, who managed an exceptional event.

Congratulations to all participants for the very interesting inventions presented at iCAN 2020. A special appreciation goes to the heads of delegations around the world and to those who lead the most important organizations in the field of Intellectual Property Protection in the world. I thank all of them for the special collaboration and for the support they have offered me in my professional training in the field of Intellectual Property at International level in the last 26 years.

Thanks to the organizer and all the people involved in the management of this remarkable event for the invitation they sent me to be part of the International Jury of iCAN this year in Toronto. I am confident that we will all see each other again soon because in order to do special things in this field you have to really love what you do.

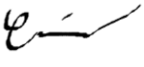
With friendship,
on the occasion of iCAN 2020 in Toronto,

Professor Aurel Mihail TITU
"Lucian Blaga" University of Sibiu,
President of the "Romanian Association for Alternative Technologies Sibiu - A.R.T.A. Sibiu"
Sibiu, Romania

ERRICHA INSAN PRATISI / Delegation of Indonesia

Hi Innovators!

I am Erricha Insan Pratisi, the President of INNOPA. Through this letter, I would like to congratulate Mr. Moonsuk Chang for successfully reaching the 5th anniversary of iCAN. Although this year, most of us are having limitations caused by the outbreak of Covid-19, I'm sure that nothing can never demotivate us from being creative and innovative. I also believe that iCAN is the place where all the high-qualified innovative projects compete. I personally hope that through iCAN, revolutionary solutions to overcome the virus problems around the world can surface upon all of us. Once again, congratulations to Mr. Chang and his valued iCAN Team! To all participants, welcome to the 5th edition of iCAN and congratulations on your winning missions! I wish you have a great result in the iCAN Finals.



Erricha Insan Pratisi
President of Indonesian Invention and Innovation Promotion Association (INNOPA)
Organizer of Indonesian Young Inventors Awards, IYIA

ZOLTÁN NAGY / Delegation of Hungary

On behalf of the Idea Club 13 Association, CONGRATULATIONS for organizing the iCAN 2020 exhibition. I am excited for a great partnership between our association and TISIAS on this occasion for the benefit of worldwide inventors.

The Idea Club 13 Association was founded in 1996 and has organized more than 60 independent international exhibitions for inventors. We have relationships with several foreign partner organizations and the University. Every year, we organize our international exhibition called "IDEA" in different cities across Hungary.

In this respect, I would like to celebrate the 5th anniversary of iCAN in Toronto, Canada. And also congratulations to all participants of iCAN!

Yours Sincerely,

Zoltán Nagy
President of the Idea Club 13 Association

NOUR LATTOUF / Delegation of Lebanon

Organized by Toronto International Society of Innovation & Advanced Skills, iCAN is the first international inventors' event held in Canada and a place of global exchange and festivity for all participating inventors for their hard work and dedication towards creativity and innovation.

We heard about this grand fair in 2017 in China. We, the Lebanese Innovators' Society were intrigued by this fair and admired the aspiration of the organizer Mr. MOONSUK CHANG and his enthusiasm for innovation which encouraged us to participate ever since.

The Lebanese Innovators' Society are a non-governmental organization that helps youth and adults in developing their skills of inventing and innovating in different scientific fields such as robotics, computer science, biotechnology and geology. We also cooperate with Lebanese schools, universities, the Ministry of Education, and other organizations on an international level. We organize conferences, seminars, workshops and expositions for adolescents and young adults in the fields of science, technology, and ecology; and we aim to encourage young people to participate in the development of scientific and technological innovations.

Despite the economic crisis that hit Lebanon earlier this year, and the Covid-19 pandemic that affected travel worldwide, we refused to be discouraged. Despite the global lockdown and isolation of peoples and countries, innovation and ideas were limitless. We participated in the Turkish invention show, virtually held in Istanbul and the virtual fair in Poland and Morocco harnessing awards and medals and worldwide recognition of our small country. We continue to do so in this fair in Canada.

We were preparing for this fair, and another to be held here in Lebanon, when a huge explosion crashed our capital city of Beirut rendering most of it to the ground and leaving thousands of injured and homeless people along with victims and still to be located loved ones. We will rise from this stronger and wiser, never to stop, embracing the future and the hope it holds.

Nour Lattouf
President of the Lebanese Innovators' Society (LIS)

MAJED ALAZZAWI / iCAN Committee Member

It is our absolute pleasure and honor to be sending this letter to you on behalf of our association, Bright Inventors – France to express the sincere happiness we feel on the launch of your inventors' competition in Canada "iCAN 2020", and to offer our heartfelt congratulations to have passed Five years now in the innovation domain.

During the last 5 years, Toronto International Society of Innovation & Advanced Skills (TISIAS) has shown remarkable courage in the preparation of very well-organized conferences and exhibitions that aimed at engaging local and international inventors in the Canadian market, and helping them promote their inventions.

We feel very comfortable to offer TISIAS our limitless support and collaboration to reach our common vision, and create a very developed atmosphere for the new inventors to realize their potentials. We wish you and all the participants the very best in presenting your achievements, and we are sure this year will be a spectacular one regardless of the world's sanitary crisis.

Congratulations again on your 5th anniversary! Looking forward to see TOP results!

Sincerely Yours,

Dr. Majed ALAZZAWI
President of Bright Inventors – France

EDDIE SHIH / Jury for Young Inventors

Congratulations to our dear friendly organization, Toronto International Society of Innovation & Advanced Skills (TISIAS) for reaching the 5th anniversary of iCAN in Toronto, Canada. The event has continuously grown since the beginning and the evolution will surely continue for the future under the profound leadership of Mr. Moonsuk Chang. We applaud you and your iCAN Team for all the effort and dedication. I can't wait to see all the beautiful paintings of your event in the future.

Eddie Shih
President
Taiwan Invention Intellectual Property Association (TIIPA)

ABDALBASIT IBRAHIM A. ABDALLA / Delegation of Sudan

I would like to congratulate the Mr. Moonsuk Chang, the organizer of iCAN, the Chairman of Toronto International Society of Innovation and Advanced Skills (TISIAS) for holding the 5th anniversary of the best event in Canada. iCAN has been an inspirational opportunity and networking platform for us representing Africa. Thank you for your valiant efforts to make iCAN possible.

Adbalbait Ibrahim Adam Abdalla
President of Smart Care Tech (SCT) – Sudan

Coronavirus does not stop iCAN 2020

The 5th edition of the International Invention Innovation Competition (iCAN 2020) will take place online to give visibility to hundreds of inventors from around the world.

An online showcase for the world's most brilliant minds: this is iCAN 2020. The event is now in its fifth edition. The organizers wanted to celebrate the anniversary without stopping in front of the Coronavirus emergency. Thanks to an impressive organizational effort, the entire event has been "transferred" online. In this way, the International Invention Innovation Competition (iCAN 2020) will take place in the best possible way and in complete safety. Genius minds from around the world will be able to present their prototypes and inventions to an international audience. A jury of experts will also evaluate projects to award gold, silver and bronze medals to the most interesting and innovative projects. All this in a simple and intuitive way, through a specially designed web platform. The organizers have managed to achieve the goal of reaching out to the global community of inventors most effectively and safely.

The Patent is a media partner of iCAN 2020. Our editorial staff is proud to support such a prestigious event and we would like to congratulate the organizers for the efficiency, precision and attention with which the event was programmed. We hope that this year's partnership can be the beginning of a common growth path aimed at enhancing the most brilliant minds of our time and spreading the culture of inventions.

Because behind every great invention...there is the Patent!

Editorial Director
Giovanni Sapere

GENERAL INFORMATION

TITLE OF EVENT

The 5th International Invention Innovation Competition in Canada, iCAN 2020

DATE

iCAN 2020 ***"The Preliminaries"*** | January 15 – July 15
iCAN 2020 ***"The Finals"*** | August 29

SPECIAL REMARKS

iCAN 2020 is conducted online for the long-distance mode participants without a physical gathering.

ORGANIZED BY

Toronto International Society of Innovation & Advanced Skills (TISIAS)

SUPPORTED BY

Innovation Initiative Co-operative Inc. "The Inventors Circle"
International Federation of Inventors' Associations (IFIA)
World Invention Intellectual Property Associations (WIIPA)

PARTNERS, DELEGATIONS & CONTRIBUTORS

Accent on Skills Consulting – Canada
AHA2RICH – Canada
Afghanistan Inventors Association (AIA)
Arabian Invention and Innovation Company (AIIC)
Association of Polish Inventors and Rationalizers (SPWiR)
Association of Thai Innovation and Invention Promotion (ATIP)
Bright Inventors Association - France
CANADA"IN" Student Exchange Agency – Korea/Canada
Citizen Innovation – Singapore
EUROBUSINESS-HALLER – Poland
Education University of Hong Kong
Egyptian Council of Creativity Innovation & Protection of Information (ECCIP)
First Institute of Canadian Inventors (FICI)
First Institute of Researchers and Inventors in I.R Iran (FIRI)
Foundation for Creativity in Agriculture, Science and Technology (FOCAST) – Nigeria
Hong Kong Student Invention Patent Program (HKSIP)
HOW Creative – USA
Highly Innovative Unique Foundation (HIUF) – Saudi Arabia
imMaker Education – Hong Kong
Indonesian Invention and Innovation Promotion Association (INNOPA)
Institute for the Promotion of Invention & Innovation (SANVIC) – Vietnam
International American University (IAU) – USA
International Invention & Design Leader Awards (IIDLA) – Korea/Canada
International Invention & Innovation Institute – Japan
INVENTARIUM SCIENCE – SRD Security, Research & Development – Portugal
Inventors Club of Georgia
Inventors College Organization (ICO) – Canada
Iraqi Inventors & Innovators Society (IIIS)
Junior Academy of Sciences of Ukraine (JASU) – UNESCO
Junior Achievement Moldova
Korea Invention Academy (KiA)
Korea Invention News (KINEWS)
Korea University Invention Association (KUIA)
Latin America Society for Science and Technology (SOLACYT)
Lebanese Innovators Society (LIS)
Lisbon Council for Peace, Tolerance, Innovation & Science – Portugal
Lodz University of Technology – Poland
"Lucian Blaga" University of Sibiu – Romania
Macao Innovation and Invention Association (MIIA)
Manila Young Inventors Association (MYIA) – Philippines
McGill University – Canada
Moscow International Salon of Inventions & Innovative Technologies (ARCHIMEDES)

Norton University – Cambodia
OFEED – Morocco
Ötlet Club 13 Egyesület – Hungary
Patent Magazine – Italy
Romanian Association for Alternative Technologies Sibiu (A.R.T.A. - SIBIU)
Romanian Inventors Forum (FIR)
Shun Tak Fraternal Association – Yung Yao College – Hong Kong
Smart Care Tech (SCT) – Sudan
Sri Lanka Inventors Commission (SLIC)
Swiss Korea Association (ASAMCO) – Switzerland
Taiwan Invention Intellectual Property Association (TIIPA)
Uncle Bugs Inventor Academy – Malaysia
Union of Arabian Academics (TUOAA)
Universiti Sains Malaysia (USM)
Universiti Tun Hussein Onn Malaysia (UTHM)
University POLITEHNICA of Bucharest – Romania
Vietnam National University
World Genius Convention (WGC) – Japan
YELIM INITIATIVE – Nigeria
Yahya Kemal College (YKC) – Macedonia

INTERNATIONAL JURY

Bob Huybrechts The Inventors' Circle / Co-Chairman of the Jury	**Howard A. Lim** HOW Creative / Co-Chairman of the Jury
Mike McFarthing The Inventors' Circle / Vice-Chairman of the Jury	**Andrei Victor Sandu** Romanian Inventors Forum / Vice-Chairman of the Jury
Otto Schmidt Accent on Skills Consulting / Inventors College Organization	**Amedeo Pozzebon** The Inventors' Circle / Deo Innovations
Petrică VIZUREANU Gheorghe Asachi Technical University of Iaşi	**Bugs Tan** Uncle Bugs Inventor Academy
Masoud Shafaghi International Federation of Inventors' Associations (IFIA)	**Babak Khodaparast** The First Institute of Canadian Inventors (FICI)
Pak Keong Lai Macao Innovation & Invention Association (MiiA)	**Sonny D. Valenzuela** Manila Young Inventors Association (MYIA)
Victoria Ramzy Habib Attia Invention Education Specialist	**Wagdy Rizk Ghali Rizk** Invention Education Specialist
Hok Ming Kwan The Education University of Hong Kong	**Phan Quoc Nguyen** SANVIC / Vietnam National University
Mihail Aurel Titu Lucian Blaga University of Sibiu	**Augustin Semenescu** University Politehnica of Bucharest
Majid El Bouzazzaoui OFEED – Morocco	**Leo Kim** Canada"IN' – Korea/Canada
Juhyeong Kil International Invention & Design Leader Awards (IIDLA)	**Eddie Shih** Taiwan Invention Intellectual Property Association (TIIPA)
Gihan Farahat Egyptian Council of Creativity Innovation Protection (ECCIP)	**Lucian Seiciu** University POLITEHNICA of Bucharest
Shahiron Shahidan Universiti Tun Hussein Onn Malaysia (UTHM)	**Mohd Salman Abu Mansor** Universiti Sains Malaysia (USM)
Mohammadreza Meymanat McGill University – Canada	**Dave Boyle** The Inventors' Circle
Erricha Insan Pratisi INNOPA – Indonesia	**Ma. Chat Donna V. Oflias** Manila Young Inventors Association (MYIA)
Lau Sai Chong Hong Kong Student Invention Patent Program	**Soung-Mo Hong** Korea Invention Academy (KiA)
Unchalee Sanguanpong Association of Thai Innovation & Invention Promotion (ATIP)	**Fernando Maldonado Lopes** Inventarium Science – Portugal
Michał Szota Association of Polish Inventors and Rationalizers (SPWiR)	**Adam Rylski** Lodz University of Technology – Poland
Mithona Luy Norton University – Cambodia	**Nidham Jamalludien** York University – Canada

ABOUT iCAN 2020 "THE 5TH ANNIVERSARY"

Year by year through 2016, 2017, 2018 and 2019, the International Invention Innovation Competition in Canada, iCAN has rose to the occasion to continuously improve and develop into a better version of event for its past 4 annual editions with a growing number of participants and countries each and every year. As a result, iCAN has evidently raised its positive reputation in the inventors' world to become the premier event of Canada. iCAN features 3 main programs: exhibition of inventions, educational seminars, and the award ceremony of the competition.

iCAN is the first international inventors' event ever held in Canada as a place of global exchange, festivity and recognition for all participating inventors, innovators and creators for their hard work and dedication towards creativity and innovation. The main goal of the event is to establish a special platform in Toronto, Canada to emerge the world's creativity and bring the invention and innovation exhibition culture to life by providing exceptional opportunities for participants to expand their international landscape of activities.

This year marks the 5th annual edition and iCAN celebrates its 5th anniversary. During its past 4 editions, iCAN has brought in participants from every corners of the world including North & South America, Europe, Asia, the Middle East, Africa, and Oceania. and has had the growing number of participants and countries year after year. Although the world situation this year limited the event to be held virtually, the 5th anniversary edition of iCAN has not been affected, but only have grown larger than any of its previous 4 editions due to the overwhelming interest from its participants.

THE PRELIMINARIES

iCAN 2020 *"The Preliminaries"* was open for a 6-month period of time from January 15 – July 15 where applicants registered to the competition by submitting their application forms by email. The Preliminaries served as the selection process for Gold, Silver and Bronze Medal Award Winners based on the jury's screen evaluation of the text/visual contents that the applicants have provided in their application forms to express their projects. The applicants were then proceeded to the Finals as Finalists. Proceeding to the Finals is an optional choice upon their decision to progress further in the competition.

THE FINALS

iCAN 2020 *"The Finals"* is the proceeding phase of the Preliminaries as the final stage of the competition where the Finalists are required to present their projects' video presentations for an additional evaluation by the jury for the additional opportunity to win the iCAN Awards of the Finals.

The Finals is a privileged stage that is exclusively offered for those who have passed the Preliminaries stage of the competition. All Finalists who decide to proceed to the Finals enjoys the benefits of the programs offered below. This year's iCAN 2020 "The Finals" will be progressed virtually and online through contents upload of the following items on August 29th:

THE FINALS ONLINE PROGRAM & CONTENT UPLOADS

August 29th @ 10:00AM (EST) – Toronto, Canada on <www.tisias.org>

1	iCAN 2020 "The Finals" Award Winners Announcement
2	Educational Seminar by Keynote Speakers (Howard A. Lim & Otto Schmidt)
3	iCAN 2020 "The Finals" Movie Showcase
4	iCAN 2020 Official Catalogue Online

AWARDS

* iCAN 2020 "The 5th Edition" features nomination of the following awards for the Finalists *

GRAND PRIZE		**SEMI-GRAND PRIZE**
TOP 10 BEST INVENTION AWARDS		**TOP 20 BEST INVENTION AWARDS**
BEST YOUNG INVENTOR AWARDS		**BEST WOMAN INVENTOR AWARDS**
BEST INVENTION VIDEO AWARDS		**BEST INVENTION DESIGN AWARDS**
ORGANIZER'S CHOICE AWARDS		**JURY'S CHOICE AWARDS**
TISIAS SPECIAL AWARDS		**INTERNATIONAL SPECIAL AWARDS**
GOLD MEDAL AWARDS	**SILVER MEDAL AWARDS**	**BRONZE MEDAL AWARDS**
ACHIEVEMENT AWARDS	**BEST DELEGATION AWARDS**	**APPRECIATION AWARDS**

iCAN 2020

LIST OF EXHIBITS

60 Countries in Participation for iCAN 2020 "The 5th Edition"

AFGHANISTAN

AF-01	NAME(S)	Ezatullah Qaderi
ORGANIZATION		Juzjan University
TITLE OF ENTRY		**Security system, checkpoints, water energy vehicle**

Security system could be used for provide security of offices, houses and other compounds. This system will alarm if anyone enter the compounds. It also connects with a smart phone and automatic make a call for police station. Vehicles stop checkpoints: this system will stop those cars and vehicles that are flew from checkpoints. Water energy vehicle: this innovation will changed water to hydrogen and oxygen and liquid will use generate fuel for car.

ANGOLA

AO-01	NAME(S)	Pedro António Queta
ORGANIZATION		Angolan Association of Inventors and Innovators
TITLE OF ENTRY		**ROAD ACCIDENT PREVENTION SYSTEM CAUSED BY SLEEP AND FATIGUE**

The driver's sleep is detained by means of a position sensor with the shape of an earpiece used by the driver during the period of when he almost contracts sleep, especially at night. Once the driver gets sleep, the driver's seat vibrates and an alarm is triggered to alert him. In turn, the system is also able to send an SMS to the owner in case of profession drivers, informing that the driver has contracted sleep and also informing the geographic location where it happened. This system also extends to individuals who contract sleep very easily, mainly to students.

ARMENIA

AM-01	NAME(S)	Boris Aghaian Moghadam
ORGANIZATION		N/A
TITLE OF ENTRY		**Multi Power Heating System(MPHS)**

MPHS is a result of 10 years of work and experiments. It's built based on the standards of fan coil with the difference that it doesn't have a powerhouse central system. So, it lowers energy loss and consumption tremendously, it works with electricity which is considered a clean energy source, and due to its unique design, it has a true COP of 3 and higher with the recent versions. We have also done some experiments using the same system in fresh produce drying machines and successfully decreased the energy use and time(by 1/8) and increased the quality. It is also very suitable to connect to solar systems since it gives the possibility to cut the amount of PV panels to 1/3 of the amount, which is the project I'm currently working on. So all its features together make the device a more efficient and environmentally friendly system.

AUSTRALIA

AU-01	NAME(S)	INV. VALIANT YUK YUEN LEUNG
ORGANIZATION		SYNERGISTIC TRAFFIC CONSULTANCY
TITLE OF ENTRY		**SYNERGISTIC RECONFIGURABLE TRAFFIC INTERSECTION**

SYNERGISTIC RECONFIGURABLE TRAFFIC INTERSECTION relates to any plane traffic intersection where allows over two or more roads intersect. A distal crossover zone that allows the right-turn and U-turn vehicles from the leftmost lane to crossover to the far side rightmost waiting lane/s. This provides the possibility for the centrally located straight forward and receiving lanes to be reconfigurable. Its reconfigurability and flexibility will meet most of the needs at any-time and any circumstance easily. And, independent bicycle flows are integrated harmoniously without disturbances to the traffic by providing a novel receiving lane and right hook-turn bicycle waiting islands. Therefore, only one phase traffic-tight for each road is needed which results in two phases for a normal cross intersection. Compare to the 4 phases conventional cross intersection, this invention will save two waiting red-light phase time as the red light and green light phase ratio falls from 3:1 to 1:1.

BAHRAIN

BH-01	NAME(S)	Ali Abdulla Ismaeel / Ali Jameel / Jenan Almarzooq
ORGANIZATION		Private
TITLE OF ENTRY		**SWIMMING POOL RESCUE SYSTEM**

Swimming pool rescue system is a system consisting of thermal and kinetic sensors that detect entrance of a living body to the pool. It also involves a mechanism that raises or lowers a rescue net by the use of a hydraulic system.

BULGARIA

BG-01	NAME(S)	Vladislava Ivanova / Natalia Toncheva-Moncheva / Olya Surleva / Kamelia Kostova
ORGANIZATION		University of Chemical Technology and Metallurgy / Bulgarian Academy of Sciences
TITLE OF ENTRY		**Comparative study of the influence of the microactivator on the physicochemical properties of biodegradables copolyester-amides**

We present the synthesis by anionic polymerization and our study on the physicochemical properties of biodegradable polyester amides (PEAs) consisting of poly (ε-caprolactam) (PCLA) and aliphatic polyester oligomers used as macroactivators (MA).The studied copolymers successfully combine the high mechanical properties of polyamides and the tendency to biodegradability of polyesters. The content and molecular weight of MA in the obtained copolymers varies (550, 1250 and 2000 $g.mol^{-1}$) in order to clarify the influence of the macroactivator on some physicochemical parameters such as density, compactness and molar volume. The results obtained for copolyesters with the same composition but with different percentages of copolymers were compared and the results were analyzed in order to clarify the dependence of the properties on the composition.

BG-02	NAME(S)	LYUDMILA ANGELOVA / STILYANA STOYANOVA / OLYA SURLEVA / NEZABRAVKA GENOVA / IOAN-HRISTIAN NEKOV / ANDRIANA SURLEVA
ORGANIZATION		University of Chemical Technology and Metallurgy
TITLE OF ENTRY		**Evaluation of Mehlich 1 and Bulgarian official method for determination of available potassium in Bulgarian agrarian soils**
Modern sustainable agriculture requires the development of fertilization programs according to the specificity of soils. The Bulgarian official method of available potassium, based on extraction with acetate-lactate reagent and atomic emission determination, is calibrated for Bulgarian soils, but is time consuming, laborious and needs expensive reagents. Mehlich-1 method, using a mixture of diluted strong acids, is fast, easy to perform and inexpensive. The two methods provide different information on the content of plant available potassium. The invention consists on the evaluation of analytical performance of both methods and development of a model equation for transferring the results between both methods.		

CAMBODIA

KH-01	NAME(S)	Dr. So Sokuntheary / Mr. Chuop Sopheak / Mr. Sao Manut / Mr. Kong Kimchhun / Mr. Chhorn Romdoulcheayden
ORGANIZATION		Norton University
TITLE OF ENTRY		**NU Website development to show the history of Sambor Prei Kuk temple**
Sambor Prei Kuk Website is the very first web development dedicating to Sambor Prei Kuk archaeological site which aim to help accessing all the informations rated to the site such as the geographical map of the temples, history, events, new archaeological discovery, photos and videos within the hands of the users.		

KH-02	NAME(S)	Dr. So Sokuntheary / Mr. Chuop Sopheak / Ms. Prem Vichika / Ms. Oem Davin / Thoeun Watanak
ORGANIZATION		Norton University
TITLE OF ENTRY		**NU the creation an App shows a lively sculpture of Sambor Prei Kuk**
The purpose of the project wants to create an App show a lively sculpture of Sambor Prei Kuk as a model for other temple like Angkor Wat or Bayon. The sculptures on the brick or sandstone wall represented of divinities in Hinduism, Buddhism or daily life of priest or people in ancient time. This App will help tourist understand the sculpture what Khmer ancestor wants to tell us.		

CAMEROON

CM-01	NAME(S)	WAM ELVIS MBVIUGEH
ORGANIZATION		FIRST MODERN AGRO. TOOLS COMMON INITIATIVE GROUP (FI.MO.AT.C.I.G)
TITLE OF ENTRY		**MULTIFUNCTIONAL SURGE PROTECTOR**
It is a protective device, protecting equipment from lightning and thunder, overheat, excess voltage, short circuits, overload, fire, variation on different voltages, and used as a maintenance tool in the industry and laboratories. Originality, climate conditions and human manipulations are factors to be considered during manufacturing of electronics. This multifunctional surge protector, like any other apparatus is fabricated in the republic of Cameroon with passion for quality and to satisfy the above mentioned conditions.		

CM-02	NAME(S)	TCHAKOUTE COLBERT
ORGANIZATION		AFRICA FEDERATION INVENTORS
TITLE OF ENTRY		**Automatic disconnector of the coaxial cable or TV cable (TV antenna) of the television set or decoder**
TCHAK'S TV GUARD is a solution that allows in several situations to automatically disconnect the tv cable or coaxial cable (tv antenna) from the TV or the decoder; to ensure optimal protection of televisions or decoders against lightning during thunderstorms		

CANADA

CA-01	NAME(S)	PHILIP HA
ORGANIZATION		The Nationalux Research Center
TITLE OF ENTRY		**The music player that converts stereo to produce surrounding sound in all AR environment**
AR music service platform can recognize album covers, posters, QR code and other images through mobile or Microsoft HoloLens as well as analyze downloaded or streamed mp3 frequency to deliver a more powerful and spectacular sound than previous stereo files. The platform can upmix the files to various audio signals like the 5.1-7.1 channel and distinguish the direction, volume and time-lag of files.		

CA-02	NAME(S)	Avia Annemarie Lee / Anthony Alphanso Lee
ORGANIZATION		The FlipNDrip Server™
TITLE OF ENTRY		**The FlipNDrip Server™ : Combined Salad Bowl Drainer**
The FlipNDrip Server™ is a 2-tiered bowl serving system consisting of a solid bowl and a strainer. The design is light weight, fun, and easy to use. Great for home, cottage, camping use and more. The FlipNDrip Server™ makes rinsing, straining and drip-drying of foods, sink optional. Never reach for another bowl when making salads or pasta dishes. The FlipNDrip Server™, with its easy locking mechanism, allows bowls to lock in place and rotate 360 degrees. Simply flip, drip, and serve food in the FlipNDrip Server™. This creative, next generation product helps home cooks as well as food service professionals reduce both food waste and time to prepare fruits, salads, vegetables and pastas with ease and convenience.		

CA-03	NAME(S)	Mohsen Mohammadi / Abbas Salimi
ORGANIZATION		N/A
TITLE OF ENTRY		**Roboknotter a Carpet Weaving Robot for producing Hand-knotted Carpets**
Hand-knotted carpets are considered as a luxurious product in the furniture industry. However, the production of the carpets mentioned above is time-consuming and costly. Moreover, the weaving procedure involves difficulties and may bring health issues for the weavers. Our proposed robot, which is called Roboknotter, imitates the hand-knotting operation, which is done by weavers in a much more convenient way. Our novel robot would bridge the gap between handmade and machine weaved carpets by aiming unique techniques. The produced carpet by Roboknotter has the delicacy and elegance of a handmade carpet while the weaving procedure is quick and accurate.		

CA-04	NAME(S)	Amedeo Pozzebon
ORGANIZATION		Deo Innovations
TITLE OF ENTRY		**P-Trap with Double Clean-out**
This new 90-degree P-trap allows inserting an auger to clean the drainage pipe directly into the horizontal portion. A much faster and cleaner process, thereby reducing labour time and costs.		

CA-05	NAME(S)	Amedeo Pozzebon
ORGANIZATION		Deo Innovations
TITLE OF ENTRY		**Undersink Dishwasher "T-Wye"**
A combination plumbing T-Wye piece that simplifies the installation of the double undersink dishwasher hook-up. Not only saving on time and labour, but also reducing the cost from having to purchase 2 or 7 pieces, down to just 1 piece.		

CA-06	NAME(S)	Amedeo Pozzebon
ORGANIZATION		Deo Innovations
TITLE OF ENTRY		**Deburr Power Reamer**
Allows quick power deburring inside and out with a durable, reversible tool.		

CA-07	NAME(S)	Dennis Meharchand
ORGANIZATION		Valt.X
TITLE OF ENTRY		**Valt.X Cyber Resilience Solutions**
Valt.X is a Next Generation Cyber Resilience and Security Company. We have developed Software and Semi-Conductor based products to cybersecure endpoint computers with absolute certainty. Our products eradicate or neutralize 100% of attacking malware from all threat vectors including zero-day attacks and advanced persistent threats - keeping your computer systems safe and malware free.		

CA-08	NAME(S)	Luis M. Duarte
ORGANIZATION		Innovation Initiative Co-operative Inc. "The Inventors Circle"
TITLE OF ENTRY		**"Rockit" Single Foot Skate**
Active transportation, powered by human energy, This innovation is a single foot skate that allow better control when riding and easier to carry. Uniquely designed to wear over shoes with footrest on back to place pushing foot, once desired speed is achieved. Low to gravity, compact and ambidextrous, the Rockit Single Foot Skate is easy to learn to ride. Gets you from point A to B faster. Versatile uses. Ideal for urban settings. No batteries required.		

CA-09	NAME(S)	Larry Erb
ORGANIZATION		Innovation Initiative Co-operative Inc. "The Inventors Circle"
TITLE OF ENTRY		**Monumental Display**
Monumental Advertising is much more than the latest and greatest in Advertising innovation. Our business model is designed for our communities. Can buildings be re-purposed? Our Digital Video Print technology can transform more than a building. Do you think a building can have even more value than what meets the eye? AdEvent Advertising on our Remote controlled digital video print displays for store fronts and buildings. The Outernet Paradigm Shift in marketing to drive traffic to website from locals just around the corner.		

CA-10	NAME(S)	Glen Hammond
ORGANIZATION		Innovation Initiative Co-operative Inc. “The Inventors Circle”
TITLE OF ENTRY		LAVA ROCK GRIDDLE
The LAVA ROCK GRIDDLE consists of a container or tray made from heavy gauge aluminum, copper, stainless steel, tungsten or titanium all of various gauges filled with a measured amount trap rock (approximately 5/8” deep). It could also be filled with a number of other compositions of matter with heat-transfer capabilities, including refractory cements or mixtures thereof. It makes BBQing safer and turns your BBQ into an oven.		

CA-11	NAME(S)	Dick Crawford
ORGANIZATION		Innovation Initiative Co-operative Inc. “The Inventors Circle”
TITLE OF ENTRY		PKA SoftTouch Mirco-Needle
The PKA SoftTouch Micro-Needle addresses the increasing need to administer drugs in a painless, safe, cost-effective and easy-to-use manner. It is the only effective device that lets you inject into the skin layers where there are no nerves and therefore no pain. PKA is ready to commence clinical trials and then license our unique, proprietary device, replacing traditional syringe delivery.		

CA-12	NAME(S)	John Golbalakh
ORGANIZATION		Innovation Initiative Co-operative Inc. “The Inventors Circle”
TITLE OF ENTRY		New Revolutionary Asphalt
This newly formulated asphalt melts snow or ice and does not need to be plowed! When regular asphalt is 0 to -5 c snow and Ice builds up and or stays on top of the asphalt. With our combined formula added to asphalt, in the same condition, there is no buildup of snow or ice and does not stay on the surface of the asphalt. At -5c or greater the asphalt with our formula will freeze. If for example the condition goes from -10 down to -5 or less, at the -5 point the snow and ice will melt or not stay on top of the asphalt with our formula. Our invention can save human life in winter time, save government and insurance money, create multi-billions dollars in Canada and multi-trillion dollars around world, and create multimillions permanent job around the World!		

CHAD

TD-01	NAME(S)	OSMAN MOHAMED OSMAN MOHAMAD
ORGANIZATION		MEDICAL STUDENT AT UNIVERSITY OF ELIMAM ELMAHADI
TITLE OF ENTRY		Comprehensive Smart Waste Disposal System (CSWDS)
It is a home electronic device that takes care of a kidney patient, examining kidney functions with high accuracy, easy way, simple time, providing advice to the patient, monitoring his condition continuously, and reporting in the event of an emergency.		

CHINA

CN-01	NAME(S)	Guangzhou Dong Xin Biotechnology Co., Ltd.
ORGANIZATION		Guangzhou Dong Xin Biotechnology Co., Ltd.
TITLE OF ENTRY		RIHAN’S RENAL PATIENTS HOME DEVICE
PLANT PUNCH FRUITS AND VEGETABLES FERMENT POWDER is a gut care probiotic product that integrates probiotics with ferments of fruit and vegetables. The probiotic ingredient, Lactobacillus plantarum, helps the reduce the absorption of fats, improve fat metabolism and achieve weight control. The ferments of 88 kinds of fruits and vegetable helps enhance the antioxidative and anti-inflammatory capacities of the body and accelerate the discharge of body waste. Also, the effects of the product are boosted with the content of 3 types of prebiotics, which help improve bowel movements by promoting the growth of probiotics in the gut.		

CN-02	NAME(S)	Han, Yu-Xiao
ORGANIZATION		Lan ting ji (zhejiang) trading Co., Ltd.
TITLE OF ENTRY		Yuyingtang-Collagen Peptide Drink
This product is added with patent winning raw material and small molecule Pisces collagen peptide for easy absorption, repair damaged cells, supplement collagen, maintain skin moisture, elasticity, smooth fine lines; At the same time, antioxidant ingredients are added to enhance immunity, so pregnant women and breast milk period can be safely drunk.		

CN-03	NAME(S)	Shanghai HOCY Biotechnology Co., Ltd.
ORGANIZATION		Shanghai HOCY Biotechnology Co., Ltd.
TITLE OF ENTRY		Cod Collagen Enzyme Drink(Orange Soda Flavor)

HOCY Cod Collagen Enzyme Drink, with a sweet and sour taste like orange soda, contains a high concentration of K collagen (cod collagen sourced from Canada). Experiments have confirmed that K collagen encourages the growth of type 1 and type 3 collagen. Type 3 collagen, found at high levels in babies' skin, allows an increase in skin hydration by up to 9.8%. Besides, the product, with the infusion of the special AKK Formula, promotes the growth of Akkermansia muciniphila in the intestines, and helps control weight because the metabolites of Akkermansia muciniphila can suppress appetite and reduce fat storage in the body. The Drink also provides nutritional support and increase metabolism with the patented O'Young® Broccoli Sprout and high-quality soy peptides and helps weight control with TCI Musicalzyme, made from fruits and vegetables with antioxidant capacities through a special fermentation process and confirmed by research to help lose weight and increase fat metabolism. As a whole, HOCY Cod Collagen Enzyme Drink is a functional drink that has antioxidant power, helps discharge body waste, and improves skin condition.

CN-04	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		Golden berry extract

TCI is committed to protecting the environment while developing raw materials. The Golden Berry Extract is made from the golden berries carefully selected from the local eco-friendly farms at 10,000 feet above sea-level in Peru. With the exclusive extraction technique, TCI has enhanced the antioxidative capacities of golden berries, which effectively helps reduce skin cell damage, maintain the integrity of the stratum corneum and preserve youthful and fine skin.

CN-05	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		Solanum Muricatum Ferment

Free radicals and AGEs in the body accumulate with age, which causes more wrinkles. To help maintain youthful skin, TCI has developed the Solanum muricatum Ferment made from the carefully selected Solanum muricatum grown at 3000 meters above sea level in the Andes Mountains. Solanum muricatum are considered to help retain eternal youth by the locals. TCI, to unveil the anti-aging secret in the precious fruit, used the patented “3-Stage Fermentation Technique” to refine substances in it and successfully discovered that fermented Solanum muricatum helps promote the secretion of glutathione, increase the expression of anti-aging genes to delay aging. On the other hand, when the skin is exposed to sunlight, the main source of UV radiation, the cells will be stimulated to produce melanin to darken the skin, and the Solanum muricatum Ferment can inhibit melanin production more effectively than kojic acid, which is commonly used in brightening skin care products today.

CN-06	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		AKK Formula

More and more studies have proven that the intestinal microbiota has a direct influence on the host's weight. According to the latest findings, one's weight is highly positively correlated to the number of Akkermansia muciniphila in his or her intestinal tract. It has been confirmed by animal experiments that Akkermansia muciniphila in the intestinal tract has three major health effects: suppressing the appetite of the host, increasing the rate of fat metabolism, and lower high blood sugar levels. By increasing the number of Akkermansia muciniphila in the gut, obesity caused by a high-fat diet can be reversed, and insulin resistance can be prevented to maintain or lower the blood sugar levels. According to TCI's research, by adjusting the proportion of specific probiotics to fermented materials, the gut environment for Akkermansia muciniphila to grow can be optimized; simultaneously the weight, body fat percentage, and waist circumference can be reduced. Based on the research, TCI has developed the AKK Formula, which, infused with prebiotics that encourages the growth of Akkermansia muciniphila, helps consumers successfully lose weight.

CN-07	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		TCI Probiotics Complex

“One of every three people may suffer from constipation.” To solve constipation, the causes of constipation must be found out first. Based on numerous scientific studies, TCI has determined 5 major causes of constipation. To eliminate these causes, TCI research team has developed TCI Probiotics Complex, a probiotic formula using 5 types of probiotics with different health effects, including forming prebiotics in the gut, accelerating bowel movements, inhibiting the growth of E. coli, a “bad” bacterial strain, and increasing stool bulk. TCI research team has discovered that blending these 5 types of probiotics allows them to grow better in the gut and provides exceptional health-beneficial effects. TCI Probiotics Complex is a high-efficacy product specially designed to help solve constipation.

CN-08	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		**TRILLION PROBIO™**

TRILLION PROBIO™ is TCI's patent-pending technology using which the number of probiotics in each sachet is increased to more than 1 trillion and health effects of probiotic products can be enhanced. To maintain the quality and stability of the probiotics, the humidity levels and temperature in the manufacturing process are strictly controlled so that the number of probiotics in each sachet remains more than 1012 in 2 years in frozen storage. TCI has developed multiple probiotic products with special effects, such as skin care and weight management. TCI aims to create high-efficacy products with the technology to increase the number of probiotics and achieve better effects.

CN-09	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		**Synergene®**

Synergene®, developed by TCI 9 Labs and Strategic Intellectual Property Team, is TCI's exclusive technology used in the development of product formulation. The technology can be used to screen out the highly effective formulation of specific combinations among hundreds of natural substances. Using the technology, TCI aims to create more and more unique high-efficacy formulas as well as enhance the efficacy and commercial value of existing products for our customers.

CN-10	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		**Tamarillo Extract**

Wearing contact lenses for long periods of time may cause a lack of oxygen supply to the cornea and an abnormal increase in the number of blood vessels, which leads to red eyes. To help protect the eyes, TCI has developed Tamarillo Extract made from tamarillos with strong anti-inflammatory and antioxidant capacity. Called "Ruby of the Andes Mountains, tamarillos have been confirmed to contain lycopene 7 times as much as common tomatoes and β-carotene twice as much as carrots. Using its unique technology, TCI has successfully extracted from tamarillos all the active ingredients, which have been discovered to help relieve eye discomfort by inhibiting the expression of genes related to visual impairment and preventing an abnormal increase in the number of blood vessels caused by a lack of oxygen supply to the eyes.

CN-11	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		***Lactobacillus salivarius* TCI153**

Edible bird's nests are regarded as a rare and prized delicacy in Chinese culture, for the special active compounds contained in the edible nests have exceptional effects on the brain growth of babies and young children, the metabolism, and the skin health. However, the harvesting of edible bird's nests can pose a cruel threat to the survival of birds. Thus, instead of harvesting the nests, it is crucial to find ways to obtain the active compounds in edible bird's nests while avoiding causing damage to the nature. With efforts, TCI research team has discovered that the special bacterial strain TCI153 can, in the intestinal tract, generate sialic acid, which is rich in swiftlet saliva used to make edible bird's nests and that the amount of sialic acid generated by TCI153 in 24 hours' equals to that contained in 7 bottles of common edible bird's nest drink. It has been confirmed that 8 weeks of the intake of TCI153 can increase the sialic acid content in the blood by more than 3 times, which helps boost the skin's radiance and reduce wrinkles. By building up an intestinal environment where sialic acid is generated endlessly, TCI153 can retain youthfulness in the skin.

CN-12	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		***Streptococcus thermophilus* TCI633 (HA Pro-genesis®)**

The content of hyaluronic acid in the body drops rapidly after the age of 25, which causes wrinkles and the loss in skin elasticity. Extracting the special lactic acid bacterial strain, TCI633, from human breast milk, TCI discovered that the strain makes the culture medium viscous, and through analysis and identification, it was confirmed that the viscosity was due to the content of high-purity hyaluronic acid in the culture medium. Based on the finding, TCI also performed a IRB-approved clinical study. According to the study, after the intake of TCI633 for 28 days, the concentration of hyaluronic acid in the blood and the skin hydration were significantly increased and wrinkles were greatly reduced in the subjects. TCI633 is the first probiotic strain that generates hyaluronic acid endlessly in the intestinal tract and thus helps restore beauty from inside out.

CN-13	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		**IDOL Ferment**

"Keep excessive water away and say goodbye to edema." TCI IDOL FERMENT is made with 3 natural ingredients carefully selected by TCI. TCI, using the patented 3-stage fermentation technology to improve microbial growth, has successfully increased the total polyphenol content in the product by up to 10 times. TCI's research has shown that the urine amount can be increased to 40% in 4 hours after the intake of TCI IDOL FERMENT, confirming that the product helps speed the removal of excessive water in the body. After 8 weeks of intake, edema of lower limbs and feet can be effectively improved; also fatigue and coldness in hands and feet can be greatly reduced. TCI IDOL FERMENT helps boost the immunity, increase the expression of anti-aging genes, maintain normal body functions, eliminate edema, and achieve a slim body shape.

CN-14	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		**double 2 NUTRI®**

TCI's exclusive liposome encapsulation technology, double 2 NUTRI®, allows highly stable encapsulation of active ingredients in both a water and oil phase. Using the technology, exceptional stability can be achieved to avoid oil-water separation. Moreover, through a high-pressure homogenization process, the particle size of the active ingredients can be reduced to micron level. Compared to the liposome with large particle sizes commonly seen on the market, the size of the liposome produced through TCI's technology is reduced to 1-4 μm, which greatly increases the bioavailability of the active ingredients. The vitamin C treated with the double 2 NUTRI® technology has been confirmed in clinical trials performed by National Taiwan University Hospital to achieve a higher absorption rate compared to untreated one and stay in the human body for 8 hours to achieve a sustained release and better utilization in the human body.

CN-15	NAME(S)	TCI Co., Ltd.
ORGANIZATION		TCI Co., Ltd.
TITLE OF ENTRY		**LipoButy®**

TCI is an expert in skincare solutions with 38 years of experience and research on various skin types across 55 countries. We have discovered the secret to beauty within each highly effective drop, active transportation efficient penetration. First, the small particle size accelerates transdermal delivery of the formulation beyond the skin's outer layer. The liposomes are so small that there are one trillion liposomes per every drop of formulation. Next, the liposome structure mimics the property of the skin membrane, and works as the delivery vehicle for driving active ingredients even further into the skin. Finally, the liposome's phospholipid bilayer encapsulates the entire formulation and protects the active ingredients from being damaged or lost during delivery. LipoButy® is TCI's patented technology. Liposomes are extremely efficient skincare solution for number of reasons. For differences that you can see and feel.

CN-16	NAME(S)	TCI GENE INC.
ORGANIZATION		TCI GENE INC.
TITLE OF ENTRY		**QVS-96, the fully automated detection integration system**

TCI GENE INC. has turned its first-generation DNA detection device into a fully automated device 3.0 for automatic nucleic acid extraction, micro-dispensing and genetic testing. With expanded uses and capacities, it can detect various epidemic viruses through module conversion. Based on automated device 3.0, TCI has further developed QVS-96, the world's first fully automated virus scanner operated by robotic arms to load the corresponding codes of the specimens, which can prevent mismatches between test results and specimens caused by human error. After specimens are handled, they are tested in a fully automatic, unmanned, and zero-pollution environment with the qPCR detection technology with an accuracy rate of 99.99%. The test results of 96 specimens can be obtained in 50 minutes to achieve 24/7 comprehensive monitoring. With the accurate testing technology, the spread of COVID-19 can be prevented.

CN-17	NAME(S)	Kunyu Li / Ruoyun Fang / Fangyu Liu / Yushan Liao / Zhentao Ma
ORGANIZATION		Chengdu Foreign Languages School
TITLE OF ENTRY		**Automatic Body-turning System**

There's a huge group of people who can only stay in beds for a long time due to bedsore all around the world. They are unable to move unattended, result in long backlog of back or buttocks and form serious chronic wound pressure sores. Therefore, we invent a pressure ulcer assisted turnover system based on experiences of the wound specialists and the information dozens of patients to help patients turn automatically. The system is mainly made of 4 air cushions(airbed), pressure sensor, gas diverter and air pump. It has the characteristics of automation, real time, convenience and low cost.

CN-18	NAME(S)	Guangzheng Yu / Yingtong Zhou / Qizhou Xie / Xinryu Yang
ORGANIZATION		Chengdu Foreign Languages School
TITLE OF ENTRY		**Community Water Resource Recycling System**

We will connect the various drains in the community to our purification system. For different kinds of domestic sewage, we put them into different pipes for purification.

CN-19	NAME(S)	Liu Xinglengyue / Shi Yiling / Qi Mengyao / Fang Yuyue / Hu Taijie
ORGANIZATION		Chengdu Foreign Languages School
TITLE OF ENTRY		**Keep Singing**

Wearing this mask, you can sing to your heart's content, you can hear the accompaniment, but when you sing, only you can hear, the outside cannot hear, because the mask has the function of noise reduction. You can walk down the street and enjoy singing alone as much as you want.

CN-20	NAME(S)	Cheng Zihan / Gou Wenxi / Han Yutong / Ren Xuan / Zhao Yijia / Zuo Huidan
ORGANIZATION		Chengdu Foreign Languages School
TITLE OF ENTRY		**Magic Comb Box**
Our invention is called Magic Comb Box. The invention uses the principle of a vacuum cleaner to help people who are prone to hair loss to achieve the goal of cleaning the hair on the comb. We basically invented this machine to help people deal with the problem that combs are easy to get dirty and difficult to clean. And our invention not only keeps the comb clean, but also brings convenience for storing trinkets while still being portable and beautiful.		

CN-21	NAME(S)	Gou Wenxi / Ren Xuan / Sun Bei / Zuo Huidan
ORGANIZATION		Chengdu Foreign Languages School
TITLE OF ENTRY		**Special Multi-person Earphone**
The invention is a special type of earphone, in which a earphone jack is added to the ordinary earphone to insert another earphone (or headphone) , so that the sound used to come from one earphone can come from two connected earphones (or one earphone and one headphone that are connected). If everyone had such an earphone, music that could only be played through one earphone could be quietly shared by 10, 20, or even more people through connected earphones.		

CN-22	NAME(S)	Ji Muyan
ORGANIZATION		Hepingli No.4 Primary School
TITLE OF ENTRY		**The prototype of automatic bird feeding table w'iith the image recognition**
On the one hand, the invention works can observe various birds clearly from a long distance without disturbing, clearly observe the shape, appearance and gait of birds, etc., collect information for bird big data, and can also automatically feed, and can According to the image recognition, the bird species can be classified and fed, and there are three built-in bird food feeding cabins. The invention has built-in clever mechanical structure and built-in automatic treatment of residual bird food and remote water level monitoring system.		

CN-23	NAME(S)	Infinitus (China) Company Ltd.
ORGANIZATION		Infinitus (China) Company Ltd.
TITLE OF ENTRY		**LI MAI JIAN™ pressed candy for joint health**
Infinitus LI MAI JIAN™ pressed candy, is a joint health care product with dual patent formula, which can relieve joint discomfort and maintain joint health. The product designed by using the pioneering golden triangle technology "Dredge-Smooth-Repair": Choose Coix seed, Pueraria, 'JointpepTM'a Self-developed joint peptide and Turmeric, to protects joint cartilage and inhibits arthritis symptoms.		

CN-24	NAME(S)	Assoc. Prof. Wai-kit Ming / Li Zhang / Menghua Huang / Yee Man Lam / Yan Lee
ORGANIZATION		Jinan University, Guangzhou, China
TITLE OF ENTRY		**Dr. Height**
Dr. Height is an app that screens the growth and development problems of infants, toddlers, and children. It provides instant and accurate health services for their parents, including development assessment, nutrition tracking, and medical advice reminders. By utilizing artificial intelligence (AI) technology, which compares the data entered by parents to the existing database, Dr. Height gives them advice based on clinical pediatric guidance. The app uses a cutting-edge, innovative approach to provide personalized childcare guidance. Compared to last year, this year, we have added new criteria for judging the development of children.		

CN-25	NAME(S)	Assoc. Prof. Wai-kit Ming / Zonglin He / Kit-shing Ho / Yau Fu / Haohan Zhang
ORGANIZATION		Jinan University, Guangzhou, China
TITLE OF ENTRY		**"Preg-energy" — an AI-based exercise guidance APP during pregnancy**
"Preg-energy" is an artificial intelligence-based exercise guidance APP specifically for pregnant women. With the convoluted neural network trained using the pre-collected data, this project take into account the vicinity of the pregnant woman's living environment, and the current physical condition of the pregnant woman, and thus help the pregnant woman formulate appropriate exercise routes and exercise plan with personalized real-time accurate professional exercise guidance. At the same time, real-time monitoring of pregnant women's physical conditions through wearable devices, such as: heart rate, blood sugar, blood pressure, etc. can be recorded.		

CROATIA

HR-01	NAME(S)	Galla Uroić, mag.ing.min. / Želimir Veinović, Ph.D., Professor
ORGANIZATION		Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb
TITLE OF ENTRY		**Improvement of the numerical analysis model of thermo-hydro-mechanical effects in host rock for spent nuclear fuel repository**

Impact of the excavation damaged zone (EDZ) within the rock material is included into numerical model of thermo-hydro-mechanical effects in a host rock of the spent nuclear fuel repository. EDZ created during the construction of underground spaces represents significant problem, and if integrated into numerical analysis it results with a much more accurate simulation (quantitative and qualitative), which will contribute to safety and functionality of future repository.

HR-02	NAME(S)	KARLA BRSTILO
ORGANIZATION		DIATUS
TITLE OF ENTRY		**SUPER CLOTHES PEG**

Body is made of single piece. It has three prongs that are slightly curved outwards at the end. Simple product that can be used in many ways and in different areas. Single piece, light weight, no rust, UV resistant, three points of pressure, no trace on clothes, less ironing, better performance in windy condition due to low profile. The design and light weight of this product makes it easy to market. Improvement in design and quality will result in strength and durability of final product.

CYPRUS

CY-01	NAME(S)	Dr. Catherine Demetriades
ORGANIZATION		"CATATRIX"
TITLE OF ENTRY		**Autizmo**

A robot prototype that is able to dissect and understand conglomerations of masses in biophysical computational thought processes that build up and are unreadable by humans. It can dissect straightforward behaviours as well as confusing complex ones. The subatomic particles which carry out genetic commands used to be undetectable with microscopic technology and hadn't reached the stage where it can find, much less decipher, the automatic emotional blueprints programmed into the DNA-RNA. Autizmo is the breakthrough in Quantum Robotics and solves problems consistently and will do as much as it's master commands.

EGYPT

EG-01	NAME(S)	Omar Ahmed Abd Elshafi Ahmed Mohamed / Abd El-Rahman Galal Abd El-Rahman Mohamed
ORGANIZATION		Suez Advanced Technical and Industrial School
TITLE OF ENTRY		**Dumb Person Speaks !!**

We help people with disabilities, especially who can't speak. We work on treatment brain waves and sign language into voice. The first axis is receiving the brain waves which generated by thinking by device like headset which equipped with electrodes to measure the change in difference voltage between neurons and after that the signal transfer to the circuit of amplifying and filtering and finally to processing circuit which understands the signals. The second axis is a smart glove translates sign language movements into an electrical signal that we can control. Finally the device will speak the word in speakers.

EG-02	NAME(S)	Abanob Hany Najib
ORGANIZATION		Sohag Mechanical High School
TITLE OF ENTRY		**Prostate cancer treatment extract**

Pomegranate peels and pomegranate bark on the Crostenic substance that inhibits the enzyme that activates cancer cells, especially prostate cancer. Pomegranate peels also contain insulin, which is an anti-oxidant and also contains gallic acid, which is very important in fighting prostate cancer. Evidence confirmed the effectiveness of the drug, where pomegranate husk extract was used at 70% and pomegranate bark extract at 30%.

EG-03	NAME(S)	Yasmin ahmed sayed ahmed / Yasmeen Mohamed ehsan Ebrahim
ORGANIZATION		Suez University
TITLE OF ENTRY		**Waste power**

This research attempts to solve the energy crisis and the problem of accumulation waste. Recently, the technology of converting plastic waste into fuel has been emerged by a process called pyrolysis. But this technique has faced many problems. So we designed a new reactor to solve these problems In addition to treats two types of waste (plastic and agricultural) and extracts energy from them. This reactor does not depends on using electrical energy to complete the process, treats the problem of PVC pyrolysis by 80% and The use of a new catalyst led to increase the efficiency of fuel produced.

EG-04	NAME(S)	Salma Mohamed Allam Ahmed
ORGANIZATION		Tarek ibn ziad experimental language school
TITLE OF ENTRY		**Cancer Treatment using immunotherapy**

Immune checkpoint inhibitors are proving to be an efficient therapeutic approach in an exceedingly reasonably cancers with an objective response rate of 40–45%. But despite the clinical success of antibodies against the immune regulators CD152 and CD274 /CD279, only a subset of people exhibit permanent responses, and cause Autoimmune diseases, indicates that a broader view of cancer immunity is needed, Natural immunomodulators can obtain continuous immune activation are urgently required for the prevention of various diseases,Vstm3, an ICIs widely expressed on NK cells, activated T cells and Tregs, has been involved in delivering inhibitory signals through the interaction with CD155.

EG-05	NAME(S)	Ali Abouzaid Ali Mohamed
ORGANIZATION		Pioneer's Private School
TITLE OF ENTRY		**Civil protection robot with artificial intelligence**

The idea of a robot depends on artificial intelligence so that the robot can differentiate between the terrorist person and the real person which is a database loaded on a server connected to the robot as soon as the appearance of certain people begins to search the databases.

EG-06	NAME(S)	Muhannad Khaled Zaki Rabie / Mohamed Khaled Abdel monem
ORGANIZATION		Menofia STEM School
TITLE OF ENTRY		**Insulin Paradox**

Diabetes is the one of the most diseases people suffer from. About 9.7% of people suffer from diabetes. Diabetes cause because the immune system attacks the insulin produced from pancreatic beta cell in type 1 diabetes. But in type 2 diabetes, the pancreatic beta cell produces no or produce little insulin that is not enough. About 95% people suffer from type 2 diabetes and it may to progress in lots of diseases and risks like pancreatic cancer, heart diseases ….and others. In type 2 diabetes, the pancreatic beta cell is not active and produce no or not enough insulin. But can we return it active again? Yes, we can use the ultrasound wave. Our researches showed that ultrasound waves cause the beta cell to produce the insulin again. As we use a device called ultrasound transducer made from group of piezo electric cell. Ultrasound transducer produce sound energy that is converted to mechanical energy through beta cells in pancreas and enable it to produce insulin again.

EG-07	NAME(S)	Mohamed Faisal Abdelmaksoud Mohamed
ORGANIZATION		Faculty of Pharmacy, Alexandria University / IQVIA
TITLE OF ENTRY		**Timer Technique**

Timer technique is an innovative technique that help Alzheimer patients who have difficulties to remember how many pills they take every day so it help to avoid toxicity and overdose and at the same time it help them to avoid disease progression if they didn't take their pills on time.

EG-08	NAME(S)	Mahmoud Ahmed Abd-alla Ahmed
ORGANIZATION		Gamal Abdul Nasser Secondary School
TITLE OF ENTRY		**Generating electricity from a closed electric cycle**

the water supply of electricity from the battery begins to rotate It moves to the water placed inside the water above the water and moves the water inside it and generates from the movement of water electric energy from the way dynamos placed on the sides of the pot that removed the roller of rotation from it and converted it into blades to match the movement of water and transfer electricity to the shipping regulator who It organizes the charging of the battery to ensure the re-operation of the device in case of its suspension and supply the electric inverter with continuous current to turn it into a AC that complies with the requirements of the electric house and provides the motor inverter with electricity to continue to work.

EG-09	NAME(S)	Mohamed saad salem eissa
ORGANIZATION		Higher Education
TITLE OF ENTRY		**A central processing unit that converts factory waste into renewable energy**

A model for a centralized treatment unit that works to convert the commoners of factories into renewable energy as it depends on the exploitation and utilization of industrial waste coming out of exhausts such as factory and automobile exhausts in converting the least amount of heat possible to get electricity and separate gases and transfer them to a dry carbon powder

EG-10	NAME(S)	Nurhan Nassr Marey Ahmed / Fatma Mostafa Mohammed Kamel
ORGANIZATION		Faculty of Engineering at Suez University
TITLE OF ENTRY		**New harvesting….More Algae**

This research attempts to find a way to harvest algae, which is one of the most important natural resources to meet the human needs of energy, food, and others. Algae is used to produce diesel, vegetable fertilizers, cosmetics, nutritional supplements. It was recently used in cancer treatment. Methods for harvesting algae are expensive and efficient, and the most efficient centrifuge, but the device is mechanically complex and expensive. We created a device that helps reduce costs and increase efficiency by simplifying the shape and reducing the stages, and the water is separated from the biomass in one stage.

EG-11	NAME(S)	Yasmeen hisham abd-alrhman / Basmala basem farouk
ORGANIZATION		American diploma school / alarkam school
TITLE OF ENTRY		Detection of Iron In Urin
Increasing the level of iron in the blood has multiple problems, namely nausea, desire to vomit, poor absorption of iron and concentration of iron in the blood resulting from food poisoning and an increase in the multiplication of red blood cells resulting from the multiplication of hemoglobin. Hemoglobin is a protein complex containing iron found in red blood cells that are 120 years old Almost a day, red blood cells disintegrate in the spleen or during their period of rotation, where hemoglobin breaks down to its original components, including iron, as it enters new red blood cells that form in the bone marrow, giving the blood its red color and working to transport oxygen and Carbon Dioxide and nitric oxide.		

EG-12	NAME(S)	Abdelaziz Yehia / Aser Attia / Mustafa Eldmerdash / Abdelrahman Ali / Anas Saleh
ORGANIZATION		STEM High School For Boys – 6th October
TITLE OF ENTRY		PlaNana
Plastic segregation remains the limiting factor in plastic recycling due to the lack of automated, accurate sorting mechanisms. It is still performed by manual sorting, which is costly, slow, works only with intact plastic piece, and poses deleterious effects on workers' health. The project aim is developing the efficiency of plastic recycling and promoting recycling as an economically viable choice by introducing an automated mechanism to differentiate between plastic types. This mechanism is based on an algorithm that uses the discrepancy between infrared-measured temperature and factual temperatures for processing to calculate the emissivity, which is distinct in each polymer type.		

EG-13	NAME(S)	Hend shaker Mohamed / Aya Ahmed Hussin / Rofaida Mahmoud Abd al aty / Nour fathy khalifa / Farouk EL-said Saker
ORGANIZATION		Sharkya stem school / Gharbia stem school / Kafr stem school
TITLE OF ENTRY		Energy Shoe
The present invention relates generally to a dynamometric product built into the Sole of a shoe that generates electrical energy from the action of walking. Specifically, the invention comprises two layers, one of which has a liquid-filled area with a liquid powered turbine and the other layer containing an electrical generator or generators which are powered by the liquid turbine responding to the liquid movement in the first layer. These two layers are molded or otherwise connected to a shoe Sole so, it's a way to get energy.		

EG-14	NAME(S)	Amina Samy Abdallah / Nada Mostafa Abouelfath Mohammed / Omar Hazem Shaheen / Mohamed nasr taha / Ramez Amir Elshazly
ORGANIZATION		Gharbia STEM school/ Obour STEM school / Menofia STEM school
TITLE OF ENTRY		Innovative strategy in leprosy treatment
Extremely poor individuals are particularly at high risk of developing leprosy. Research has shown that they are systematically excluded and generally derive little benefit from developmental or medical care interventions. our idea based on The amount of melanin in the human body means treating leprosy by using specific doses of melanin as well as avoiding its side effects. Finding a way to make the tyrosinase enzyme more effective in sorting out the required amount of melanin, After deep thinking and research, we came up with the required melanin injection in leprosy disease, which will be injected into a vein of the body.		

EG-15	NAME(S)	Mohammed Ali Mohammed Ahmed Mohammed / Fares Fathy Mahmoud Abdo Turky / Eyad Alaa-eldin Abdelaziz Mohammed Abdelaaty
ORGANIZATION		Kafr Elsheikh STEM high school
TITLE OF ENTRY		Thermal Detector
Hyperthermia is one of the most important symptoms of COVID-19 which requires effort, equipment, and labor to be detected in all cases that suffer from hyperthermia that they are suspected of contracting the infection and analyzing them for COVID-19. So it is necessary to follow people everywhere, through our idea, which is an Arduino connected to a camera to detect hyperthermia placed in public streets and when a person passes by Hyperthermia, it sends a notice to the person's phone and through a number of fences that will be connected to satellites and that will start tracking the person who is his temperature High and is tracked by the GPS, monitoring of contacts with it, reporting them, collecting all contacts and analyzing them.		

EG-16	NAME(S)	Reem Mohamed Hassan / Hebatollah Hamdy Mohamed / Rawan Bakar Ramdan
ORGANIZATION		Beni Suef STEM school
TITLE OF ENTRY		Microplastics Fighters
Not many people know what is microplastic. Microplastic is very small particles that cause many harms like aquatic creatures' death, reduce growth and reproductive output, toxic chemicals that harm animals and humans, block digestive tracts. Besides, the effect on the thyroid and nervous system. Imagine we found a solution to all of these risks. So, we used CNT to eliminate microplastics as it could eliminate the seen and unseen particles from microplastics and change them into salt compounds that could be filtered during the filtration process. CNT can be reused again as it has magnetic properties so we found it commercial and could save the oceans.		

EG-17	NAME(S)	Ibrahiem Mohamed Galal / Rana Hussien said
ORGANIZATION		Sharkya STEM School
TITLE OF ENTRY		converting waste into fuel

Plastic is a very big problem all over the world and there are many tires to get rid of plastic. Plastic pollutes at every step of its life. Plastic is made from fossil fuels like oil, natural gas, and coal. For all those reasons the prototype depends on converting plastic into fuel. By return the plastic to its components(fuel), by burning it in closed area like the prototype and zeolite Y to help in damage the pond between plastic molecule or helping in cutting it. And it needs huge temperature burn it more the 400C. the result is Gas, liquid and solid. The gas will convert into liquid by condensation. The liquid will exit from its gate and solid can reuse in this proses again. We use also nitrogen when temperature more than 350C in helping cooling. According to paper research that 1kilo from plastic can convert into 1 liter of fuel. It will save a lot of money and save the environment from plastic waste.

EG-18	NAME(S)	Shahd ayman Mohamed / Alaa hamed omar
ORGANIZATION		Dakahlia stem school / Ismailia stem school
TITLE OF ENTRY		Antivirus

As we know that the entire world is going through the coronavirus pandemic, many countries have taken precautions to prevent the pandemic. Isolation (quarantine) is the most important action taken by most countries. As a result of this isolation, the number of patients has decreased significantly and the nature became healthy again. On the other hand, all government interests have stalled, resulting in a global shortage of resources. Isolation has conjointly resulted in most students being delayed. After a thorough study involving an analysis of the effects of isolation and an attempt to resolve the drawback that have occurred, we found that there is no solution more appropriate than a return to normal life. It will happen if the coronavirus pandemic is completely over. So we started studying the structure of the virus and Looking for a suitable treatment to eliminate the virus. We have found That the carnation plant contains potent substances that lead to the destruction of the virus. So carnation can be used to form an effective and natural treatment. With this solution, we will eliminate the virus and solve the challenge of (the isolation problem).

EG-19	NAME(S)	Amr Sofan / Mohamed Gomaa / Farid Wahba
ORGANIZATION		STEM HIGH SCHOOL FOR BOYS-6 OCTOBER
TITLE OF ENTRY		Electrosandilter

Lately, the world has been suffering imminent scarcity of fresh water. According to UN researches, 700 million humans lack access to fresh water right now and this number is expected to triple by 2025. Nowadays, most water sources contain chlorine, microplastics, pathogens, and other contaminants too small to be filtered easily. This invention is a model of an apparatus that includes a series of water purification processes. The invention can filter contaminated water to provide drinkable water—free from any pollutants. After the filtration, the apparatus can extract those pollutants, as to be used, industrially, in recycling processes.

EG-20	NAME(S)	Dr. Zaky AbdEllatif Zaky AbdEllatif
ORGANIZATION		Sues Canal Organization
TITLE OF ENTRY		An invention of an auxiliary tool for ambulance trolley, capable to absorb shocks and protecting accident victims

It is a structural system in the form of a rectangular anthropomorphic form of iron mat. It consists of strong square tube chopsticks appropriate to trolley dimensions In ambulance and this structure is placed inside the ambulance and is used to lift up the trolley completely with the patient about 20 cm from the surface of the trolley base in the ambulance. This invention absorbs shocks, bumps and potholes before they reach the trolley carrying the patient affected with serious fractures so they become a protecting shield and helps the increasing speed of the ambulance to save the injured in serious accidents because the speed will not affect the injured.

EG-21	NAME(S)	Basmala Midhat Emam
ORGANIZATION		Heliopolis model high school for girls
TITLE OF ENTRY		Easy and cost-effective early detection method for Alzheimer's disease using saliva (Alzheimer Disease Assay Card (A.D.A.C))

Alzheimer's disease is the most common cause of dementia worldwide, with the prevalence continuing to grow in part because of the aging world population. Formation of specific AD pathology begins decades before the clinical expression of AD and it is, therefore, essential to find a biomarker for early preclinical diagnosis and treatment monitoring. Unfortunately, current biomarkers for early disease, including cerebrospinal fluid tau and amyloid b (Ab) levels, structural and functional magnetic resonance imaging, are limited because they are either invasive, time-consuming, or expensive. On the other hand, a saliva sample could be a valid alternative to CSF or blood, A valid and reproducible saliva biomarker would, therefore, be preferable over other present biomarkers. Saliva is an easily obtained body fluid and its collection is noninvasive and relatively stress-free, so saliva can serve as a potential alternative and universal diagnostic fluid. Lactoferrin (LF) is one of the major proteins in saliva, (AD) could be predicted through the detection of LF concentration in saliva. Based on that, we hypothesized that the LF level in saliva could be detected in an indirect and colorimetric cost-effective method. LF has a high affinity for the iron molecules, so its level would be reflected in the concentration of unbounded iron molecules after the addition of known starting concentration of that iron compound to a saliva sample. The accuracy for this method in detection is equal to or greater than that obtained from other published blood and CSF studies. Also, this biomarker consists of a single protein, (LF), in contrast to others based on a set of proteins, lipids, or arrays of RNAs, making it more useful for use.

EG-22	NAME(S)	Ahmed Badr Shaker / Abdelrahman Mohamed Elshaboury / Abdelrahman Waleed Elmasry
ORGANIZATION		Airex Team
TITLE OF ENTRY		AIREX
We have reached an idea to provide purified air to those in the most high-risk environments(indoor-outdoor), we have developed an inexpensive, accessible (Powered, air-purifying respirator)PAPR device that is lightweight and 3D printable. As many people do not know, there are indoor air quality standards and outdoor air quality standards to promote human health in their homes and other structures. Also, this personal protective equipment (PPE) faces critical shortages in a small county hospital.		

EG-23	NAME(S)	Zain Tamer Zain El-abdin / Ali Mohamed Abo-Hendy / Mazen Yasser Aboeed / Zeyad Mohammed Talaat Elbahy / Ebrahim Ramadan Diab
ORGANIZATION		STEM Gharbiya school
TITLE OF ENTRY		COVID-19 Termination Binary Platform
Our idea is to make a website using computer languages. When any patient enters the website, he will be asked first for his location. After that, he will be asked some questions about whether he has the symptoms or not. If the patient suffers from all symptoms, a message will appear for the patient that he might have COVID-19. In the moment the message appears, a notification will directly be sent to nearest hospital according to his location. The hospital must send a doctor to check and test the patient. Ultimately, all patients infected with COVID-19 will be recorded digitally.		

EG-24	NAME(S)	Rahma Galal Ramadan / Fashkel Rokia Zaky Abd El-salam Zaky / Basmala Taha Mohamed Taha / Mostafa Eid Fahmy Kashef / Metwali Yousri Abouel Moaatti Abdo
ORGANIZATION		Menofia stem school
TITLE OF ENTRY		Anti – Attack (A-A)
If you have a disease and you know that, that isn't a problem, you can take your treatment and recover. But if you have a disease but you don't know that, that is a problem.so we decided to work in this field. After making a lot of researches, we found that half patients who die from heart attack were very active and haven't any symptoms and this type called a silent heart attack. The heart tries to recover by himself and we will feel with a simple symptoms like pain, fatigue …etc. also the heart produce a negative protein called (FABP3) during attack and our device depends on it.		

EG-25	NAME(S)	Salma ahmed kassap daba / Nourhan sallam adel sallam
ORGANIZATION		Menofia stem school
TITLE OF ENTRY		Dr. cancer
Cancer is not just one disease. Globally, 1 in 6 deaths is due to cancer. According to the World Health Organization (WHO), stomach cancer caused 783,000 deaths Trusted Source worldwide in 2018. It is the sixth most common cancer worldwide, but the third leading cause of cancer-related deaths. The problem is all treatments that damage the cancer cells affect the normal cells, too. Also the equipment that used today to detect the cancer cells like Endoscopic Sub mucosal Dissection (ESD) has some disadvantage for example it needs Doctors with extensive experience - to determine if the area that has the cancer cells or not - that is not found in Egypt .also it detect the surface cancer only .So we think to increase the efficiency of the endoscope to make the doctor sure from the tissue that has the cancer cells by the signals of light.		

EG-26	NAME(S)	Omar wageeh elgendy / Omar mohamed shehab / Mohamed abubakr ali / Abdallah adel shaban / Omar mokhtar sakkr
ORGANIZATION		Menofia STEM School
TITLE OF ENTRY		Finger language translator
Finger language translator is a project that is used to help us to understand the dumb people as the project is mainly composed of one pair of gloves. these gloves are connected by sensors that detect the motion of the gloves and translate the motion into understandable words by using Arduino uno. This arduino is used to get the signals from the sensors and translate it into English or Arabic languages to help the other people who don't understand sign language to understand these dumb people. After translating the motion of the hand, the words are writen on a screen.		

EG-27	NAME(S)	Rokia Osama Fathi Ahmed
ORGANIZATION		Menofia STEM School
TITLE OF ENTRY		Economy collapse covid-19
COVID-19 pandemic is the most crucial global health of the century and the greatest challenge humankind faced. It has affected over 2.1× 106 person and killed about 146,198 people worldwide but the greatest effect catch up the economy. In my society, Egypt, where more than 32.5% of people are below the poverty line. After the Covid-19 pandemic, I tried not to be foolish. I took the responsibility to help solving the economic collapse. seeing people – specially workers in factories unemployed can motivate minds .		

EG-28	NAME(S)	Nada Ibrahim ali khalifa / Dina seddik Ibrahim Mohamed / Manar hamdy elsaidy / Marwa rafeek ragab el-Dakar / Jana Mohammed sobhy ali
ORGANIZATION		Stem school (stem unit)
TITLE OF ENTRY		**Protecting from rising water**

The project save the people who are living in coastal cities from the rising water levels. So, we will use an acrylic box, and this box will be connected by wires to an Arduino microcontroller board and another device sensitive to the Arduino. the sensitive device will then send a signal to an application, which people can install on their phones. Everyone will receive a notification informing them of this. Suppose, for example, that the water rose three meters-. Additionally, we will need to use radio wave beams and Wi-Fi, so we can have the Wi-Fi companies operate and implement this. As such, this is a good project idea for these companies as well as the coastal cities.

EG-29	NAME(S)	Aya Ragab Saleh / Ola Hamdy Gaber / Shahd Abdelrehim Mohamed / Aseel Abd El-raouf Hefzy / Rana Hassan Abdelrhman
ORGANIZATION		Qena STEM school / Ismilia STEM school / Sharqia STEM school
TITLE OF ENTRY		**Waste for biofuels**

Biofuels are fuels derived from organic matter, such as plants and, as opposed to fossil fuels. Yet not only have biofuels proven to be more harmful to the environment than expected, but they can also be potentially devastating to the food system. The World Resources Institute reports that "producing 10% of all transport fuels from biofuels by 2050, as planned by some governments, would require 32% of global crop production but produce only 2% of global energy," while also increasing the "Food gap to roughly 100%.so to get over this huge problem we started to think of producing Biofuels from animal materials as it`s an organic matter would solve the problem and clean the nature from Animal droppings.

EG-30	NAME(S)	Mariem tarek mohammed
ORGANIZATION		Association of young researchers for innovation and development
TITLE OF ENTRY		**TREATMENT OF SPINAL MUSCULAR ATROPHY BY GENE THERABY AND SODIUM BUTYRATE**

Spinal muscular atrophies (SMA) are characterized by the loss of lower motor neurons and atrophy of muscle. Proximal SMA (which we refer to as SMA) is a common genetic cause of infant death and the most frequent SMA. SMA is one of some neurological disorders associated with genes that play important roles in RNA metabolism (Supplementary Information S1 box). Although SMA is caused by reduced levels of a ubiquitously expressed protein, Survival Motor Neuron (SMN), it affects the lower motor neurons. Some other neurogenetic disorders are caused by mutations in ubiquitously expressed genes, including amyotrophic 'so I will treat this disease by injecting his body with a gene (smn 3) to produce the protein that the body needs to move its natural movement. We will inject the patient with this gene to produce the required protein by injecting the device The central nervous system (CNS) and we will inject the gene into the body through this injection until the protein is excreted in the spinal cord,

EG-31	NAME(S)	Sandy Salem EL-Nenay
ORGANIZATION		Association of young researchers for innovation and development
TITLE OF ENTRY		**Smart Mute Speaker Device (SMSD)**

Communications between mute and normal person have always been a challenging task. As over 5% across the world have disabling hearing loss. The Smart Mute Speaker Device (SMSD) is proposed to meet this purpose. The project aims to facilitate people's life utilizing a smart mute speaker device (SMSD). The device converts the voice to text and the user can answer and reply immediately by using the device with AI functions, and also the (SMSD) device has the ability of learning.

EG-32	NAME(S)	Omar Shereef Mehana Abdo
ORGANIZATION		Association of young researchers for innovation and development
TITLE OF ENTRY		**Low Budget Desktop Computer Numerical Control (LBDCNC)**

To prototype a PCB (Printed Circuit Board) using either the old ways like PCB etching which won't offer a good quality and it is a very long process to do or to rely on the manufactures that can prototype the PCB but it is time consuming and a little bit consuming. The (LBDCNC) will solve this issue as it offers 20x20 cm workspace with precision all that within 15 to 30 minutes according to the project.

EG-33	NAME(S)	Mostafaayman shaban elsharawy / Mohamed Samer Monier Nour / Gehad Saif alnasr khurashi Soliman / Wafaa Hassan Ali Deghish / Amal Ahmed Mostafa Abdellatef
ORGANIZATION		Scientific Research Academy / Elshaheed Ahmed Abd Elsalam Salama secoundry school / Qena STEM school / Gharbiya stem school
TITLE OF ENTRY		**Auxiliary robot with special needs**

It is an auxiliary robot with special needs that performs some functions, including an assistant with special needs who are deaf and dumb and unable to move as it translates sign language into speech and speech into sign language and where complicated problems can be solved in seconds with ease and can identify locations and control the entire home electricity Without movement via voice commands, it can be used to learn from it and help at home. Facial expressions can be read and expressions displayed on the screen.

EG-34	NAME(S)	**Dina Faried Nabieh Mohammed Ramadan / Shahd Emam Hassan Emam Biomi ELbana / Andrew Reda Mansour Megaly Tawdros / Karim Alaa Mahmoud Ahmed Mohamed Nouh**
ORGANIZATION		Obour STEM school
TITLE OF ENTRY		**How Can You Live Without The Basics of Life ?**

Our project aims to reduce two of the main problems that the world suffering from them. Energy and water cause many economic, political, and military issues between countries. First, there are two types of energy renewable energy and non-renewable energy. Most areas have a dream to convert all energy to renewable energy despite the high cost that needed to implement this dream in reality but the benefits of this dream worth this high cost. In the other hand, water that main factor causes our life on Earth threatened with destruction from pollution and scarcity. Our project solves this difficult equation in one step. Our project represented in device two-phase from water purification and electricity generation by the force of water thrust. This project needs to support to achieve our purpose by high efficiency and low cost.

EG-35	NAME(S)	**Safaa Magdy Sayed Ateya / Esraa Magdy Sayed Ateya**
ORGANIZATION		Obour STEM School / Benha University of law
TITLE OF ENTRY		**STEM Cells therapy for Treatment MS**

We treatment for MS by using the stem cells. So, we will take it as unspecialized as they haven't developed to carry out a particular function. And after that we make it specialized as a nerve cell. because the stem cells have the potential to develop to another type of cells depending on our need. Once they've undergone this change it can't go on to change again. And also we will use a medicine called beta Ferron to slow the immune system down by this way we will ensure that the percentage of treatment MS will reach to 85%.

EG-36	NAME(S)	**Mariam / Basmala Mohamed Mahmoud Younis**
ORGANIZATION		Red Sea STEM school
TITLE OF ENTRY		**Plant Wind Turbine (PWT)**

The demand for power supply is growing enormously. To meet the demand, various renewable energy sources are used. Wind power plant uses wind energy to convert mechanical energy into electrical energy using the aerodynamic force generated by the rotor blades. In the same way, special types of plants have leaves that are capable to convert mechanical forces applied at the leaf surface into electrical energy naturally. This energy can be harvested and used to power electronic devices. This type of plants to increase the energy generated by the wind turbine by putting it on the rotor blades.

EG-37	NAME(S)	**Shahd Shaaban Ballouz / Rawan Aboalazm Sarhan / Rahma Zain Eldina Abdelaziz abdelghany ahmed / Esraa Mohammed Maaly / Jehan walid Salem Salem / Sahar Emad Aldien Ahmed Mohammed Soliman**
ORGANIZATION		STEM school
TITLE OF ENTRY		**vapor utilization**

There is no doubt that most crops require a lot of water. Studies have proven that plants absorb about 10% of the absorbed water from soil and about 90% of the water in the soil goes into the atmosphere through the evaporation process, so we found that it was better to exploit this amount of water by placing a powel beside the greenhouse which prevent the evaporation so the resulting large amount of water from evaporation and condensation, it will not be wasted and kept by condensing it with a high-quality condenser for further uses such as watering other plants.

EG-38	NAME(S)	**Abdullah Gamal Moustafa El-Afifi**
ORGANIZATION		Ismailia STEM High School
TITLE OF ENTRY		**Conversion of Energy by Burning CH4**

Some of the petroleum companies are interested in most of the available petroleum products in their petroleum production platform, and they get rid of natural gas if it has a small amount of field by "burning" it in the air from the flame nozzle at the end of the production line. It produces a large amount of carbon dioxide, water vapor, and has enormous thermal energy. The project is to build a simple end-stage that can benefit from heat Energy, and H2O comes from burning CH4, so it supplies a new good source of energy from wasted energy.

EG-39	NAME(S)	**Reham Ashraf Shawky elhelbawy**
ORGANIZATION		STEM Gharbiya
TITLE OF ENTRY		**(U-P-I-H-3CT) unable person in his car can control technology**

This project for all people specifically disable persons, it is a car which doesn't require petrol to go, the introduction of this car is a robot in the shape of person and the conclusion in the shaper of a part of car and the person can control the function of the robot with remote control such as if the person want the robot to go right or left or forward or backward and this robot can go in the ground of the street by putting natural rubber in his legs make resistance and friction between him and the ground of street.

EG-40	NAME(S)	**Hoda Sherif Issa / Manar Ramadan / Shahd Esmail / Habiba Khaled / Esraa Attia**
ORGANIZATION		El-Bidaa School
TITLE OF ENTRY		**API Sensors**

We will make an application with all information about the symptoms of covid 19 completely and provided with a sensor once senses the human temperature and a form in which the person fills his data and after that the app discovers if the person is actually ill with corona or not and also can connect with every person who passed by then informs him if one of them is infected with corona. This app will connect with the nearest health unit to inform them of all details.

EG-41	NAME(S)	Habeba Mohamed Fathi / Malak Mohamed Abdelfatah / Amany Abd El Wahed Nosir / Shahd Mohammed Abbas / Sara Alaa Ragab
ORGANIZATION		Alexandria STEM School
TITLE OF ENTRY		GO in electroactive bacteria

Egypt suffer from water distribution so the electroactive bacteria that disinfect wastewater by breaking down organic materials and help in water crisis is crucial, countries as Spain use electroactive bacteria to purify water. But, they put these bacteria in physical support that conduct electricity which is fossil fuel. Unfortunately it's very harmful for aquatic creatures, so it was essential to find anon harmful conductor, this conductor is the graphene oxide where It has a distinctive property as its electrical conductivity 180(M2/g), where this bacteria release more electrons in the presence of oxygen, that' why it will improve performance of project.

EG-42	NAME(S)	Nouran Mohamed El-Sayed / Malak Mo'men Mohamed / Yara Nabil Mohamed
ORGANIZATION		STEM Sharkya School
TITLE OF ENTRY		Robotic wheelchair

To help people who cannot walk, our project suggests various improvements that can be added to their wheelchair. It is known that the regular wheelchair needs someone to push it, which can become a problem for the person, if the person who pushes him is absent. To solve this problem, our project discusses a wheelchair which uses sensors for movement, as: voice sensor to be moved by the person's voice, GPS to help the chair move alone and mirrors which enable the person to see things around him. Simply, we discuss a wheeled car for people with special needs.

EG-43	NAME(S)	Abdulrahman Muhammad Elsayed Mahdy Kassab
ORGANIZATION		Al Tawfiqia school
TITLE OF ENTRY		Eliminate cancer cells without negative effects on healthy cells

Taxan is one of the best chemotherapy treatments for patients with breast and prostate cancer. We make this chemotherapy safe and does not affect any part of the body other than location of tumor. This type of chemotherapy Remains on walls of blood vessels, veins and arteries for20to30hours Without absorbing it, we get rid of the potential effect of the treatment by dropping the frequencies with the same amount of frequencies for this treatment in places that we do not want to be affected by the treatment. Taxan has a much lower frequency than normal cells in body, which makes this method safe for healthy cells.

EG-44	NAME(S)	Alaa alaa Ahmed Elkholy / Amira Khaled Ebeid / Aya Ashraf Lotfy gaballah / Gehad Karam Mohamed / Nadine Mohammed Gamal El framawy
ORGANIZATION		Menofia STEM School
TITLE OF ENTRY		EFW (Energy From Waste)

Pollution is the most discussable topic today. It is one of the most common topics of today's scholars. It is the introduction of contaminants into a natural environment that causes an adverse change in the land, water, air, soil, etc. Today it has become a major curse on our earth. The pollution rate is 96%. Pollution in Egypt has many bad effects such as degraded environment, human health, global warming, and pesticides, and the soil may become infertile soil. Our solution is to use organic waste to get electricity and use organic ash produced as a fertilizer for the soil. Where waste is burned and heat is used to boil water and use Water vapor in moving the turbines and also the use of ashes from burning as a fertilizer. Thus, we have analyzed the problem of electricity and added material support and conservation of the environment. We will use filters to purify the smoke caused by burning the waste.

EG-45	NAME(S)	Aya Mohamed Abd elmoneim / Yasmin Ashraf Mohamed / Amal hesham hosny / Nehal Shiref Farouk / Reem mohamed ali
ORGANIZATION		Sharkya stem school / Assuit stem school
TITLE OF ENTRY		PROTECTING EARTH USING TECHNOLOGY (PEUT)

The widespread of Coronavirus has become the issue of the world. COVID-19 has spread rapidly throughout the world since numbers of people around the world are 7,596 billion and numbers of injured 1,58 million and numbers of deaths are 370 thousand. To overcome this challenge, we decided to create an application (PEUT) to decrease the number of infected people that contact with others in crowded areas that helped to spread the virus and diagnose people at their homes and collect information about their health their areas, and all information needed to identify new cases infected with Covid-19.

EG-46	NAME(S)	Youssef Hassan Hussein Mohamed
ORGANIZATION		Ismailia STEM high school
TITLE OF ENTRY		The Abolishment of phosphorus contamination in water streams by using LDH-Alginate beads

In Egypt, the need of water increases day by day due to the continuous population growth , especially along the River Nile that represent only about 6.4 %of Egypt which led to an increase in the construction of industrial areas near the populated, so we are trying to solve it to develop our country and make it one of the most sophisticated countries in the world. Also this high dependency on river Nile has caused an increase need for water, which really puts river Nile vulnerable to running out into a crucial state that we should take into consideration.

EG-47	NAME(S)	Shaza Mohamed
ORGANIZATION		Bani sweif STEM school
TITLE OF ENTRY		Air energy

MY project is to create electric energy from the air that is done by the cars or any other way of transportation by making fans on the platforms of the road to collect the wasteful air and allow it to pass on a generator or a motor to make electricity from the same mechanism of wind energy.

EG-48	NAME(S)	Shahd Ramadan Abd-Elwanees Oboda / Norhan Mahmoud Ebrahim Morsy / Noran EL-Sayed Neazy EL-Sayed Hassan
ORGANIZATION		Menofia STEM School
TITLE OF ENTRY		Helpful Harm (H.H)

Garbage causes many environmental problems. Recently, scientists were able to use methane produced from garbage under conditions of humidity and heat to generate electricity. There are several ways to do this, including ways above or below ground. In our project, we worked on developing a different method of obtaining gas by placing garbage in a container of conducting material to heat the garbage in the sun's heat. When reaching the appropriate degree of heat (30:35) we isolate the container with fiber and provide moisture by using water, this will raise the methane gas to the tank. This method is safe and guarantees full control.

EG-49	NAME(S)	Safa Mohamed Abd elmaksod
ORGANIZATION		Sharkya STEM school
TITLE OF ENTRY		Electric sand

Nowadays, the usage of non-renewable energy is increased. So, it is crucial making a new energy path from renewable ones. In this paper I depended on the solar energy. Which can be exploited to heat the sand. And using the sand's temperature to heat air passing through narrow tubes and surrounded by this sand. Then pumped this air to turbines, which leads to their movement and generates electricity. That will be benefit to our environment.

EG-50	NAME(S)	Ahmed Mostafa Mahmoud Sharaf / Ahmed Mohamed / Youssef Gomaa / Ahmed Hassan
ORGANIZATION		STEM high school for boys
TITLE OF ENTRY		Save Water 101

The project is to solve the water crisis facing the world nowadays. It purifies and smartly control irrigation to avoid unused consumptions and leakages of water. It's cheap to make and very simple using everyday life materials.

EG-51	NAME(S)	Ahmed Mohamed Ali Mohamed Mousa / Ahmed Moustafa Mahmoud / Ahmed Hassan Othman / Yousif Ahmed Radwan / Mostafa Saad Ahmed
ORGANIZATION		STEM high school for boys cosmic village
TITLE OF ENTRY		SPACT

The purpose of the project is to detect the lung cancer accurately and in an inexpensive way. A prototype was made for the solution to test if the sensor can detect lung cancer accurately or not. It is necessary for the prototype to show success detecting lung cancer in the patients. The prototype showed positive results, after many alterations in the prototype and the used methods to achieve the highest possible accuracy. Then the project pass to the stage of Curing by using STEM cells and some chemical inhibitors for telomerase enzyme. information from this study indicate that we can eliminate cancer forever by using stem cells, special inhibitors. In addition to using of some growth factors like VEGA that control the growth and spreading of tumors.

EG-52	NAME(S)	Phelopater Ramsis Fahmy
ORGANIZATION		STEM 6th October high school for boys
TITLE OF ENTRY		USIL "Unmute self-independent life"

Nowadays, all stay at home because of dangerous of Virus like Covid-19. Allowing disabled people to depend on themselves in a more comfortable way in all life applications is the main problem to be solved. Accordingly, this semester's chosen research area concerns communication and medical assistance, for the deaf-mute in particular, using application designing and the advanced technology IoT. Moreover, the purpose of the study is to design an application connected with a glove that alleviate communication of the deaf-mute by reading and converting different sign language signs into their corresponding voice playback. In a similar way, it converts others' voices into Morse code vibrations in the way back. Furthermore, the glove, connected to various house appliances, facilitates daily household tasks that demands auditory abilities. The app also provides some medical assistance in the form of helpful health precautions and important body reading from a group of connected sensors. To test this solution, a prototype was constructed and bounded with the design requirements of "Functional Data transfer over large distances", "Sensor linear correlation with the stimulus" and "Accuracy in converting sign language into voice playback". Testing ensured a prototype of high qualities, with it showing promising results, indicating its positive effect as a tool for the deaf-mute.

EG-53	NAME(S)	Ahmed H Ibrahim / Ahmed M Mosa / Ahmed M Sharaf / Yousef A Radwan
ORGANIZATION		STEM 6th October high school for boys
TITLE OF ENTRY		Investigation of foam concrete properties utilizing partial substitution of pulverized bones

Environmental and industrial issues are highly discussed around the globe, and the renowned trials to handle them are not to fade into oblivion. This paper presents the results of a study on the potential use of Steel slags, crashed marble, polypropylene fiber, and pulverized bone (PB) as pozzolanic materials and cementing material in the production of concrete. Tests were conducted to determine the effect of pulverized bone on stability and the time of cement paste in different percentages of stability using a device. The chemical composition of the supplement martials was also determined. Results indicated that the aforementioned martials could be used as a partial replacement of cement, provided that the level of substitution does not exceed 20%. The results of the investigation showed that upon replacement of up to 20% of cement with pulverized bone, there was improvement in the compressive strength, water absorption, soundness, and specific gravity of the pulverized bone samples relative to the control samples (without the supplement martials). From the results of this study, it can be concluded that the mixture has pozzolanic properties and can be used as a partial replacement of cement in concrete.

EG-54	NAME(S)	Hasnaa Ahmed Abd ElAzez El-tahllawy / Salem Mohammed Salem Katatni / Shimaa Mahmoud Mohamed Alkn / Yousef Sophy Mustafa EL-denary
ORGANIZATION		Menofia STEM school
TITLE OF ENTRY		Infrared protective

There are lots of mysteries in outer space that we want to know. Astronauts fly to space to explore outer space, but there are also harmful phenomena impacting astronauts in complicated ways. As we know there is a Cosmic ray coming from the sun. Infrared is 90 percent of the cosmic ray. Infrared is one of the most vulnerable rays. We are protected by the Atmosphere. The Spacesuit also doesn't shield the astronauts from it, and it makes the astronauts dangerous diseases. And we wanted to improve the spacesuit by incorporating ISOCLIMA Slices. Those Slices should shield astronauts during their long trips from diseases.

EG-55	NAME(S)	Eman Sheble / Shahd Bahaa / Wessam Waseem / Zienab Saad
ORGANIZATION		Menofia STEM school
TITLE OF ENTRY		Diseases Detector

The cost of blood tests and their time are problems because of every test diagnosis and searching a few kinds of proteins in the blood. Patients who are in danger or can't afford the cost of tests will be a problem. Our idea is the device can be used in homes or clinics to fast process. The chip would have lines to test many proteins in the blood and diagnoses diseases in minutes. This is by searching for their bio marks. It will be connected to mobile to show the results of the test on it and advice you.

EG-56	NAME(S)	Asmaa abd el kareem hasan / Hams Ahmed Ali / Ereny essam Fahim Moawad / Rahma Mahmoud Abd Elmonem Mohamed / Rahma Mohamed Mohamed Mahmoud
ORGANIZATION		Sharkya STEM school
TITLE OF ENTRY		Light after the dark

Once the first red-yellow-green traffic lights were installed, thoughts soon turned to how to help blind people safely cross the road. For a long time, it was thought that using a distinct sound to signify the pedestrian light was sufficient to allow a blind person to locate the crossing, decide the right moment to start crossing and make it to the other side without any peril. Current technology and our knowledge of what blind and visually impaired people today need have enabled far more effective systems to be put forward.

EG-57	NAME(S)	Eyad Aoun / Abdelrahman Lila / Ahmed Gamaa / Ahmed Attia / Moustafa Rezk / Ahmed Mamdouh
ORGANIZATION		Alexandria STEM School
TITLE OF ENTRY		Plant Slavation

The project is built to minimize the impacts of one soil pollution contributor, which is the over-use of chemical fertilizers. The project consists of two parts. The first part is an NPK sensor that works by the notion of light transmission and reflection. The readings the sensor compile are then sent to the other part, which is a pump ready to derive an amount of liquid fertilizer in accordance with the readings the NPK sensor had sent. The system can be either fully automated or manually driven by the user.

EG-58	NAME(S)	Abdel Hamid eslam Awd / Abdelrahman Mohammed Esmael / Rahma gaber said morsy / Alia ashraf radwan elkhateb / Ali Ashraf wannan
ORGANIZATION		Menofia stem school & elhemyia secondery school
TITLE OF ENTRY		Aurora

There are many unknown and known diseases in our current world that cannot be discovered easily and with the advancement of technology, I got to know each other easily, but there are those who take many days and months to get to know them, in this research we will facilitate the identification of these diseases by making a device to draw blood and analyzing it and giving proportions to every defect that occurs in the blood and in a short time. In this way, we will facilitate the follow-up of the person to perform his body period by period, and that will facilitate ease over many diseases before they multiply and spread in the blood, such as malaria, for example.

EG-59	NAME(S)	Rawan walid khalifa / Alaa waheed saber el hageen / Norhan mohamed ismeal / Arwa Ahmed ebido / Shrouk Shaker Mohamed Swied
ORGANIZATION		Monufia stem school
TITLE OF ENTRY		W.S (Waste separator)

The world produces a huge amount of garbage every day. garbage collects in different places, and they are intertwined and complex. Most countries were aspiring to benefit from this garbage by recycling some of them. So many countries resorted to separate these wastes from each other in order to facilitate their disposal. However, the separation process requires a lot of effort and poses a threat to the health of the workers specialized in contacting it during work. It is also somewhat costly, and often you cannot separate all types of waste from metals, glass, papers, etc.

EG-60	NAME(S)	Nourhan Mohamed Elsaid / Sohyla Said Mohamed / Maha Atef Mohammed Hamd
ORGANIZATION		Sharkya stem school
TITLE OF ENTRY		**Reducing the urban congestion**
The idea includes reducing congestion and providing advanced means for passengers. Using sensors placed on the traffic lights to warn passengers avoiding accidents. the idea that works to sense the places of traffic congestion and places where there are breakdowns, it will be placed in a small machine that allows it to fly over cities and this is connected to systems through which signals are sent to the application that follows it upon arrival These notifications, user of this application determines the path that he wants, then he determines whether there is congestion on this road or not.		

EG-61	NAME(S)	Doha hemdan ismail elsayed / Ashraqat Mohamed galal / Farah ashraf elsayed
ORGANIZATION		Six October language school
TITLE OF ENTRY		**"Healthhub"**
The user will make a profile in an application and will answer some questions about his or her health like: "What kind if illness do you have?" or "What kind of drugs do you take?" to help companies tracking the number of patients of special drugs. We will add more services to the application like linking with pharmacies in this country and link them with patients to make it easy to find the drugs you want from any pharmacy in this country. We will also add a map for hospitals to make it easy for patients to contact with the nearest hospital. We can add more services like asking volunteers doctors.		

EG-62	NAME(S)	Mennatallah Abdelrahman / Abdelhady Hassan
ORGANIZATION		Ismailia STEM high school
TITLE OF ENTRY		**Particle Therapy for Cancer Treatment using Heavier ions Targeting**
Cancer is a major public health problem worldwide and is the second leading cause of death. Despite improvements, however, many current treatments for cancer have potentially harmful side effects, leading to short and long-term reductions in quality of life. In this research I examine the heavy ions like helium, carbon, and hydrogen ions for treating different cancer tumors, taking into the respect the type, the location, and the phase of the tumor. Also, this research examines the operation system of the different accelerators used or proposed.		

EG-63	NAME(S)	Doaa Mahdy sheded Agha / Aya Gamal Ahmed Ayad / Esraa Abdelhamed Ahmed Omar / Menna Allah Ramadan Abdelaziz Mohamed Hussein
ORGANIZATION		Menofia STEM School
TITLE OF ENTRY		**Electravity**
Earth has very important strength power most of the eyes missed it... It's gravity. As well the turbines is very effective machines to generate electricity but it always depends on very certain places and things but we need to make it depend on something existed everywhere on the earth like gravity. The whole project is about making power Generation station to produce electricity for a region instead of those which needs certain places or times for working or depending on un-alternative materials our project is about a clean alternative power Generation station without various conditions by depending on gravity force.		

EG-64	NAME(S)	Omar Mostafa Talat / Menna Wagdy Abdelmonem / Rawan Yasser Ammar / Farah Ebrahim Dawood / Aya Sayed Mohamed
ORGANIZATION		Maadi STEM school for girls
TITLE OF ENTRY		**Lithium-Fluorine battery**
It is about a battery resembles Daniel battery, consists of two different electrodes of different elements, Fluorine and Lithium. Both electrodes will be put into Sulphuric acid solution, then connect them by a wire, and a salt bridge to balance the transferred electrons during the reaction. Lithium, which its potential = -3.045 V, tends to be in oxidation state by losing electrons, while Fluorine, which its potential = +2.87, tends to be in reduction state by gaining electrons. After that, the potential exerted will be measured by the Voltmeter that will be put in the electric wire or by adding the both potentials getting 5.915V.		

EG-65	NAME(S)	Mariam Yahia Saleem / Malak Ahmed Elsayed / Dalia Tamer Ibrahim / Laila Sayed Hanafy / Tasbeeh Osman Mohammed
ORGANIZATION		Maadi STEM School
TITLE OF ENTRY		**Robo-sanitizer**
In our project, we aim to decrease the percentage of COVID-19 in the air by using robots. The robot contains a combination of the natural ionizer, MERV, and Alcohol to can obtain a high percentage of filtration. It can filter the air from different types of pollutants especially COVID-19. Using this in indoor areas will help in increasing the efficiency of air. We will provide the robot also with a mop to can swipe the pollutant particles which fell due to the natural ionizer and Alcohol.		

EG-66	NAME(S)	**Abdelrahman Mohamed Ahmed Metwally / Youssef Elsayed Youssef Mohamed / Ahmed Anwar Mazhar Abdelmo'men Gad / Mohammed Hassan Abou El-Maaty Ghattas / Mohamed Abdallah Mohamed Abdelghani / Ahmed Moustafa Mohamed Elnamakey**
ORGANIZATION		Alexandria STEM School/Alexandria faculty of medicine
TITLE OF ENTRY		**Teaming up with the death**
listening to the bad news of the new Coronavirus cases every day wasn't enough to prove the severity of the situation to some people _ including us _ but when one of your or your friend's family is infected, you began to take it seriously. and try sincerely helping to find a way out. that is what inspired us to contribute to solving this fatal problem and try to save the people we love from this painful fate. So, we decided to create a mobile application gives the users the best tips to reach their destinies considering all the public health instructions		

EG-67	NAME(S)	**Nouran Amgad Saeed Elghrbawe / Nourhan Hassan Mahmoud**
ORGANIZATION		Nasr Abd Alghafour Secondary School in Menouf / Elahd elgdid secondary school for girls
TITLE OF ENTRY		**Home Health**
Many people face problems to go to the doctor or go to pharmacies and buy medicines so that we think that a solution can be found, by diagnosing your condition and writing the symptoms that appear to you and showing you all the medications that suit you with the dose for your age. There is also a section of specialized doctors from all over the world and also a section For online nurses 24 hours in critical cases and the first aid section in which we show short videos that teach you how to deal with the patient		

EG-68	NAME(S)	**Yassen Ahmed Eid Hasan**
ORGANIZATION		The Union Of Arab Academics
TITLE OF ENTRY		**Creating a solar cell replacement cell**
The solar cell alternative is an alternative solution to the problems that currently exist for solar panels produced by rival companies such as the first solr company. Solar cells are expensive and difficult to clean, but the materials used are easy to clean. Against erosion and easy to move factors due to its light weight and thickness The station currently in Aswan working with solar energy can be replaced with this alternative cell, which saves money and the Egyptian industry is 100%.		

EG-69	NAME(S)	**Alaa Mohammed Hammouda**
ORGANIZATION		E.B.S
TITLE OF ENTRY		**COVID19 SmartShield**
This invention discloses a smart medical protective face shield for medical pros. A mask display system integrates a plurality of components in the frame. These components include: cameras, two of which set on the outer mask frame, an IR laser system, a sensor and a UV system to detect vital signs, displays a clear view of the blood vessels. The invention can protect the medical professionals as an advanced face shield, detect vital signs, update patients database, medical history, a clear view of blood vessels, and detect serious symptoms and help those who are dealing with dangerous pathogens as COVID19.		

EG-70	NAME(S)	**Mohamed Attia Ghanem**
ORGANIZATION		Al-Azhar Olympic Village Mansoura University
TITLE OF ENTRY		**Self-resistance devices for physical strength**
Treat and completely eliminate the risk and arm fractures in the sport of arm wrestling. As it is fully equipped with the safety and coordination elements of all the kinematic elements of the arm, and that each of them has different components and features. As it is suitable for all groups and ages (the handicapped and the misfits).		

EG-71	NAME(S)	**Dr. Chemist. Maisa Salah El-Din ismail Ahmed / Prof. Dr. Mohamed Essam El-Din El-Rafey / Prof. Dr. Essam Khamis Ibrahim / Prof. Dr. Ashraf Moustafa Abdel-Gaber / Dr. Ahmed Mohamed Ahmed Hefnawy**
ORGANIZATION		Alexandria Water Company / Alexandria University
TITLE OF ENTRY		**Environmental Method for the Control of Corrosion and Deposition of Scale in Water systems**
The patent has mainly explored the possibility for using some natural products as antiscalants and anticorrosion in cooling water systems used in desalination plants, pharmaceutical and food industries. This invention seeks to undertake laboratory-based to investigate formulations containing herb (*marjoram* and *arghel*), and algal (*Enteromorpha compressa* and *Pterocladia capillacea*) extracts as novel environmentally scale and corrosion inhibitor for simulated cooling water solution.		

EG-72	NAME(S)	Dr. Osama Mohammad Mostafa Darwesh
ORGANIZATION		National Research Centre
TITLE OF ENTRY		**Unit for treatment contaminated wastewater with dyes of the textile industry by immobilized enzymes onto magnetic nanoparticles**

The present invention relates to unit for treatment the contaminated wastewater with dyes of the textile industry by immobilized enzymes onto magnetic nanoparticles. The unit is made up of two containers. The inner one contains the magnet and is surrounded by the external container used for treatment of the contaminated wastewater. The magnet can be controlled by going up and down to collect the immobilized enzymes. The results indicated that the immobilized enzymes were still kept 95 % of its activity after 100 cycles of application. The immobilized peroxidase was saved their activity at high temperature (75 % of activity at 100 ˚C). It also showed the ability to work in a wide range of pH from 1 to 12. The efficiency of dyes removal from wastewater using immobilized enzymes onto magnetic nano-particles reached 100% after 4 h of incubation.

EG-73	NAME(S)	Heba Yasser Abdel_Hameed Abokhalil / Walaa Ahmed Atia Ali
ORGANIZATION		Menofia STEM school
TITLE OF ENTRY		**Watch out!**

Although diabetes is not an infectious disease, it is a major challenge in the current century. But why? Currently, more than 150 million peoples are suffering from this disease and are expected to increase in the future to 400 million by 2035. Diabetes people check blood glucose level more than two times per day. They are suffering the danger of infection by pricking the finger, using self-monitoring glucose meter. Also, expenses associated with strips, Lancets are more because each test requires a new test-strip, an inconvenienced. Some of patients forget to follow and spread the blood sugar level because of their preoccupation with their work and life, or because of the difficulty of measuring the level of sugar in the traditional way. So the health status of some patients deteriorate due to irregular measurement of blood sugar level. So we made a watch that it will measure the glucose level in the blood in addition to the measure of the time. So this watch will be with the patient every time and made him able to spread his health status easily. And we made an application that it will monitor the patient's health per month.

EG-74	NAME(S)	Mahmoud Mohammed Mohammed Lotfy / Habiba Mohammed Ahmed Ali / Samaa Hossam Ahmed Elsayed
ORGANIZATION		Egypt STEM school
TITLE OF ENTRY		**Plastic- Ethanol conventer**

Continuous population growth and industrialization raised the demand for oil, resulting in scarcity of fossil fuel and environmental degradation. Such challenges made the production and sustainability of renewable energy resources significant. Due to accumulations, plastics have become a significant problem facing us, and this has prompted us to think about using plastic wastes to produce ethanol, an alternative renewable source of fuel. Our team succeeded in converting plastic into fuel by identifying a catalyst, calcium bentonite, for breaking down the plastic. As the waste is broken down, it produces gaseous materials like methane, propane, and ethane, which is later converted into ethanol for biofuel use.

EG-75	NAME(S)	Aasim Mohamed Najib Adul Aal Mohamed
ORGANIZATION		Banha University
TITLE OF ENTRY		**Smart Healthy Bed**

It is a bed can bath the user, activate the circulation blood, works to remove body fat, dries it by pumping warm air then returning it to rest position again and cover the user with the fabric cover. without moving a finger. treat bed sore and prevent its appearance again. It has many health benefits.

EG-76	NAME(S)	Mariam Mohamed Abdelhady / Menna Safwat Mohamed Elkholy / Menna Mohamed Ibrahim / Mohamed Abdelaal Mohamed / Nehal Nady Abdelhamed Khames
ORGANIZATION		Al-Abtal official language school / El Salam modern school / Ahmed Helmy experiment language school / El-Nasr boys language school / El-Shahied Mostafa
TITLE OF ENTRY		**Cancer killer**

The idea revolves around condom and cancer treatment through two cases. Firstly, if the case has a genetic history, the capsule containing Alberton radiation and carried on a super-robot will be taken from passing first to the most affected areas of the family and destroying any suspected cells and then go to the rest of the body for examination And murder, in the second case, if the person is infected, two capsules will be given, the first of which is a radiation-containing capsule to track the secretions of the precancerous cell and its destruction, and examine the rest of the body to search for cells that are pathogenic, and then the patient will take a capsule that contains carbon-ions

EG-77	NAME(S)	Omar Ahmed Omar / Youssef Wael Salah
ORGANIZATION		Top Students High School-Ain Shams
TITLE OF ENTRY		**TED – The End of Desertification**

Famine is one of the biggest threats, millions are dying annually that is caused by desertification and nothing gives a full solution. By looking further, Agrobacterium, a genus of bacteria that has the ability to enter tumor genes to plant cell. By studying Agrobacterium Ti-plasmid, there is an ability to represent the plasmid with gene of interest instead of tumor gene using CRISPR-Cas 9 technology to replace the gene. Next stage is dropping plant seedlings and modified Agrobacterium by TED-4 model, an integrated adaption system designed for degraded land equipped by AC, moisture condenser and more. That will resist Agrobacterium tumor and give ability to enter genes easily.

FRANCE

FR-01	NAME(S)	Dr. Majed ALAZZAWI
ORGANIZATION		Bright Inventors Association
TITLE OF ENTRY		**Alginate Impressions Preserver (AIP)**

A new dental device to be used by dentists, dental students and dental labs. It preserves the Alginate dental impressions while they are being delivered to the dental technician. This device achieved the ideal preservation condition according to the experiments done, as it contained: - A humidity sensor connected in series with a thermal coil. - Moisturized cotton put on a metallic plate which is heated by the coil, in order to produce water vapor. - A thermal bag of steriopoor to contain the water vapor. - A small water tank for the continuous irrigation. • This device is easy to use. It just needs to be blogged into electricity to start working, and within 2 minutes, it will produce water vapor that is suitable to preserve the Alginate impressions. • It is also very cheap, and all its constituents are available.

GEORGIA

GE-01	NAME(S)	Omar Bilonashvilil
ORGANIZATION		Inventors club of Georgia
TITLE OF ENTRY		**The flying and swimming car**

Hybrid transport, which contains a normal car, wings attached to it, rolls on the wheels, transmitter rolls, air screws, electric or jet engines, water buoys, parachute, driving control. The vehicle is equipped with additional electric or jet engines, while transport has buoys for water to run and seating, while transport has a parachute for an emergency landing, while in the air or water transport is carried out by a remote control drive attached to the vehicle's steering wheel.

GERMANY

DE-01	NAME(S)	Mehran Olyaee / Payam Sarikhani
ORGANIZATION		N/A
TITLE OF ENTRY		**Scattered Garbage Absorbing Machine with the ability to collection and transfer to the garbage depot area**

The problem of garbage and trash collection and transportation and finding the manpower to control them, especially in low-level and third world communities, is extremely difficult and is usually left out of the country's management system due to the low culture of living, even with the garbage collection and transportation system in Developed countries we also witnessing all kinds of waste. This invention easily cleans the environment by absorbing the scattered garbage around the device and transferring it to the garbage depot area.

DE-02	NAME(S)	Hamed Moradi
ORGANIZATION		N/A
TITLE OF ENTRY		**A Novel Microstrip Model of Triplexer-Power Divider Signal With the Purpose of Transmitting High Power Signal & High Frequency Bandwidth in Devices Transportation Satellite Radars and 5G Protocol Telecommunication Radars**

The microstrip filter is designed with two structures, the Triplexer and the Power Divider signal. This model has signal transmission in a wide bandwidth of 5G protocol and other standard microwave frequency telecommunication bands, which is set in 1GHz to 100GHz bandwidth. The model has a band pass filter with the ability to notch bands several for each of the Triplexer ports. The output of each of them is connected to the microstrip model as a frequency branch. The output of each port to the specified circuit, Ratio to Frequency bandwidth and signal strength are connected.

HONG KONG

HK-01	NAME(S)	Cheung Siu Cheong
ORGANIZATION		Hong Kong Invention Association Ltd.
TITLE OF ENTRY		**Material / Wave Energy Replicator**

The invention discloses an apparatus for reproducing substance atoms by using strong nuclear force and weak nuclear force, and the technical feature is that firstly, X-ray or β-ray or γ-ray is used to scan a substance to obtain a spatial position map of each atom of the constituent substance and The size, weight, and attributes of each atom in the periodic table are stored in the hard disk of the computer. According to the data in these hard disks, the neutrons and U235 atoms are emitted into the hydrogen-filled steel balls. After the collision between the neutrons and the U235 atoms, the U235 atom splits and the neutrons fly out of the steel ball. At this time, the U235 splits. The strong nuclear force and weak nuclear force generated will cause the hydrogen atoms in the steel ball to polymerize with each other to form other atoms, such as carbon atoms, oxygen atoms, iron atoms, silver atoms, etc., and the process of controlling U235 splitting can control the number of atoms formed. type, location, according to the atomic space position map in the above computer hard disk, to control the new material formed by the strong nuclear force generated by the U235 split, the same substance as the original X-ray scan can be obtained, which is equivalent to the original substance. A substance was re-created.

HK-02	NAME(S)	Lincoln Lam / Chan Yik Man / Chow Hiu Hei / Zeng Michael Tin Yu
ORGANIZATION		Innovation Lab, The LAM Foundation
TITLE OF ENTRY		**Intelligent Wellness Walking Stick**

The new coronavirus is spread through droplets and surfaces. Our “Intelligent Wellness Stick” is a new stick that protects elderly users from airborne virus and hand contamination, makes people's microenvironment safe during walks and improves the quality of elderly’s life. Our invention is the first design integrating environmental health protection into walking assistance tools. Its built-in UV light handle with Photocatalytic Automated ultraviolet disinfection can kill 99% bacteria. The built-in smart monitoring air purifier keeps tabs on the air quality. Air ionizer intensity will be self-adjusted automatically emitting negative ions to remove atmospheric particulate matter (PM2.5) and other pollutants.

HK-03	NAME(S)	LEUNG, Yiu Cheong / WANG, Yifei / KWOK, Yu Ho / PAN, Wending
ORGANIZATION		The University of Hong Kong
TITLE OF ENTRY		**Paper-based aluminum-air battery: a low-cost & green battery technology**

An innovative aluminum-air battery is fabricated on paper, which utilizes aluminum and ambient air for electricity generation. Its major advantages include low cost, high energy density and great environmental-friendliness. Three different battery designs are proposed. The “rechargeable” battery can be used repeatedly by replacing the aluminum, providing high power for charging portable electronics. The flexible battery employs embedded aluminum foil inside paper as anode and oxygen reduction ink as cathode, which is suitable for flexible electronics such as point-of-care test. Lastly, a printable battery is developed by using an aluminum ink for anode fabrication, leading to smart user-defined battery fabrication.

HK-04	NAME(S)	PUN Chi Sum Summy
ORGANIZATION		N/A
TITLE OF ENTRY		**Bottle Decomposer / To Revolutionise Recycling**

Reducing at source is essential for bringing down the costs and difficulties involved in recycling. This invention helps the user easily cut down a PET bottle into small “onion rings”-like shards, which can be effectively and efficiently futher processed by the recycling industry. The community and stakeholders can greatly benefit from the minimised costs.

HK-05	NAME(S)	Choi Ching Lam
ORGANIZATION		Diocesan Girls’ School, imMaker Education Limited
TITLE OF ENTRY		**Corona-Net: Fighting COVID-19 With Computer Vision**

Current baselines in medical Artificial Intelligence utilise fully-convolutional structures for end-to-end trainability, size-invariance and efficiency. One such method is U-Net, a two-track contraction-expansion model which fuses features at different hierarchies for deep-localisable features. In this work, I introduce Corona-Net, a 3-part contribution dedicated to the classification, binary-segmentation and multi-class segmentation of COVID-19. I first leverage EfficientNet for diagnosis, achieving 93.89% accuracy. I then utilise and refine U-Net for binary and 3-class (ground-glass, consolidation, pleural effusion) symptoms segmentation on the COVID-19 CT Segmentation Dataset. Via strong data-augmentation and rigorous experimentation, I achieve Dice-Losses of 79.65% (binary) and 61.60%. Through Corona-Net, I develop a reliable AI system for automatic COVID-19 diagnosis, to fight against this pandemic.

HK-06	NAME(S)	Junwei Zhang / Yan Tung Lo / Yunlun Wu / Hao Guo / Chuyang Tang
ORGANIZATION		The University of Hong Kong
TITLE OF ENTRY		**Nano-functionalized porous membrane filter for reusable face masks**

The electrospun-nanofibrous membrane filter invented is a highly effective filter for PM0.3, PM2.5, and PM10. The porous filter has a double-layer structure. The bottom layer has fibers with larger diameters for sufficient mechanical strength and the upper layer has small fibers for effective air filtration. The composite structure provides more stable and reliable filtration performance while maintaining the pressure drop as small as the conventional face masks. More importantly, the filter is reusable by being soaked into ethanol and thus, is more sustainable with longer life expectancy.

HK-07	NAME(S)	Tai Kwan Ting / Chu Wing Hong
ORGANIZATION		The Open University Of Hong Kong
TITLE OF ENTRY		**To prevent the spread of covid-19**

Have you ever heard of the outbreak of SARS in Hong Kong due to the U-shape vent? This year we also got the similar problem, but the problem is related to the outbreak of covid-19 due to the drain-waste-vent system. So our team invent a active filtering device and targeted the drain-waste-system in order to filter the harmful gas effectively.

HK-08	NAME(S)	B K Ritika
ORGANIZATION		CMA Choi Cheung Kok Secondary School
TITLE OF ENTRY		**Foldable SpeakCUP**

The foldable SpeakCUP can be served as a cup for drink as well as unplug mobile phone speaker after unfolding. It can also be served as a mobile holder for taking picture. The features of the Foldable SpeakCUP promotes a sustainable lifestyle. The reusable cup promotes the use of less disposable plastic cup, and the foldable structure reduces the occupying space. Moreover, the unplug speaker helps to encourage the use of non-electrical speaker.

HK-09	NAME(S)	Dr Anna Kam Chi-shan
ORGANIZATION		The Education University of Hong Kong
TITLE OF ENTRY		**Automatic Children Hearing and Listening in Noise Ability Screening System**

Automatic Children Hearing and Listening in Noise Ability Screening System is a tablet-based system to enable hearing and listening in noise ability test as a routine child healthcare examination in the community. It consists of a pure-tone screening and a digit-in-noise test. Pure-tone test results can reveal hearing problem which is not uncommon in children due to middle ear infection and/or effusion. Results from the digit-in-noise test can indicate auditory processing problem which may be a contributing factor for dyslexia.

HK-10	NAME(S)	Dr Kean Poon Kei-yan
ORGANIZATION		The Education University of Hong Kong
TITLE OF ENTRY		**Computerized Working Memory Training for Students with ADHD and RD**

This is the first working memory (WM) training app comprises two separate training regimes (n-back and card-pairing) and incorporates linguistic stimulus (i.e. synonyms, rhymes, and morphemes). The mechanisms of the game guide players in the Attention Deficit Hyperactivity Disorder (ADHD), Reading Disabilities (RD), and/ or ADHD & RD groups to practice their phonological or visual-spatial memory.

HK-11	NAME(S)	Dr Kevin Yuen Chi-pun
ORGANIZATION		The Education University of Hong Kong
TITLE OF ENTRY		**The MAndarin spoken word-Picture IDentification test in noise - Adaptive (MAPID-A)**

MAPID-A is the first evidenced-based computerized tool to assess very young Mandarin-speaking children's abilities to recognize spoken words under different noise environments. MAPID-A simply requires children to respond by tap-selecting pictures which represent the spoken words masked by noise presented from loudspeakers. The non-verbal response mode makes MAPID-A highly reliable in testing young children. MAPID-A opens an unprecedented window to researchers and practitioners to examine very young children's development in speech-recognition-in-noise, binaural hearing, and right ear advantage; validate new noise reduction algorithms in hearing devices; and evaluate rehabilitation outcomes in children with central auditory processing disorders, and language learning disabilities.

HK-12	NAME(S)	Dr Song Yanjie / Mr Cao Jiaxin
ORGANIZATION		The Education University of Hong Kong
TITLE OF ENTRY		**m-Orchestrate: A Mobile App for Teacher Orchestration in Collaborative Science Inquiry**

The innovative mobile learning app - m-Orchestrate is the first app that supports both students and teachers to conduct collaborative science inquiry in a mobile learning environment. Students can improve their conceptual understanding and collaborative inquiry learning skills in science through collaborative inquiry phases (i.e. WeEnage, WeCollect, WeAnalyze, WeExplain and WeReflect) using m-Orchestrate. The app can also increase teacher's capacity in orchestrating students' collaborative science inquiry in a mobile learning environment across formal and informal learning settings.

HK-13	NAME(S)	Dr Tsang Yiu Fai
ORGANIZATION		The Education University of Hong Kong
TITLE OF ENTRY		**Environmental Pollution Control through Practices: From "Waste" to "Treatment"**

This is a novel environmental science teaching and learning kit based on a practical biofiltration system for wastewater treatment and odour removal designed by the inventor. Converting research findings and practical systems to an education setting, the kit includes a functional scale prototype of the biofiltration system to equip user's problem-solving techniques, scientific investigation skills and environmental knowledge through practices. It creates a new manner of teaching and learning of environmental pollution control, which integrates theories and practical experience of Physics, Chemistry, Biology, Microbiology and Mathematics.

HK-14	NAME(S)	Shien-Ping Feng / Yu-Ting Huang / Xinya Wu / Chunlin Pang
ORGANIZATION		High Performance Solution Limited (HKU Startup)
TITLE OF ENTRY		**Direct Thermal Charging Cell**

Our Direct Thermal Charging Cell (DTCC) is invented for efficiently converting low-grade heat to electricity, surpassing all existing thermoelectric and thermo-electrochemical technologies in low grade heat regime. DTCCs have uniqueness and advantages for practical application including a wide operation window, isothermal and continuous charging/discharging operation, low-cost, bendable, simple system and the ability to form stacks of cells. By establishing startup and collaborating with industries, the invention has been moved from academic research toward real products in various applications, such as HVAC, smart window and self-powered/wearable technologies. It will open many new applications, bringing tangible economic and environmental benefits.

HK-15	NAME(S)	LIU Yan, Leyla / YEUNG Yau Yuen
ORGANIZATION		The Education University of Hong Kong
TITLE OF ENTRY		**Remote-controlled Digital Hydrometer**

The measurement of density (or relative density) of liquid or solution is commonly required not only in science and engineering but also in many other sectors like petroleum industry, food industry and automobile etc. There are many specific types of hydrometers designed for various purpose but most of them are still limited for manual on-site mechanical operation without digital reading. The present invention will provide digital readings for the on-site or remote automatic measurement (and recording of data) of the relative density of any liquid or solution with high precision (up to 0.05% accuracy) plus some unique capabilities.

HK-16	NAME(S)	Yuhong Wang / Wang-Hei Ho / Wei Sheng / Yuhao Wang
ORGANIZATION		The Hong Kong Polytechnic University
TITLE OF ENTRY		**A smart integrated road pavement and drainage system for stormwater storage, de-icing, dust suppression, and cooling**

Road pavements occupy a large portion of urban lands and have significant impacts on environments. This invention, a product of an international research project, tackles some urban issues through new road construction technology. The invention consists of (1) innovative pavement textures and features to direct stormwater to storage tanks for flood mitigation and pollutant removal, (2) a reverse flow subsystem using the stored water to suppress dust and cool roads in hot weather and applying anti-freezing agents for de-icing in cold weather, (3) Internet-of-things (IoTs) based subsystem for sensing and monitoring water quality and quantity, (4) automatic web-based control system.

HK-17	NAME(S)	Yiu Kwok Wah Mexci
ORGANIZATION		LEDUS Lighting Company Ltd.
TITLE OF ENTRY		**PC-Lite Photocatalytic Multifunctional Sterilization Device**

As we all know, pathogens and viruses exist almost everywhere. Covid-19 is the best reminder of how frightening and deadly they can be. The battle between humans and diseases began since the dawn of time. In response to the critical situation of the pandemic nowadays, LEDUS has successfully developed a disinfection product that uses near-ultraviolet (UVA) LED light source- the "PC-Lite Photocatalytic Multifunctional Sterilization Device". PC-Lite is a light-weight multifunctional sterilizer that allows people to easily and effectively disinfect daily small items such as masks, mobile phones, keys, earphones, jewelry, eyeglasses and wallets. Scientific test results have confirmed that PC-Lite is highly effective!

HUNGARY

HU-01	NAME(S)	Skin-Magic Cosmetic Manufacturing and Trading Ltd.
ORGANIZATION		Skin-Magic Cosmetic Manufacturing and Trading Ltd.
TITLE OF ENTRY		**ILZSU® HAIR REPAIR SERUM**

There are several proofs of the good effects of the ILZSU hair repair serum cure in many cases. How does it work? The scalp can be stimulated by using the serum, the blood supply can be increased, so the hair loss can be reduced and the hair will start growing. Naturally, we cannot grow a tonsure on the part of the scalp, where the hair roots are dead but where roots are still alive the regeneration can be started again. ILZSU Hair Repair Serum consists of 10 special herbs and their powerful regenerating effect. It has 100% natural ingredients and produced without any preservatives, colorant or aroma.

HU-02	NAME(S)	Lajos Poczók
ORGANIZATION		Mathematics – Spatial geometry – Solids, shapes, dimensions
TITLE OF ENTRY		**Original construction set for colleges and secondary schools. An innovation.**

In this short paper we discuss a construction set that seems to be a toy but may have great relevance from the point of view of mathematics and education. Main topics covered: spatial geometry – prisms, a set of convex polygons in constructing solids, future plans. In this paper we hope we could show, with various figures, and detailed description of the creation of the shapes, how assembling a construction set made of paper prisms can be a scientific achievement. When using in ground or high school environment, these sets can introduce the user into the world of solids and 3D shapes.

INDIA

IN-01	NAME(S)	MR. ANAND MEGALINGAM / DR. SUNDARARAJ MUNISAMY / DR. ELANGOVAN SRINIVASAN
ORGANIZATION		BHARATH INSTITUTE OF HIGHER EDUCATION AND RESEARCH
TITLE OF ENTRY		**PLANT E-ENERGY (GENERATING ELECTRICITY FROM LIVING PLANTS)**

The Living Plants E-Energy is based on the collaboration with plants and micro-organisms to produce electricity. Plants pursuit water, carbon dioxide and getting light energy from the sun. The light energy give the chloroplasts energy to produce the sugar, using water and carbon dioxide. Amount of this chemical reaction its stored energy is transferred to the roots of the living plants. This energy can be placed in the root area so it's an electro chemical active bacteria and it convert electrical energy through plant fuel cell. The proposed solution emphasizes on the use of environment friendly to produce electricity. Implementing this system will enable us to reduce the cost of electricity.

IN-02	NAME(S)	ABDUL JALEEL AMANOOR
ORGANIZATION		EAST INDIA TRADING COMPANY
TITLE OF ENTRY		**The De-airing Pugmill is the latest innovation among the Zero waste Mineral Residue processing Installation**

The De-airing Pugmill is the latest innovation among the Zero waste Mineral Residue processing Installation Zero Waste Mining Minerals Convert in to Building Material Products Processing Machineries Introduced to the world arena by East India Trading Company for the first time and in the three decade long existence we became master in this. The Pugmill removes the air from the zero waste mining mineral residue. Mining waste is made more elastic, thus improving the final quality, considerably. Apart from these we also innovate Tile & Brick Making Machineries.

IN-03	NAME(S)	SAIRAM. D
ORGANIZATION		NIT TRICHY
TITLE OF ENTRY		**THE SOCIAL DISTANCING METER**

The Social Distancing meter displays the current distance to the closest target in front of it, on an easy to read display. The badge gets its measurements with millimeter precision, using an eye-safe Laser-based LiDAR sensor. This helps to maintain the correct distance from you during these uncertain times. *"How can I stop someone looking right over next to me or even with the outside world and engaging with people to maintain social distancing?"* Along with this, I have prototyped a face mask with temperature and oxygen level detector(under testing) and it is a DIY CoVID health care kit.

INDONESIA

ID-01	NAME(S)	A.A. SUTADI SAPUTRA / ULFA DZAKIYYAH / GALLAND GURITMA MASRUSTAF / FARIDA HISNA SHABILA / FADZILA NUR 'AINI / MAHARDHIKA RAFIF PRATAMA / AMAR RAYHAN
ORGANIZATION		DIPONEGORO UNIVERSITY
TITLE OF ENTRY		**LIQUOMEDIKA Hydrogel Patch : Accelerates Wound Healing**

This study aims to analysis the hydrogel patch PVA/chitosan/starch infused liquid smoke and vitamin K from collard greens extract which has antibacterial effects and accelerates wound healing. The result revealed significant difference between the control group (hydrogel base PVA/chitosan/starch) and the treatment 3 group (hydrogel base PVA/chitosan/starch/liquid smoke/vitamin K) with the value of $p<0.05$ on the 4th and 7th day observation. In conclusion, hydrogel patch has a smooth and porous surface, can be inhibited the growth of *S. aureus*, and proven to completely heal animals wound in 11 days with increasing fibroblast calculation and collagen density.

ID-02	NAME(S)	Aziz Qomarul Firdaus / Bryantama Wahab / Dimas Arif Fakhrudin / Filbert Hansel Purnomo / Hardiansyah Rochani / Lingga Aradhana Sahadewa / Muhammad Farhan / Ryan Rusyda Tresnatriadi
ORGANIZATION		DIPONEGORO UNIVERSITY
TITLE OF ENTRY		**2nd Generation of "Smart Talang" smart chamfer producing energy in summer and rain from four sources energy**

Indonesia has two seasons, summer and rain. Both seasons greatly affect the productivity of existing energy generation systems in Indonesia, especially hydroelectric power and solar panels. This tool combines two generating systems on one device in the form of a chamfer with a turbine connected to a motor that will spin when exposed to water and produce electricity. At the top of the solar panel there is a directional sensor that can adjust the position of the panel with the position of the sun. So that the absorption of heat energy becomes maximal. In this second generation device, on the right and left side of the device there is a piezoelectric which is also located around the solar cell divider which can convert kinetic energy from falling rainwater into electrical energy. In addition, around the panel is also attached a wheel that is connected to a DC motor that will spin and generate electricity when exposed to the wind. This tool can operate in two seasons at a time and is a very suitable tool to be used as an inexpensive and environmentally friendly energy-producing solution. This tool is also equipped with a digital control system. Based on our research data, in the rainy season this tool is able to produce an average electric power of 1,946 watts and 357 watts in summer with the maximum conditions of each season without interruption on 4 energy sources. In the future, digital monitoring systems for electricity generated based on cellular will be embedded as well as the replacement of panel materials from natural TiO2 ions which are more environmentally friendly in the next generation.

ID-03	NAME(S)	**Prof. I Dewa Gede Ary Subagia, PhD. / I Dewa Made Oka Dharmawan / Putu Brahmanda Sudarsana / I Made Putra Arya Winata**
ORGANIZATION		Faculty of Engineering – Universitas Udayana
TITLE OF ENTRY		**Smart-Integrated-Flexible Garbage Capturing Apparatus (SIII-GACA) in River Flow**

SIII-GACA (Smart-Integrated-Flexible Garbage Capturing Apparatus) is an invention specified for capturing and transferring trash in river-flow with the combination of waterwheel and screw mechanism. The waterwheel rotates the apparatus, enabling the screw mechanism to convey trash in river flow. In this development, the floating mechanism and jet bridge concept is applied to make the apparatus more flexible and adaptable with the fluctuating water surface. The apparatus is also equipped with Internet of Things (IoT) hardware and software as the real-time monitoring system. NodeMCU is used as the microcontroller for data acquisition and Google Firebase as the data platform.

ID-04	NAME(S)	**Sidik Maulana / Faizal Musthofa / Ahmad Ihsan Fathurrizki / Arvyndito Bisma Nugraha / Neti Juniarti**
ORGANIZATION		Universitas Padjadjaran
TITLE OF ENTRY		**Mobile Nursing Center – Tuberculosis (MNC-TB): The Active Case Finding Solution Through Early Detection and Improvement Compliance For Tuberculosis Patients Based on Community Empowerment**

Background. Currently, the case finding of Tuberculosis is still carried out passively. moreover, the non-compliance in the anti-TB treatment causes ongoing transmission. Aim. was to develop a prototype of "Mobile Nursing Center- for Tuberculosis (MNC-TB)" for TB prevention and treatment. Method. The development of MNC-TB prototypes. Result. MNC-TB is a mobile application that applies the nursing center model to improve TB prevention and management in the community. The MNC-TB can improve community and family health services by empowering all available resources in the community. Conclusion. MNC-TB has the potential to become a TB management solution in the elimination of TB 2030.

ID-05	NAME(S)	**Muhammad Alfandy Pramana Lubis / Yusnaedar Okky Yutratama / Andika / Gloria Pasha Imanuella Havelaar / Eva Rosalina Oktaviani**
ORGANIZATION		Sekolah Tinggi Teknologi Kedirgantaraan Yogyakarta
TITLE OF ENTRY		**Implementation of improvements to the stability of the MCAS on the Boeing 737 max to avoid stalling**

The Data obtained from this experiment is, how to back up failures on a Boeing 737 MAX aircraft by Ensuring the aircraft must be connected to the Internet network and connected with a hosting application and can be accessed using a laptop in order to provide update data from the MCAS sensor software. The idea of this innovation has the advantage of flying back the aircraft Boeing 737 MAX after a long grounded and tackling or preventing errors in data software by automatically updating its database.

ID-06	NAME(S)	**Faiz Arsyad / Rama Humam Syarokha / Demmy Filsafa Ratna Putra**
ORGANIZATION		Brawijaya University
TITLE OF ENTRY		**MASCO (Mango Peels Coffee) Innovation of Healthy Coffee Drinks Based on Zero Waste System**

East Java is the largest mango producing region in Indonesia with 898.595 tons (BPS, 2017). Podang Mango is a type of native mango from Kediri Regency, East Java. According to the Kediri Regency Agriculture Office (2020), currently the number of podang mango production is 559.050 quintals/year. With the high amount of production, podang mangoes will produce mango peels waste that can pollute the environment. According to the Ministry of Agriculture (2016), the projection of coffee consumption in 2020 in Indonesia reaches 309.771 tons. Coffee consumed in Indonesia according to Nawrot (2003), is mashed coffee which contains a lot of caffeine (56-100 mg/100 ml). If excessive coffee consumption causes addiction to caffeine. The effect of caffeine addiction is hardening of the blood which is affected by heart attacks and strokes. With the high waste of podang mango peels and the dangers of excessive coffee consumption, it requires a nutritious and economically valuable product solution for the community, namely MASCO (Mango Peels Coffee) innovation of healthy coffee drinks based on Zero Waste System. The product innovation utilizes Indonesian culture, which is formulated with the powder from podang mango peels extract and original coffee powder. Resulting in a distinctive taste and has a lower level of bitterness because of the presence of antioxidants in the peels of mangoes and is useful for reducing the risk of diabetes, cancer, cholesterol, and coronary heart disease.

IRAN

IR-01	NAME(S)	**Hamed Vaghef**
ORGANIZATION		N/A
TITLE OF ENTRY		**Potential energy synthetic stone**

We have achieved a high-tech antifreeze formula, utilized in different forms like asphalt, mosaics without using any harmful chemicals, salt and so on. This antifreeze can bell • • produced in large amounts easily in budget prices everywhere, moreover in various molds and shapes to melt down all forms of snow and ice anywhere without using external stimulus energy. It can be applied especially in asphalt, pavement, roof tiles etc. to solve the problems of icing up by the melting down snow at the moment of precipitation.

IR-02	NAME(S)	Mirsaeid Fatemi Heydarabad / Hadi Akbari Dizaji
ORGANIZATION		Science and Research Branch-Islamic Azad University, Tehran, Iran
TITLE OF ENTRY		**Inter-knee medical pillow, capable of reducing hip weight pressure to the spine during sleep for the elderly and people with lumbar disc disease**
One of the most important factors in health and progress in various aspects of life is adequate and regular sleep. If one is deprived of sleep, he cannot remember what he had learned the day before. Comfortable sleep is always a major concern for patients with lumbar discs. This invention helps ease the burden of sleeping back problems by reducing the pressure on the spine.		

IR-03	NAME(S)	Seyedalialnaghi Tabatabaeiseyfi
ORGANIZATION		N/A
TITLE OF ENTRY		**Reducing power consumption in an elevator**
A system for reducing power consumption in an elevator is disclosed. The disclosed system may balance the lift with any capacity by shifting the energy transfer distance from the center to equalize the torque of the cabin and weight, and to provide the electromotor with the least amount of displacement energy.		

IR-04	NAME(S)	Vahid Khouri / Arash Tahmasebifar / Maziar Ghandian Zanjan / Seyed Mostafa Rahmatbakhsh / Anahid Khori / Arad Tahmasebifar / Rezvan Movahedirad / Seyedeh Helia Rahmatbakhsh / Mehdi Khouri / Sima Sadighi / Mohammadmehdi Motahari
ORGANIZATION		N/A
TITLE OF ENTRY		**A New Method, Device, Software and Application for Converting Fresh Fruits and Plants Residue to Cosmetic and Medical Semi-solid Products**
Finding a new approach for reduction of the fruits and vegetables residue is one of the most important strategy to clean environment, our invention have several advantages: environmental friendly, cheap and cost-effective, without any preservative or chemical additive, maximum of vitamin and natural antioxidant, versatile and user friendly, hypo-allergic and minimum adverse effects, It doesn't need any time consuming and industrial process.		

IR-05	NAME(S)	Keivan Kohzadi
ORGANIZATION		N/A
TITLE OF ENTRY		**The intelligent self-control rotary steerable system**
The ISCRSS is a game changer in oil and gas drilling industry whereas it provides a full industry for solution to eliminate human intervention in pre-planned well path following during the drilling so the human failures will be removed. By the ISCRSS, drilling a unconventional reservoir well drilling will be 5 up to 11 percent cheaper than before, this amount is huge enough to be called a revolution in oil and gas projects cost per barrel financial analysis.		

IR-06	NAME(S)	Amirhossein Rabet Ghannadi / Hamid Reza Azizipesteh baglo
ORGANIZATION		N/A
TITLE OF ENTRY		**New rail seismic isolation system for non-structural components**
In order to prevent damage to furniture and construction equipment such as furniture, cupboards, televisions, and in office buildings and hospitals where important equipment and information is stored, during an earthquake, design and manufacture a special mechanical seismic separator with different size and designs for different uses to secure and strengthen non-structural components at the lowest cost and in the fastest possible time by using completely local materials, will be the best way to significantly reduce financial and human losses during an earthquake.		

IR-07	NAME(S)	Mohammad Amini
ORGANIZATION		FANAP Co.
TITLE OF ENTRY		**PAYAB "Smart System of Online Detection, Alarming, and Locating of the Water Leakage in Plumbing System, and Managing of Water Usage"**
PAYAB is installed on the main water supply line to the home, Once installed, the smart complicated algorithm of PAYAB immediately begins protecting entire home against plumbing leaks, burst pipes, and other failures, 24/7. The instant a leak is detected; PAYAB automatically closes the emergency water shut off valve and shows an alarm .Also, PAYAB can locate the leak and mange water usage in homes to prevent over consuming and wasting.		

IR-08	NAME(S)	Neda Sajedi
ORGANIZATION		N/A
TITLE OF ENTRY		Smart helix parking

Smart helix parking is IoT-based system that sends data about free and occupied parking places via web/mobile application. This system has two advantages that distinguish from similar models is that one of the advantages of this parking is that it transmits data through mqtt platform via Android platform and users can use this service offline and the second advantage is that the structure of this parking is like a twelve sided volume and each layer is connected to the layer underneath dianogly. This connection forms six Parallelogram in each layer that each consist of two triangles and the conclusion of this design is that it can be mounted and dismount easily and can be folded and be used in crowded or Temporary places that need this service.

IR-09	NAME(S)	Morteza Bahrampour / Mojtaba Zarabi
ORGANIZATION		N/A
TITLE OF ENTRY		Multifunctional Human Cooling Device Used in Traumatic Organs and Chemotherapy

The present device can function in three following areas and for three groups of patients: (1) For patients suffering from damage to limb and bone tissue as a result of an injury or accident and for an injured limb that has become swollen and edematous, applying this device along with functioning a cold splint on the injured area will remarkably reduce pain with no need to medicine injection and will reduce the caused swelling of the affected area. (2) In patients suffering from high fever, using this device and a cold splint on the patient's thigh and back will quickly reduce the patient's fever. (3) Among cancer patients undergoing chemotherapy, making use of this device and putting the cold cap of the device on the patient's head will reduce hair loss.

IR-10	NAME(S)	Hassan Abedi Rahmanlou / Mahmood Esmaeili Omidvar / Mohsen Tavakoli / Shahram Ajorlou
ORGANIZATION		N/A
TITLE OF ENTRY		Wind Turbine with a Combination of Several Turbines in the Handles

Environmentally friendly and modeled on nature and tornadoes and has a completely mechanical composition. It can purify the air, which in turn is significant. After air purification, carbon can provide it for consumption in various industries. Due to the structure of its designed blades, it can change the fog into the water and return it to nature. In this design, the problem of wind speed and path has been solved and the direction of the wind does not make a difference in the work efficiency of this invention. At least the cost of manufacturing this device compared to the existing devices and the ease of the production process (up to 50%). Indigenousness and construction of this invention using local facilities. At least the cost of maintenance and low depreciation.

IR-11	NAME(S)	Mr. Vahid Niroumand / Mr. Hamzeh Abbaszadeh
ORGANIZATION		N/A
TITLE OF ENTRY		Multifunction meter with the simultaneous connection of several branches to power, water and gas system

The power, water and gas meters occupy a relatively large space in all buildings, and intelligent management and maintenance of each one is very costly. On the other hand, the installation of each of these meters requires equipment in the building. The invention integrates all three meters in a unit and enables its intelligent management to save space and facilities and allows their integrated management.

IR-12	NAME(S)	Elaheh Nasiri
ORGANIZATION		Biruni University
TITLE OF ENTRY		Safe Syringe for Dental Needle Stick

Infections caused by needle sticks and hospital wounds are very critical today and pose a severe challenge to health systems. The increase of hospitals, the emergence of recurrent diseases, the spread of microbial resistance, and the need for different medical services make the occurrence of infections caused by medical services inevitably. Needle injury happens all the time during syringe capping and injection. Therefore, we designed a very safe cap, which presents a way that the patient or the medical staff can perform capping and injection operation without any risk.

IRAQ

IQ-01	NAME(S)	Jamal Hameed Waheb
ORGANIZATION		Al-Karkh University of Science
TITLE OF ENTRY		**Design And Construction A Double cooling system To Increase the Electrical and Thermal Performance Of Photovoltaic/Thermal system by Nano fluid**

The idea is summed up to design and construct a double cooling system for photovoltaic cells to increase their performance and their electrical and thermal efficiency. The principle of working for a front cooling system is to make a thin film of water flowing over the upper surface of the PV panel.The operating of this system starts when the surface temperature reaches 50℃. In the back cooling system, the Nanofluid (Al_2O_3) is circulated with various concentration ratio and mass flow rates in the copper pipes installed on the back surface of the solar panel after that the Nanofluid enters to the small heat exchanger to contribute in the reduction of the temperature and benefit from the thermal energy generated by the cooling process, Also the water spraying system is designed on the heat exchanger to contribute of reducing the temperature of the solar panel as a whole.

JAPAN

JP-01	NAME(S)	Sir Dr. Yoshiro NakaMats
ORGANIZATION		International Invention & Innovation Institute
TITLE OF ENTRY		**Super Smart Phone**

Connect multiple smartphones and increase their functionality in multiple ways. This invention allows to expand larger screen and collapse into compact size.

KENYA

KE-01	NAME(S)	Ken-Andrew Muthui Gacheche
ORGANIZATION		Subzero Engineering (KE)
TITLE OF ENTRY		**Intergrated Sonar Echo Eye (I.S.E.E)**

I.S.E.E is an invention that was created in-order to be an assistive technology for Visually challenged persons. Much like Bats and dolphins we humans can employ Electronic devices to help people with a way to navigate by using sound and echoes. The idea was born after I spent a few days with blind people who would navigate their campus in Addis Ababa Ethiopia from memory alone. However sometimes there could be obstacles lying around along their path which would present a challenge, the idea was rebooted once upon returning to Kenya when i watched a documentary about a boy in the US who would use clicking sounds in order to get around. This inspired me to put to use some of my knowledge to come up with a solution for our brothers and sisters and Hence I.S.E.E version 1.0 was born, proof of concept completed Version 2 with improved aesthetics.

KOREA

KR-01	NAME(S)	CHOI YONG SUN
ORGANIZATION		JOEUN ENTERPRISE
TITLE OF ENTRY		**Structure and manufacturing method of multiple sensing flat electrode part of hydrogen ion concentration sensor for power plant water**

The present invention relates to a PH sensor, in particular, when measuring the pH of various types of water or liquids used in a power plant, it can be universally measured regardless of the range depending on the impedance due to the effect of electrical conductivity. It's about a flat electrode structure of a PH sensor for use in power plants, a method for manufacturing a flat electrode, and a technology having a multi-measurement range which applicable for water quality management by applying ultrapure water management inside the power plant, waste water treatment management, desulfurization and denitrification management and other plant water treatments.

KR-02	NAME(S)	SEUNG HYO LEE / SEUNGHYEUK LEE
ORGANIZATION		Korean Minjok Leadership Academy (KMLA)
TITLE OF ENTRY		**3D-HisSite: 3D Reconstruction of Historic Sites Damaged by Drastic Climate Change via Image Inputs Utilizing Deep Learning**

Recently, severe effects of climate changes have destroyed historical sites, posing a grave risk in preserving them. Thus, we created a complex deep learning network aided program that aims to generate a 3D voxel model via three image inputs. Inspired by the success of Stanford University's 3D-R2N2 network, the program's Residual-GRU-Residual network can reconstruct the 3D shape of the historical site using only photos of it, even if the site is not currently remaining. We will develop a website or an app, which will make easier for many people to pay attention to historical sites and help preserve historic values.

KR-03	NAME(S)	Mardiyah JHM / Lee Siwoo / Yusuf AM
ORGANIZATION		N/A
TITLE OF ENTRY		SPRING ELECTRICITY FOR POWER SOURCE MODEL

The continued development of the times, the more technology develops, the human need will grow, and needs a lot of means of fulfilling the needs, with the electricity will facilitate human activity. However, nowadays is still very low presence of alternative electrical energy sources as more and more demand for electricity is needed, it should be balanced with existing power sources. For the utilization of goods around us in order to generate electricity is an easy alternative energy sources. Electricity is actually easy to produce, with the movement of the rotating armature can be as a source of electricity, the use of spinning mop, for example.

KR-04	NAME(S)	KANG, SEUNG HO
ORGANIZATION		St. Johns School
TITLE OF ENTRY		Grating switchgear with foreign substance blocking function

Rainwater trap grading plays a role in draining rainwater in the event of rain on roads. The drainage grating that can withstand the load is easy to clean when foreign substances are accumulated by spring tensile force on the plastic plate cover in the grating compartment to prevent foreign substances from entering the sewer on rainy days, and only rainwater is discharged into the sewer to filter out sewage, which is not used for drainage.

KR-05	NAME(S)	YEON-HEE LEE
ORGANIZATION		Maewon High School
TITLE OF ENTRY		Push-Up Fitness Equipment

It is about push-ups measuring apparatus, one of the annual PAPS measurement events. When measuring, the posture should be straightened with the legs and waist, and the push-up rod and the arm bent at 90 degrees to do push-ups. However, fairness and reliability were often raised in the process of manually counting the number of times by friends due to students bending their arms a little to get a good grade in physical strength. In addition, it was often difficult to calculate the number of push-ups due to the fact that if the posture is poor while counting the number of push-ups in the correct position, it would have to be excluded from the number of times. On this, the push-up measuring device is bent at 90 degrees with the arm attached to the chest sensor so that it can become an automatic counter when the chest part is in contact with it. It was invented to help with fairness, reliability, accuracy, and time saving by automatically displaying the number of times on the screen.

KR-06	NAME(S)	JUN-HYUNG LEE
ORGANIZATION		Korea Digital Media High School
TITLE OF ENTRY		Saw and Blade Combined Shovel

The saw blade and blade were made using a grinder after laying the groundwork for the function of the saw on one of the two days of the ordinary shovel and the knife on one day. Before digging for roots, cut the stem of the roots using a blade, and cut the root of the tree that comes out while digging for the roots with a saw blade. Since the saws, knives and shovels are combined into one and the volume and weight are reduced, the fatigue level during hiking will be low, making the work more efficient. It is a shovel that combines saw blades and blades, which can be useful for growing crops or gardening. It is expected that commercialization will spread to farming and fishing villages and ordinary households.

KR-07	NAME(S)	KIM, JOO HAN
ORGANIZATION		DUS-LOCK
TITLE OF ENTRY		Scattering Dust Suppression and Sterilization Composition Using Natural Materials

The present invention is about suppressing fine and scattering dust generated from unpaved dirt roads or raw playgrounds, and creating a safe space through sterilization. The key idea relates to a construction method utilizing natural materials to effectively suppress dust and sterilize its environment.

KR-08	NAME(S)	Dahyung Lee
ORGANIZATION		Cheongshim International Academy
TITLE OF ENTRY		AI Portable Solar-Sterile Air Conditioner

Due to climate change, temperatures are so high in summer that portable fans are not working, so the idea is a portable sterilized air conditioner that can be solar powered. Using small heat semiconductors, solar panels connect electricity to electrical storage devices to circulate air in an inhalation and exhaust manner and sterilize incoming air by using small ultraviolet lamps. And it has the advantage of being portable so you can use it anytime, anywhere.

KR-09	NAME(S)	Jisoo Hwang
ORGANIZATION		Williston Northampton School
TITLE OF ENTRY		**A Business Card or Textbook with a Thermometer Attached**

This invention is a method of using sensors, which are electronic devices, as body thermometers attached to existing business cards. In an age when one needs to measure human body temperature due to the coronavirus, a business card is attached with a thermometer that can be easily measured by anyone using a business card.

KR-10	NAME(S)	Sunghyun Park
ORGANIZATION		North London Collegiate School Jeju
TITLE OF ENTRY		**AI HDR(High Dynamic Range), MRI, CT Image Processor**

When image reading is done after MRI and CT image imaging, it is sometimes difficult to read accurately due to noise. When these problems occur, there are many cases of retaking or misdiagnosis. To reduce this problem, it is an image reading machine that uses OpenCV to normalize the images taken and post-processing them using ANN network to finally show the images with HDR, the most advanced technology that OpenCV has.

KR-11	NAME(S)	Yihyun Nam / Dyanne Ahn
ORGANIZATION		Hankuk Academy of Foreign Studies / Yongsan International School of Seoul
TITLE OF ENTRY		**Nonsurgical Bee Venom and Electrical Stimulation Therapy for Parkinson's Disease**

Parkinson's disease (PD) is a neurodegenerative disorder that affects motor functions, and its symptoms include tremors, stiffness, and slowing of movement. PD is caused by a loss of nerve cells in the brain that produce dopamine. As the amount of dopamine in the brain decreases, patients experience symptoms of PD.

KR-12	NAME(S)	In Yeol Yeo
ORGANIZATION		Daewon Foreign Language High School
TITLE OF ENTRY		**Removidust – A lamp using Solar energy to remove mosquitoes, viruses, and fine-dust**

The name 'Removidust' is composed of four words, 'Remove, Mosquito, Virus, and Fine dust.' The invention is a street lamp with additional practical functions using Ultraviolet LEDs, a mosquito repellent and a solar panel, breaking away from the existing limitations of streetlights that only illuminate the surroundings brightly. In Removidust, you can expect three additional functions: extermination of germs, decomposition of the dust, and eradication of mosquitoes.

KR-13	NAME(S)	Wooju Lim
ORGANIZATION		Deerfield Academy
TITLE OF ENTRY		**An Automatic Temperature Control and Air Purification Device Using Solar Energy**

During the span of the day, excluding the time in which we are asleep, on average we spend the most time on our shoes. According to several studies, a vast number of illness or malfunction in human body comes with a sudden change in weight, heart rate and/or blood pressure. Hence it is most definitely beneficial to know our own change in biological signals.

KR-14	NAME(S)	Edward Kim
ORGANIZATION		Harrow School (UK)
TITLE OF ENTRY		**Artificial intelligence vacuum cleaner that disinfects the house and sterilises the clothing of the person who returns home after going out**

The recent COVID-19 pandemic has underscored the dangers related to infectious virus. It is essential to thoroughly sterilise home and clothing from the risk of any potential pathogens from surviving on clothing or at home to ensure safety of the others.

KR-15	NAME(S)	Ella Nakyo Hong / William James Junghoo Kim
ORGANIZATION		Dulwich College Seoul / Polytechnic School
TITLE OF ENTRY		**Intelligent Disease Prevention System**

Intelligent Disease Prevention System for Small Businesses incorporates various technologies in order to minimize risk of spread of diseases such as COVID-19. It features facial mask detection using machine learning, measures temperature without contact, and warns people before entering a venue, to only allow those with masks and fall within safe temperature measurements. The key component of this invention is the facial mask detection that was trained using Computer Vision and Machine Learning technologies.

KR-17	NAME(S)	Jiho Park
ORGANIZATION		Seoul International School
TITLE OF ENTRY		**Coronavirus & bacteria eradication equipment utilizes radioactive gas which emits alpha rays**

The present invention is for the treatment of resistant bacterial diseases corresponding to viral diseases that are expanding worldwide, and a treatment method using gaseous radioactive gases that emit alpha rays such as radon or radioactive isotopes of radon, such as thorium and actinon. In the present invention, it provides an apparatus for treating the disease by selectively neutralizing or sterilizing viruses and bacteria that cause incurable or permanent diseases by using heat or magnetism together.

KR-18	NAME(S)	Claire S. Park / Joshua S. Park
ORGANIZATION		Yongsan International School
TITLE OF ENTRY		**Marine speculative object removal and algae removal ship**

A lot of power is needed to execute the move and remove the algae of the unmanned automation boat. To accommodate such power, a large solar panel covering the entire top of the boat is installed at the top. This not only prevents abalone accidents by simply installing the ship's power system, but also has the advantage of creating sufficient floor space inside. In order to eliminate pterygium and other algae, the color-coded function of the river must first be included, which can be fully performed with only three-color LEDs and light sensors.

KUWAIT

KW-01	NAME(S)	Jenan Esam Saleh AlShehab
ORGANIZATION		Electrodis Est.
TITLE OF ENTRY		**WIRELESS POWER TRANSMISSION SYSTEM**

Many inventions and researches have been made in the wireless electricity field after the tesla coil invention in 1891. The real challenge facing those inventors and researchers nowadays is to transmit electricity wirelessly from a distance without the need for any physical connections or in other words, convert electromagnetic waves into electricity that can be used in charging and activating electronic/electrical devices. The invention presented “Electrodis” is proven and patented to transmit wireless electricity from up to 3meters.

LEBANON

LB-01	NAME(S)	Ahmad rida HOUMANI
ORGANIZATION		Lebanese Innovators’ Society (LIS)
TITLE OF ENTRY		**AL-JAWHAR**

AL-JAWHAR is a technological device whose goal for deaf people, deliver the sound to the deaf from a distance within a lecture hall or classrooms has an advantage when deaf that they relax to hear his very clear voice without ringing, and has the property that it is made in the form of a headset, and also others can benefit from this. Deaf people that they hear a sound that is much cleaner than the voices dependent on the guidance so that the deaf and those who are free of deafness benefit from it, and the deaf people can place the device in their home and through it they hear the television and the voices inside.

LB-02	NAME(S)	Peter Nehme
ORGANIZATION		Lebanese Innovators’ Society (LIS)
TITLE OF ENTRY		**Green Concerto**

This project aims to raise people’s awareness about the importance of returning to nature to enjoy its stunning scenery, enchanting tunes and regular rhythm. It will provide the person with relaxation and diving in its effects, which brings to him all its good, because he is the son of nature.

LB-03	NAME(S)	Imad Agi
ORGANIZATION		Lebanese Innovators’ Society (LIS)
TITLE OF ENTRY		**ECOLOO Sustainable Toilet Technology that saves lives, water, energy and the Environment!**

ECOLOO’s award winning biological sustainable Sanitation Solutions are based on the principle of Simplicity, Scalability, Environmental Responsibility and Economic Viability. It employs special formulated bacterial culture to treat and vanish human waste and transform the urine into natural liquid fertilizer that is odor free, pathogen free and full of nutrients, perfect for organic farming.

LB-04	NAME(S)	MicroLogic Faraj Group – Lebanon / Eng. Ali Hassan Faraj
ORGANIZATION		Lebanese Innovators’ Society (LIS)
TITLE OF ENTRY		**Micrologic Faraj Group Cars Bazar Project**

The Cars trade is the most important action followed successfully to day in all the world since it consists of several steps that any person working in this major should follow to make the mission ends successfully since the one who work with cars trading should buy the cars from the Manufacturer who is settled in some country in the world then he should transport it to the country where he will sell the car, which means that he will pay money for each step such as: costs, taxes, transportation, etc. In the other hand, the final step for the car is selling it in the show room the thing that leads to the need for the BAZAR System in order to take track for the cars available and marks and types since the number of cars available in the show room should be very large to remember in mind.

LB-05	NAME(S)	MicroLogic Faraj Group – Lebanon / Eng. Ali Hassan Faraj
ORGANIZATION		Lebanese Innovators' Society (LIS)
TITLE OF ENTRY		MicroLogic Faraj Group Complex Ventilator Ver 1
This device helps the injured to breathe in the event of difficulty in doing so. Ventilator tubes are attached to the patient's airways to help him breathe. In general, during the breathing process, oxygen enters your lungs and carbon dioxide from it, but in the event of infection with the new coronavirus, the virus may cause fluid to accumulate in the lungs, causing difficulty breathing. Here comes the need to use a ventilator to pump oxygen to the lungs		

LB-06	NAME(S)	MicroLogic Faraj Group – Lebanon / Eng. Ali Hassan Faraj
ORGANIZATION		Lebanese Innovators' Society (LIS)
TITLE OF ENTRY		Micrologic Faraj Group Hotel Management System Project
After a lot of studies and researches we have done about the hotel systems available today in Lebanon, and after a lot of researches about the hotels hierarchies and their constructions in case of Human and Resources, Finance, Managers, Supervisors and Departments in addition to Administration, We Found that Probably most the hotels follow the same system from the view of construction and this view is not found only in Lebanon alone, it is found approximately in all Arabic countries since they follow the same way in Hoteling and Managing Residency work.		

LB-07	NAME(S)	MicroLogic Faraj Group – Lebanon / Eng. Ali Hassan Faraj
ORGANIZATION		Lebanese Innovators' Society (LIS)
TITLE OF ENTRY		Micrologic Faraj Group Oxygenator Project
A recently discovered technology facilitates the chemical breakdown of water into its elemental components, hydrogen and oxygen, by using a manganese-containing compound. The compound, chemical formula: [H2O(therapy)MN(O)2Mn(therapy)OH2](NO3)3 acts as a catalyst in a chemical reaction that produces hydrogen and oxygen gas from liquid water. The task assigned to our group was to develop a profitable process using this oxygen-evolving complex (OEC) to produce oxygen from water.		

LB-08	NAME(S)	Tarek ahmed / antoun Abou Seleiman / badi Shater
ORGANIZATION		Lebanese Innovators' Society (LIS)
TITLE OF ENTRY		Mobile sorting Machine for solid waste
During our work in MSW treatment, we were in need to exam the component of the MSW in the area we have to build sorting plant or make a study, so we started by barrels and we added a conveyor on our truck and move from a city to another. One day in Saudi Arabia, the ask us to rebuild the already existed sorting plant without stopping the work in station completely. So we work for this and get our mobile sorting plant. Our mobile sorting plant is very simple, the idea of it how we gather all plant factors and elements on board with easy set up and reset up. So we used the existed and already used technology but we minimize some of them and make a complete harmonic system. The idea is patented in a way or another, but what we planning to do is improve the system in a city has a real problem in gathering and treat MSW. We are sure of our invention waiting for a client or an environmental organization to ask us to make a mobile sorting plant and put it in use.		

LB-09	NAME(S)	Raefa Jomaa
ORGANIZATION		Lebanese Innovators' Society (LIS)
TITLE OF ENTRY		Wireless Social Distance Meter
Social distancing is crucial for preventing the spread of viral diseases illnesses such as COVID-19. By minimizing the closely physical contact between people, we can reduce chances of catching the virus and spreading it to the community.		

MACAO

MO-01	NAME(S)	Liang Junbiao / Wang Yijie / Zhu Qibin
ORGANIZATION		Rongshan Middle School
TITLE OF ENTRY		The Design of Spiral Elevator with Worm Gearing
It is estimated that a majority of elevator accidents are due to the break of hoist rope or braking failure, causing injuries and deaths. Spiral elevators with worm gearing resembles screw elevators, and a screw with rectangular thread acts as the direct plunger. A big screw nut with thrust bearing, which is driven by a motor and a gear reducer (or a belt), is installed on the top of hydro-cylinder, and thus the screw makes the car rise up and down. In this design, one single screw is applied, ensuring fast speed and safety.		

MO-02	NAME(S)	Ka-Wai HUANG / Chi-Kit WONG / Si-Teng WU / Jia-Ning WENG / Ting CHEN
ORGANIZATION		The Workers' Children High School of Macao, Macao, China
TITLE OF ENTRY		Inter-turn short-circuits fault detector for motor rotor winding
Motors operating under stressful conditions deteriorate and may lead to catastrophic motor failures from winding faults. This invention presents a novel device for detecting rotor winding inter-turn short circuit fault based on the principle of electromagnetic induction. It consists of two parts: (1) An EM generator that energizes rotor winding inter-turn. (2) An EM probe to position a ferrous metals strip near the rotor winding under test to detect winding inter-turn short circuit fault through mechanical vibration. This invention allows users to easily, quickly, and accurately determine the current health of a rotor winding of an electric motor.		

MO-03	NAME(S)	Kuok Chon Man / Chao Man Sam / Wong Un Man / Chen Jia Hao / Lin Pei Wen
ORGANIZATION		The Workers' Children High School, Macau
TITLE OF ENTRY		**Visible Deep-water salvage platform**

The Visible deep-water salvage platform. Known as the V.D.W.S.P. is a device which is specially design for Deep-water salvage task. In the past we need lots of ships and divers and money. It's more like throwing cash into to the sea than have your ships back on to the ground. we developed a new way of salvage we call him the "Claw crane" system, to achieve that, we need a new platform, so here we are, we developed a new salvage platform, we call him the "visual-able deep-water salvage platform" or his nickname "Dragon King Whale" instead.

MO-04	NAME(S)	LAO HIO PUI AUDREA
ORGANIZATION		PUI CHING MIDDLE SCHOOL MACAU
TITLE OF ENTRY		**Magic Beauty Wardrobe / The 24-7 Wardrobe**

"Magic Beauty Wardrobe" is a wardrobe which connected to the local observatory, so it can remind users about the weather conditions, reducing the chances of wearing clothes when users go out, enhancing the experience in our daily life.

MO-05	NAME(S)	XIANG ZI FAN CATHY
ORGANIZATION		PUI CHING MIDDLE SCHOOL MACAU
TITLE OF ENTRY		**Keep You Warm**

This is a jacket designed for the elderly to help them keep warm. If their body-temperature lower than 35 degree Celsius, the buzzer on the jacket will alarm and the heater will be activated. I think it can help the elderly who live alone and some elderly with mobility impairment. If the weather becomes cold, the jacket can keep them warm, avoiding them from getting Hypothermia. This design can also help the people who live and work in extremely cold areas.

MO-06	NAME(S)	LEONG WANG CHI
ORGANIZATION		Macau Pooi To Middle School
TITLE OF ENTRY		**Classroom disinfection and health guard**

We aimed at the shortcomings of traditional UV lamps that cannot be moved, we made this automatic cruise class disinfection and health guard. In order to enable it to patrol on its own in the classroom, find passages, keep a certain distance from the tables on both sides when walking, and avoid hitting the tables, chairs and walls while disinfecting.

MO-07	NAME(S)	Chan Peng Him / Lam Weng Him / Hong Weng Fong / Chan Wai Chon / LIN YANLONG (tutor)
ORGANIZATION		The Affiliated School of the University Macau
TITLE OF ENTRY		**Robot for extreme environment exploration based on Arduino**

Hexapod robot, controlled by Arduino ,is mainly used in the exploration of extreme caves' environment .With the six-foot design ,it can maintain stable movement and adjust itself when flipping. To stand the extreme environment, carbon fiber is designed as the main material. Additionally, the power consumption is about 60% lower than the traditional one. Using Arduino as the core, the robot can sense and collect environment's data for the research through sensors .Furthermore, the robot arm can activate small holes at the tips of four arms. Thus, samples are sucked into the micro-storage library by nano-suction technology in order to collect samples.

MO-08	NAME(S)	Lam Hou Hei / Leong Chi Wang / Chong Ka Sin / Vu Weng Ian / Leng Ka Hei / LIN YANLONG (tutor)
ORGANIZATION		The Affiliated School of the University of Macau
TITLE OF ENTRY		**The Design of a Flood Search and Rescue Vehicle**

This design is applied to a multi-functional exploration device on land and water. The current environmental conditions are acquired by the Raspberry Pi, camera lens, and ultrasonic sensor, and transmitted to the mobile phone via Wi-Fi connection in real time. The user can control and use it remotely by touching the screen of the mobile phone APP. Used for rescue after wind disaster, existing life search technology and ocean exploration.

MO-09	NAME(S)	YUNG CHON HANG / LAI HIO KUAN / LIN YANLONG (tutor)
ORGANIZATION		The Affiliated School of the University of Macau
TITLE OF ENTRY		**Ultra-smooth liquid-implanted toilet with porous surface**

The invention adopts super-slip technology to discharge feces, which changes the design of traditional toilet water. The technology is derived from the inner wall of Nepenthes, which has an ultra-smooth surface and a liquid-liquid system that can slide the feces away. It can save about 30 billion gallons of fresh water every year and reduce the consumption of fresh water resources. The design of removing the water tank can reduce the volume of the toilet and increase the available space of the toilet.

MACEDONIA

MK-01	NAME(S)	Meryem Alkin / Engin Alkin / Ahmet Tarik Dinc
ORGANIZATION		Yahya Kemal College Karposh
TITLE OF ENTRY		**Fresh plant of lavender, fresh flower of lavender and dried lavender "Lavender-wonder plant that removes heavy metals from water" Continuation project**

Our aim is to prove that with this natural resource lavender I can make the quality of water way better, especially the quality of polluted water, and with that We can make better conditions for living and We will make better environment and make the people`s lives better. we are polluting our water with heavy metals. For our project we chose the plant named as lavender, because it is: easily accessible to everyone, low-cost and not harmful to nature. It's also preventing water for being polluted, we can easily stop the migration of heavy metals in water.

MK-02	NAME(S)	Matej Milosievski
ORGANIZATION		Yahya Kemal College - Skopje
TITLE OF ENTRY		**THE ENVIRONMENTAL EFFECTS OF WRITING: FINDING AN ECO-FRIENDLY ECONOMICAL AND SAFE WAY OF WRITING**

One of the factors which contribute to the pollution of our environment, not typically associated with it, is the method that we humans use for writing: pens and pencils. The purpose of this project is lowering the amount of trees being cut, and the total plastic production used for pens and pencils by finding an ECO friendly, affordable and safe way of writing - The infinite metal pen oxidizes the paper, not using any ink or graphite. I created my own affordable version by applying an encapsulant and testing the presence of lead with the use of sodium rhodizonate ($C_6Na_2O_6$).

MK-03	NAME(S)	Mila Lazarova / Mila Dimkovska
ORGANIZATION		Yahya Kemal College Skopje
TITLE OF ENTRY		**Natural homemade night cream- a new low cost solution for overnight beauty**

The aim of this research was carried out to formulate and to produce a face cream containing organic products like: spirulina powder, coconut oil, ginger etc. This project will begin by explaining skin care, the products that it contains and their benefits. We used only organic products because we think they all have the same effect- they help each other for better effect on the skin. These products also speed the circulation; they heal scars and feed the skin. In conclusion, this experiment was successful, with no side-effects and we got the results that were expected.

MK-04	NAME(S)	Umit Uzunboy / Omar Kolashinac
ORGANIZATION		Yahya Kemal College Karposh – Skopje
TITLE OF ENTRY		**Cleaning Air With House-Plants**

One of the most threatening problems in today's world is probably Air Pollution. Air pollution is caused from the greenhouse gases emitted by the machines that we are using. For example cars, factories etc. On the other hand humans are trying to reduce it as much as they can. We came across a study established by NASA which was originally aimed to clean the air in space stations by using simple house-plants. We wanted to see the availability of this research in our conditions. We chose Red-edged Dracaena, Peace Lily, Florist's Chrysanthemum and Flamingo Lily from the list of NASA.

MK-05	NAME(S)	Betul GUL ERDIL / Chedo TRPESKI / Ismail ERDIL
ORGANIZATION		YAHYA KEMAL COLLEGE – SKOPJE
TITLE OF ENTRY		**SOLAR POWERED AIR CLEANER STREET LAMP**

The purpose of this project is using sunlight as natural, continuous, renewable, and green energy source to light and clean the streets air. With this project, we have designed for the first time an eco-friendly solar-powered air cleaner street lamp. We have assembled, patent waiting innovative solar powered street lamp that lights and also cleans the air. Design was consisting of high efficiency solar panels, two air fans in the body part of the lamp with carbon and HEPA air filter. Air quality was altered after filtration thus pollutant particles were decreased significantly. We are planning as future implement to apply similar method and design classrooms, corridors and schoolyards to give our friends studying in a purified pollutant free atmosphere.

MK-06	NAME(S)	INDZI AJRADINOSKA / KALTRINA BYTUQI
ORGANIZATION		YAHYA KEMAL COLLEGE JUNIOR – SKOPJE
TITLE OF ENTRY		**SOLAR WATER CONDENSATION FROM AIR FOR PLANT IRRIGATION SYSTEM**

In this project we will show you how we turn air into water by condensation. Condensation is the change of the physical state of matter from the gas phase into the liquid phase, and is the reverse of vaporization. By using this method, we will show how we get water from air and with the water we get to be able to water plants with the help of solar panels. One of our purposes is to use energy from the sun to condense water from air and to save more money and our environment.

MK-07	NAME(S)	Kiril Ristevski / Lara Samardzieva
ORGANIZATION		Yahya Kemal College
TITLE OF ENTRY		Zeolite & Lavender - Heavy Metal Hunters In Restoring Soil

The main reason why we chose this project is because they have a bad influence on people's health. We chose Zeolite and Lavender as ways of cleaning the soil because this method is cost-efficient. Our goal is to prove that contaminated soil can be revitalized by this tectosilicate and after that it can be used for agricultural purposes. Formerly we took soil samples from the highly radioactive industrial area in the city of Veles, Macedonia. Secondarily the soil samples were examined and we confirmed that the land was corrupt. In the experimental part we used Zeolite and lavender. It took 3 months for the detoxifiers (Zeolite and Lavender) to react with the soil. After three months we took samples from the soil and had them tested. With the utility of the zeolite, the volume of heavy metals is substantially decreased. Considering that the results are positive, our research showed that the soil is up to 96% cleaned. We can use this method for improving the environment, getting cleaner soil, more refined products and an overall purer way of being.

MALAYSIA

MY-01	NAME(S)	Dr R Kanesaraj Ramasamy / Prof. Dr Chin Kuan Ho / Ts. Dr Chiung Ching Ho / Dr. Intan Soraya Rosdi / Dr Ruzanna Ab Razak / Dr. Nurazlin Mohd Fauzi
ORGANIZATION		Multimedia University, Cyberjaya, Malaysia
TITLE OF ENTRY		SMART TOILET: IoT Implementation for Resources Optimization & Digital Lifestyle

Smart Toilet is an integrated (Internet of Things) IoT and cloud-based system which developed specifically for the implementation of an smart building system and as well as individual system. Its features allow data collection for toilet use for efficient prediction of toilet peripheral procurement and maintenance. The monitoring of the toilet frequency and the cleanliness rating of users in real time also helps maintenance managers to prepare for cleaning services optimisation through Smart Toilet Web App. Effective data on the usage of toilets is also channeled into an Smart Toilet Mobile App to send toilet users on the live updates of the availability of preferred toilet cubical.

MY-02	NAME(S)	KARTHIKGESAN A/L SANTHARASEKARAN / SANTHARASEKARAN A/L SUBRAMANIAM
ORGANIZATION		SMK PROTON CITY
TITLE OF ENTRY		ECOSEGAR ENVIRO-POT & MACHINE

It is an invention for agriculture and environmental management to ensure the quality of seedling growth and an environmentally friendly management system. The cow's dung is left idle, made of raw material for small plant pots. Tree plants are more friendly to grow because of the design of vials nutrients from cow's faeces giving nutrient inputs that promote the growth of the roots of the trees. Not only that, the cow's corpses are idle here and there; can be used as a raw material even to ensure the safety of sewage pollution in a farm location. The invention of Enviro-Pot Machine will make sure the products can be more productive and smooth surface of pot can be produce randomly around 20-25 pots in a minute. Rather than manual system, this machine invented by our self in Malaysia to produce from varieties of waste product to become as a pot, such as from banana dry leaves, soil, sugarcane husk, coconut fibre and so on. This project encourages agricultural produce, avoids pollution, and even benefits from natural plant vase business replaces plastic vases.

MY-03	NAME(S)	Prof. Dr. Ir. Sim Kok Swee / Assoc. Prof. Ts. Dr. Tan Shing Chiang / Mr. Toa Chean Khim / Mr. Lim Zheng You
ORGANIZATION		Multimedia University (MMU)
TITLE OF ENTRY		ANALYSIS OF BRAIN EDUCATION USING AUGMENTED REALITY AND ELECTROENCEPHALOGRAPHY

It is important to have an affective education learning for the students in their early year. In this project, an Augmented Reality (AR) technology and Electroencephalography (EEG) will be used during the learning process of a subject. AR applications capable to project virtual information into the physical environment. Its applications can drive higher levels of visual attention in the brain as compared to book-based syllabus. An EEG is an electrophysiological monitoring method where it measures the electrical activity in the brain. The main goal of this project is to measure and identify the brain condition toward AR application using EEG.

MY-04	NAME(S)	Ir. Prof. Dr. Sim Kok Swee / Fawaz Sammani / Mahmoud Elsayed
ORGANIZATION		Multimedia University (MMU)
TITLE OF ENTRY		CLASSIFICATION OF STROKE PATIENTS EEG SIGNALS

The stroke, which is a sudden cut in the blood supply in the brain, has become a severe phenomenon. It has affected around 15 million people annually worldwide. Methods of stroke discovery and monitoring the patient's recovery are a long process, ranging from the analysis of medical images to frequent reporting of the patients for progress assessment. The proposed invention could potentially assist a medical doctor in analyzing stroke brain images with high accuracy rates. It can also be useful for rehabilitation centers to monitor the progress of stroke patients.

MY-05	NAME(S)	Prof. Dr. Ir. Sim Kok Swee / Assoc. Prof. Ts. Dr. Tan Shing Chiang / Mr. Toa Chean Khim / Mr. Lim Zheng You
ORGANIZATION		Multimedia University (MMU)
TITLE OF ENTRY		**Left Right Brain Dominance Level Classification Based on Deep Neural Network Architecture and Electroencephalogram Signal**

The theories regarding to brain dominance defines a person's personality have been developed for decades, for example left brain thinker better in mathematics and right brain thinker better in arts. Currently, questionnaire assessment is used to determine the brain dominance level. However, there is no evidence in term of practical biofeedback data which reflects the information of our brain to validate the left and right brain dominance concept. Thus, in this invention system, electroencephalogram (EEG) method is used to capture brain activity. And the developed hybrid adaptive resonance theory deep neural network is used to classify the brain dominance level.

MY-06	NAME(S)	Lim Choon Chen / Ir. Prof. Dr. Sim Kok Swee / Associate Professor Tan Shing Chiang / Lew Kai Liang
ORGANIZATION		Multimedia University (MMU)
TITLE OF ENTRY		**VIRTUAL STROKE REHABILITATION EXERCISE INTEGRATING WITH PATIENT PERFORMANCE ANALYSIS SYSTEM**

Upper limb impairment and fingers motor dysfunction are the major problems faced by stroke patients. Thus, an attractive and immersive game system that integrates two rehabilitation games with a patient performance evaluation system is proposed to assist in the restoration of impaired motors. The first game application, 'Pick & Place' is integrated with a Leap Motion sensor to offer fingers fine motor rehabilitation training. The second game application of 'Stone Breaker' utilizes Microsoft Kinect sensor to provide upper limb motor training. The system uses a machine learning method to closely track the performance of stroke patients when conducting the rehabilitation.

MY-07	NAME(S)	Lew Kai Liang / Ir. Prof. Dr. Sim Kok Swee / Associate Professor Tan Shing Chiang / Lim Choon Chen
ORGANIZATION		Multimedia University (MMU)
TITLE OF ENTRY		**VIRTUAL REALITY UPPER LIMB REHABILITATION**

There are over a billion people who have a few forms of disability such as stroke and upper limb disability, and around 15 million people meet a trouble in using their limb. Rehabilitation is a physical therapy to recover the functionality of the upper limb. However, most patients will lost motivation in performing the dull and repetitive trainings. The VR is a well-known technology nowadays in providing virtual environment to serve entertainment purpose. Thus, the objective is to develop an immersive VR serious game application to asset the upper limb motor performance in an interesting manner.

MY-08	NAME(S)	GOMATHY A/P SANKARAN
ORGANIZATION		SJKT KANGKAR PULAI
TITLE OF ENTRY		**4N-FREE HAIR SOLUTIONS PRODUCTS (4N-FREE hair oil, 4N-FREE hair mask, 4N-FREE hair serum and FREE hair soap)**

4N-FREE hair solutions products can be use in powder form, liquid and solid form as well. 4N-FREE hair solutions products help prevent follicles duct from being congested, helps to accelerate scalp's cell metabolism and improve blood circulation, provides nutrients and boost hydration to the scalp and supports hair regeneration and helps accelerate healing. 4N-FREE hair solutions products all already tested in Lab and it has been approved in Malaysian government. But 4N-FREE hair solutions products still not in Malaysian market and global market due to finance problem. This product has been updated from 4N-FREE hair mask to 4N-FREE hair solutions products such as 4N- FREE hair oil, 4N-FREE hair mask, 4N-FREE hair serum and 4N-FREE hair soap as well by using same raw materials. 4N-FREE hair solutions products are most suitable for cancer patients before or after chemotherapy. Research is still going on to cancer patients by voluntary basis'. Some cancer center is already started using the oil with free of charge for research purpose.

MY-09	NAME(S)	Haini Kotin / Fairuz Izwan Abdul Lait / Hilary Robert / Doylmick Roey Donius / Mohd Firdaus Anwa Wasinin
ORGANIZATION		Keningau Vocational College
TITLE OF ENTRY		**ELF Shelf**

A 4 tier moveable storage shelf equipped with LED lights that can be turned on with ultrasonic sensors. It also has a fordable tray table. The goal of the project is to assist senior citizens and people with limited mobility who are confined to their beds by providing them a specifically designed shelf that can be easily moved and placed closer to them so they can conveniently reach it to either store or retrieve any item from the shelf. The shelf boxes will light up when hands are placed inside them.

MY-10	NAME(S)	CHEETALAKCHUMY D/O BALU · BALU S/O MANIKAM
ORGANIZATION		SJK(T) KERUH, PERAK
TITLE OF ENTRY		EFFECTIVENESS OF "BP & PB" TECHNIQUE TO IMPROVE REMEDIAL PUPILS' SKILL ON ADDITION INVOLVING REGROUPING

This action research is conducted to improve remedial pupils' skill on addition involving regrouping with the "BP & PB" technique. This research is conducted on primary school students who are at the weak level of proficiency. "BP & PB" technique is a method involving place value chart that contains a distribution box to write the sum and to add the numbers in the place based on color. The data collection methods used were pre-post test, students worksheet, observation, and interviews. The data collected analyzed using both qualitative and quantitative methods. Based on findings from the data collected, this "BP & PB" technique can improve students' mastery on addition skills involving regrouping. Students responses that indicate this technique is easy to understand. This method can also increase the confidence level of students to answer addition questions that involves regrouping. Research participants showed positive improvement towards the use of "BP & PB" technique while answering questions in the form of mathematical sentences. The proposed follow-up to this research are teaching aids for "BP & PB" technique that could be used in topics such as subtraction and multiplication involving regrouping.

MY-11	NAME(S)	Kavisha A/P Nagarajan · Kailesh A/L Saravanan · Yuvika A/P Mahaganapathy
ORGANIZATION		SJKT Taman Melawati
TITLE OF ENTRY		MySoil MyPlant

Soil type identification is essential to determine what type of plants to be grown in a particular type of soil. The soil type can be identified by measuring its Electro-conductivity. By measuring the EC, we can plan what types of plants is suitable to be grown in the soil. Plants grown in a particular type of soil finding difficulties to grown again in the same soil. This is due to the soil texture, characteristics and its properties changes over time. Hence effecting its growth. However, these changes in the soil properties can be measured by reading its electro-conductivity, and we can determine what type of plants to plant.

MY-12	NAME(S)	MOHD EFFENDI @ EWAN MOHD MATORE / AHMAD ZAMRI KHAIRANI / NORDIN ABD RAZAK / EFFA RINA MOHD MATORE
ORGANIZATION		FACULTY OF EDUCATION, UNIVERSITI KEBANGSAAN MALAYSIA (UKM)
TITLE OF ENTRY		IKBAR ADVERSITY QUOTIENT (AQ) SCALE - SHORT FORM (IKBAR-SF)

The main key inventions are related in developing new instrument of Adversity Quotient (AQ) for polytechnic students using Rasch Measurement Model and Confirmatory Factor Analysis. The instrument named IKBAR that stand for *Instrumen Kecerdasan Menghadapi Cabaran*. The main product of IKBAR was a manual of AQ measurement psychological instrument for human development. Rasch model is a modern measurement theory that combined with CFA that helps in giving much more information regarding empirical evidence on the quality of the items. Researcher also developed innovation on counselling approach for students to boost their confidence level by collaborating with counsellors.

MY-13	NAME(S)	GOMATHY A/P SANKARAN
ORGANIZATION		SJKT KANGKAR PULAI
TITLE OF ENTRY		CRUNCHY CENTELLA ASIATICA "MCCC"

Centella asiatica has been used as a medicinal herb for thousands of years in India and China. *Centella asiatica* is one of the chief herbs for treating skin problems, to heal wounds, for revitalizing the nerves and brain cells, hence primarily known as a "Brain food" in India. *Centella asiatica* has been considered as brain tonic due to its wide beneficial neuro protective activity. Besides this, various other effects such as anti-inflammatory, anti-proliferative, anticancer, antioxidant, antiulcer and wound healing. Even through its consists a lot of benefits but now days children and also adults didn't like to eat *centella asiatica*. Although from a very young age, children are told to eat vegetables for health reasons but for them *centella asiatica* vegetables are not linked to eating enjoyment.

MY-14	NAME(S)	Prof. Dr. Mohd Zobir Hussein / Farhatun Najat Maluin / Dr. Idris Abu Seman / Prof. Dr. Sharida Fakurazi
ORGANIZATION		Universiti Putra Malaysia
TITLE OF ENTRY		NANODERMA: A Potent Antifungal Nanodelivery System for Ganoderma Disease Treatment for Oil Palm

Oil palm is one of the largest crops and economical trees in Malaysia. However, the oil palm plantation faces the threat of a devastating disease which is particularly caused by a pathogenic fungus, Ganoderma boninense and has caused significant loss to the oil palm industries, with the estimated yield loss due to this disease can reach up to RM1.5 billion. The aim of the invention is to develop a green formulation of fungicide nanodelivery system. The controlled release formulation of fungicide aims to reduce the fungicide toxicity, enhance the efficient delivery of active ingredient to the target site, able to sustain in a longer time and consequently improved fungicide efficacy. Moreover, it also aims to enhance uptake, minimizing volatilization, leaching and runoff of fungicide that can cause health and environmental concerns.

MY-15	NAME(S)	SIVASHANKERY A/P BALAN · SHIVA ROOBINI A/P BALAN
ORGANIZATION		N/A
TITLE OF ENTRY		SMART MEDICAL WARD
The smart medical ward system is a simple system which will reduce the workload of a nurse. It monitors the IV drip level and the noise level of the ward. Medicine dispenser is also integrated and these devices uses IOT protocol.		

MY-16	NAME(S)	MOHAMAD ROSNI OTHMAN
ORGANIZATION		FACULTY OF MARITIME STUDIES, UNIVERSITI MAAYSIA TERENGGANU
TITLE OF ENTRY		THE PROTECTING BARRIER FOR DEFLECTING INCOMING WIND
Since 1990, natural disasters have affected about 217 million people every year especially windstorms disaster contributed of world disaster in 15% loss of life, 27% number of events and contributed 45% of economic loses. However, the research on ideal and effective windstorm protection method are rather limited. The invention is to generalize effect of wind forces on a building structure. The barrier is formed by joining several aerodynamic ellipse-shaped beam or 'S' shape curves arranged horizontally equidistance from each other made of a set of blades and aerodynamic rod shape in between superposed on one another at regular distance, at the lower end of the last 'S' shaped curve attached a wind blade to be used to generate electricity.		

MY-17	NAME(S)	ROSNAH SHAMSUDIN / ROBIAH YUNUS / MOHD HAFIZZ WONDI
ORGANIZATION		UNIVERSITI PUTRA MALAYSIA
TITLE OF ENTRY		ROTARY DISC AND SERRATED BLADES FIBER EXPELLER (ROTADISC)
The oil palm or (*Elaeis guineensis Jacq*) is one of the major agricultural crops of Malaysia. Two types of oils can be derived from oil palm fruits; 1) crude palm oil (CPO) from mesocarp and 2) palm kernel oil (PKO) from the nuts. ROTADISC is a new invention that relates to a device and method to separate a mesocarp from a nut of oil palm fruitlets by centrifugal and frictional force. A centrifugal force created by rotating disc throws the fruitlets outward the walls creating a frictional contact with the surfaces resulting in a separation of mesocarp from the nuts. From the optimization study, the maximum mesocarp recovery (60.84%) and palm oil extracted (46.02%) were obtained.		

MY-18	NAME(S)	Dr. Norzalifa Zainal Abidin / Mr. Kalam Pie
ORGANIZATION		Jungle School Gombak Malaysia
TITLE OF ENTRY		Jungle School Gombak
The key invention is the setting up of the jungle school Gombak with the inclusion of the needs and feedbacks from the indigenous Orang Asli communities in peninsular Malaysia. This is a new approach whereby the sustainability of the indigenous cultural heritage are emphasized. The Orang Asli communities are now struggling to retain their existing and forefathers heritage to their youngsters. Now with the good participations from the Orang Asli community members, and support from various organizations, the activities of the jungle school Gombak are planned to support the OA communities whilst improving their earnings via the BACK TO NATURE concept.		

MY-19	NAME(S)	Mr. Ong Thor Guan / Mr. Koay Kai Bin / Mr. Choong JinKooi / Assoc. Prof. Dr. Foo Keng Yuen / Dr. Lee Lai Kuan
ORGANIZATION		TG Ocean Health Food Industries Sdn. Bhd / Malaysia Universiti Sains Malaysia
TITLE OF ENTRY		Oat King Sport®
The present invention, Oat King Sport®, is a unique patented formulation of multigrain product, that has been specifically designed to offer a variety of health benefits, notably constipation relief, high blood pressure reduction, regulation of total cholesterol and blood glucose levels. It is free from preservatives, artificial coloring, flavoring, sugar, aflatoxins, heavy metals and microorganisms. The novel functional ingredients, specifically featured with low glycemic index, high dietary fiber, beta-glucan, vitamins and different trace elements, have been proven to significantly reduce the disease activity of rheumatoid arthritis patients via human clinical trials, signifying a new breakthrough in the multigrain product development.		

MY-20	NAME(S)	TECK CHOY, CHONG
ORGANIZATION		N/A
TITLE OF ENTRY		ECO-CUP
The invention relates generally to a built-in detachable and removable square drinking straw on the paper cup. It is convenient, hygiene, recyclable and biodegradable. Which is made of environmental friendly material.		

MY-21	NAME(S)	JAYA KUMAR KRISHNAN / SHELA KRISHNAN
ORGANIZATION		IMPIAN JAYA TECHNOLOGIES SDN BHD
TITLE OF ENTRY		**Thulir's Adaptive Digital Learning Solution for Primary Tamil Schools in Malaysia**

Adaptive learning has been determined by an acknowledgement that custom fitted learning cannot be accomplished on a substantial scale utilizing customary, non-versatile methodologies. The solution attempts to change the student from latent receptor of data to colleague in the instructive procedure. The solution has been planned as a web application and mobile application, are currently being implemented for Primary Tamil schools in Malaysia. The solution integrates Learn, Practise, Revise, Test and Learning Analytic to provide best pedagogy and 21st century learning technology to create student centric self-paced learning and self-evaluation environment to improve academic performance, general knowledge and digital skills.

MY-22	NAME(S)	NICHOLAS TOO KAH HEE / SUMMER TING IN HUI / LAETITIA LAW EU QI / SIAO CHIN TZE / CHIENG LEY FONG
ORGANIZATION		SJK THAI KWANG SIBU
TITLE OF ENTRY		**PYROPROSTASIA**

Pyroprostasia is a fire prevention device which designed to prevent electrical fires in residential areas. It is able to ensure the safety of the users while using multipurpose plugs or extension cords. It helps us to be more alert about overloading a circuit. It functions before fires ignite. It is designed using Arduino and temperature sensor is used to detect the wires' temperature. When it reaches the dangerous range, the red light will light up and the piezo will ring to attract users' attention. Moreover, it will cut off the power supply automatically within five seconds when it is overheated.

MY-23	NAME(S)	RONALD HU KING ONN / BRYSON KONG YEW FOO / LUCAS NGANG JIM XUEN / CHIENG LEY FONG / SIAO CHIN TZE
ORGANIZATION		SJK THAI KWANG SIBU
TITLE OF ENTRY		**RYG TRAFFIC LIGHTS**

RYG traffic lights is designed to help colour blind people to interpret the traffic light signals correctly. It could create a safer environment and prevent mishaps that might be caused by colour blind road users. It is designed using three letters; the red light is labelled "R", the yellow light is labelled "Y" and the green light is labelled "G". Another feature for this modification will be the easier and clearer reading of traffic light signals, especially colour blind road users. It will also benefit prospective drivers who want to have a driving license but are hindered by colour blindness.

MY-24	NAME(S)	Associate Professor Dr. Siti Hamidah Mohd. Setapar / Dr. Hasmida Mohd Nasir / Ms. Zarith Asyikin Abdul Aziz / Ms. Wong Lee Peng
ORGANIZATION		Universiti Teknologi Malaysia / SHE Empire Sdn. Bhd.
TITLE OF ENTRY		**Roselle Extracts as Emerging Sustainable Materials for Wellness Industries**

The invention involves plant seeds oil and natural red pigment as sustainable basis ingredients for wellness products from Malaysian local plant, Roselle. Our team technically found brilliant red pigment from Roselle calyxes extract enriched by higher vitamin C and nutritious oil from Roselle seeds, extracted using supercritical fluid extraction technique to produce high yield, quality, safe and environmental-friendly extracts. Besides, incorporation of Roselle extract with micellar nanotechnology also implemented to promote advanced efficacy of wellness products. Hence, this project is impactful towards more Malaysian generations with good healthy well-being by empowering our local plant as valuable and sustainable wellness sources.

MY-25	NAME(S)	PROFESSOR DR. FOUAD HUSSAIN AL BAYATY / ASSOCIATE PROF. DR. MAS SURYALIS AHMAD / DR. MUSAB ALI / HAMIZAH BT MOHAMAD TARIDI / NURFAR'AIN BT NORPITRI
ORGANIZATION		FACULTY OF DENTISTRY, UNIVERSITI TEKNOLOGI MARA (UITM)
TITLE OF ENTRY		**FABRICATION AND EVALUATION OF ELECTRONIC TOOTHBRUSH FOR WHEELCHAIR DISABLE PATIENT**

Objective: To fabricate and attach an electronic toothbrush to the wheelchair for physically disabled patient and to evaluate its effectiveness in removing dental biofilm. Methodology: The arm of the electronic toothbrush was designed for a toothbrush to be attached. Two hydraulic motors (DC motor), timer and an electronic toothbrush were purchased. They were assembled and attached to the lateral side of the wheelchair. Three sets of extracted teeth were mounted to the phantom head smeared with a thin layer of saliva on the labial surfaces and stained with disclosing solution. The duration of tooth brushing was set for 2 minutes. The effectiveness of the removal of dental biofilm was measured using Image software analyser and evaluated based on the difference in percentages of disclosing solution present before and after using the electronic toothbrush that is attached to wheelchair. Results were analysed in SPSS statistics version 23 using paired T-test. P value was set at <0.01. Results: Image software analyser showed that the percentages of the stain of disclosing solution before using electronic toothbrush was 59.35% (±15.13) and after using electronic toothbrush was 38.48% (±20.08). This difference was significant (P <0.01). Conclusion: The electronic toothbrush that is attached to the arms was able to remove the dental biofilm on teeth surfaces and may assist disabled patients to maintain their oral hygiene.

MY-26	NAME(S)	**Prof. Dr. Hamidah Ibrahim / Mr. Kwok Siang Kwee / Dr. Ali Amer Alwan / Dr. Nurul Husna Mohd Saad / Dr. Teo Poh Kuang**
ORGANIZATION		Faculty of Computer Science and Information Technology, Universiti Putra Malaysia
TITLE OF ENTRY		**Smart Travel Package Recommendation System with Preference Evaluation Techniques (*EasyTravel*)**

EasyTravel is a web-based application system that conducts a comprehensive search to assist users in searching travel packages in an effective way. The system stores information on travel packages by various travel agencies. Compared to other search engines such as Google, *EasyTravel* utilizes the preference evaluation technique during the process of filtering and ranking the results of travel packages, which helps users in analyzing the final results. It assists users in finding travel packages that "best" satisfy their preferences and constraints as well as based on their locations. Data owner can benefit from this system by providing and sharing their latest information through *EasyTravel* as this approach helps promoting web pages that are unpopular but meet the preferences set by the users.

MY-27	NAME(S)	**MR AZIZI MURSIDY ZAINOL ABIDIN / MR MOHD AIMAN MOHD FAUZI / MR SYAHID IRFAN YUNUS / MISS JAANAVEE DEVI SUNDARESAN / MISS FATIN NAJIHAH ZAINAL ABIDIN**
ORGANIZATION		POLYTECHNIC OF SULTAN SALAHUDDIN ABDUL AZIZ SHAH
TITLE OF ENTRY		**SAVE ABLUTION H2O VISUAL BOOSTER**

Save Ablution H2O Visual Booster were introduced and applied at the mosque's ablution area to encourage self-disciplined Muslim to conserve water during ablution. From the study conducted, it was proven that the invention provides knowledge and sustainable practices on water conservation to the users. Furthermore, the outcome of self-audit on monthly water consumptions saw 17 cubic meters of water were successfully saved or 44% reduction of total water consumptions five month after the invention was introduced.

MY-28	NAME(S)	**Ir. ATIKAH BT ABDUL HAMID / Ir. HASRUL NIZAM BIN ABDUL RAHMAN / NOOR EZLYN BT OTHMAN / AMIR ASROL BIN AHMAD BANGI / MOHAMED FIRDAUS BIN OTHMAN**
ORGANIZATION		PUBLIC WORKS DEPARTMENT OF MALAYSIA
TITLE OF ENTRY		**F-FLEX: FLEXIBLE JOINT FOR RAINWATER DOWN PIPE**

F-flex is an innovation stemmed from the group's creativity to help the infrastructure designers to produce a practical drainage solution over soft ground areas with active ground settlement. It is a flexible joint connecting the rain water down pipe to the underground distribution pipe which can accommodate any range of ground settlement rate to allow smooth surface runoff flow. *F-flex* prevent rainwater down pipe from being damaged due to the tension created at the fixed joint by the ground settlement. It provides a green, one off solution and economical maintenance, leading to a more sustainable drainage system.

MY-29	NAME(S)	**ZULAIKHA BINTI MOHAMAD NORDIN / NORMAHIRAH BINTI AMIR HASSAN / MUHAMMAD KASHFUL AZIM BIN KHALID / MUHAMMAD HAIRUL SHAH BIN MOHD SHOHOR / NUR WADIHAH BINTI ABDUL RAHIM**
ORGANIZATION		KOLEJ VOKASIONAL (PERTANIAN) TELUK INTAN
TITLE OF ENTRY		**ORGANIC PLANTING MATS TO PREVENT SOIL EROSION**

OpMAT was produced from banana tree trunks (*Musa sp.),* ferns (*Limnocharis flava*) and weeds (*Imperata cylindrica*). This 2 layer mats are also enriched with tannins, flavonoids, alkaloids, triterpenoids, steroids, resin, saponin and indulole butrayic acid from *Termanilia cattapa* and willow (*Salix babylonica*). These elementary band very effective for cultivation, prevent the growth of weeds, fungi and encourage root growth. The top layer is smooth and dense will protect and preserve moisture grass seed while the lower layers of the tape is a bit loose and hollow will facilitate root growth and penetration into the ground.

MY-30	NAME(S)	**NORHIDAYAH ABDUL HASSAN / ZAKARIYA YAHYA MAHSSIN / MUZAKKIR MOHAMMAD ZAINOL / NOR AISHAH SAIDINA AMIN / MOHD ZUL HANIF MAHMUD**
ORGANIZATION		UNIVERSITI TEKNOLOGI MALAYSIA
TITLE OF ENTRY		**Asphalt FWB**

Asphalt FWB (Food Waste Binder) introduces an environmentally friendly material, bio-binder obtained from the hydrothermal liquefaction of food waste as a potential binder in asphalt mixture. The liquified food waste replace about 30% of asphalt binder which could reduce the quantity of petroleum-based binder used in the asphalt pavement. Application of bio-binder improves asphalt binder's properties (reduce temperature susceptibility and permanent deformation) while reducing asphalt pavements construction cost. Production of bio-binder will also reduce the need for landfills to store waste and reduce environmental pollution. Hence, this innovation can benefit the economy and environment towards energy independence.

MY-31	NAME(S)	SYAZWAN ISKANDAR BIN SAARI / NOOR LIZA BINTI RAMLI / SAARI BIN YAZIT
ORGANIZATION		SEKOLAH MENENGAH KEBANGSAAN SULTAN BADLISHAH / POLITEKNIK TUANKU SULTANAH BAHIYAH
TITLE OF ENTRY		**MY FILTRO AGUA**

This studies present banana trunk fiber as the main filtering layer in the waste water filter system. The main purpose of using banana trunk fiber is to absorb oil and grease/fat from kitchen sink waste water. These waste often create problems such as clogged in the sewage system, water pollution and add workload to a sewage plant. From the past research, banana trunk fiber has proved of capable to absorb from 70% to 80% grease depends on the shape of the processed banana trunk to be used as filter. This filter system is designed to be applied on residential kitchen sink. The application of this filtering system, not only can filter out oil and grease, it is also able to reduce turbidity, pH and suspended solids of wastewater discharged into the sewage system. In conclusion, the usage of banana trunk fiber as filter has significant impact in reducing clogging and workload of sewage treatment plants due to higher-load grey water from kitchen sink.

MY-32	NAME(S)	ANNAMALAI MUTHUPALANIYAPPAN / ARAV ANNAMALAI
ORGANIZATION		PVA COSMIC TELESCOPY SOLUTION
TITLE OF ENTRY		**SMARTPHONE PHOTOGRAPHY UV INFRARED TELESCOPY SOLUTION - SPACE & LUNAR OBSERVATION OUTREACH FOR CHILDREN**

To divert attention of children with smartphone TO USE camera photography under UV infrared at special frequency to observe space, celestial bodies and lunar surface, capturing visible and invisible anomalies. The interstellar and lunar research amongst children will spur innovation to discover and to acquire new knowledge to become inventors and to share the acquired knowledge with others.

MY-33	NAME(S)	Prof. Dr. Vijayaletchumy Subramaniam / Kavenia Kunasegran
ORGANIZATION		University Putra Malaysia
TITLE OF ENTRY		**A Basic Guide & Dyslexia Symptoms Intervention**

A Basic Guide & Dyslexia Symptoms Intervention provides the opportunity for teachers and parents to identify dyslexia using the Dyslexia Symptoms Preliminary Checklist. The process of identifying dyslexia is absolutely vital so that early intervention can be carried out to help children with dyslexia. The symptoms are listed by categories identified through a research done at Malaysia Dyslexia Association and is was then developed into a checklist form which is slotted in the book. It is also able to serve as a reference for psychologists, psychiatrists and medical doctors in the process of diagnosing dyslexia. It has proven that this invention has aided school teachers and parents in dyslexia identification to ensure that dyslexic children are given the proper intervention needed to help them holistically in the long term run.

MY-34	NAME(S)	ASSOC. PROF. Ts. Ir. Dr. SYUHAIDA ISMAIL / Ir. Ts. DAVENDREN VEREYA
ORGANIZATION		RAZAK FACULTY OF TECHNOLOGY AND INFORMATICS, UNIVERSITI TEKNOLOGI MALAYSIA KUALA LUMPUR
TITLE OF ENTRY		**HIGH PERFORMING TEAM INTEGRATION FRAMEWORK FOR MALAYSIAN OIL AND GAS CONSTRUCTION PROJECT**

The agenda of optimising the efficiency of the oil and gas industry is a priority in this rebound period after the recent oil price crash. With the organic growth in complexity and need for larger team members, formation of strong team bundled with effective integration practices is critical. This invention of “High Performing Team Integration Framework for Malaysian Oil and Gas Construction Projects” significantly improves performance of Malaysian oil and gas construction projects and drives for Malaysian oil and gas company’s growth and sustainability against the backdrop of continued market volatility.

MY-35	NAME(S)	AZMY BIN AWANG / ANIQ NOR RAHIMI BIN ABU SEMAN / MUHMMAD HAFIZ HAIKAL BIN ZAHAR
ORGANIZATION		MAKTAB RENDAH SAINS MARA JELI
TITLE OF ENTRY		**GREENTECH BIOCOMPOSITE PLASTIC MADE FROM BANANA PEDUNCLE, *Cucurbita spp. & Benincasa hispida***

Greentech Biocomposite Plastic (BCP) is a semi-composite plastic made from banana peduncle fiber, *Benincasa hispida* (wax gourd) skin, *Cucurbita* spp. (pumpkin) starch. The production of this material was inspired by the dire need to solve plastic pollution crisis that are worsening right now on earth. The plastic pollution are caused by the usage of petroleum-based plastics that are non-biodegradable.

MY-36	NAME(S)	**Prof. Ir. Ts. Dr. Mohamed Thariq bin Haji Hameed Sultan / Prof. Dr. Yusri bin Yusof / Muhammad Imran Najeeb / Dr. Ahmad Hamdan bin Ariffin / Dr. Adi Azriff Bin Basri**
ORGANIZATION		Department of Aerospace Engineering, Faculty of Engineering, UPM
TITLE OF ENTRY		**Innovative Pineapple Leaves Fiber Extraction Blade for Fiber Extraction Machine**
The objectives of the design improvements are to fasten up the extraction process and producing finer fiber which are better properties and quality. The blades will produce more contact area between the roller and the fiber thus help to fasten up the fiber extraction process ultimately does not need extra post-processing as the old way need. The impact on this improvement surely will help local farmers to gain extra income by converting waste from their crops into wealth. The fiber produced are high in demand as nowadays the industries were shifting from using synthetic materials to environmentally friendly materials such as in research and development centers, composite industries, automotive parts industries, textile industries and etc.		

MY-37	NAME(S)	**Prof. Ir. Ts. Dr. Mohamed Thariq bin Haji Hameed Sultan / Dr. Adi Azriff Bin Basri / William Robert Alvisse / Dr. Syeed SaifulAzry Osman Al Edrus / Mohd Edyazuan bin Azni**
ORGANIZATION		Department of Aerospace Engineering, Faculty of Engineering, UPM
TITLE OF ENTRY		**PUTRA UAV: Novel Bio-Degradable Natural Fiber Composite Material for Unmanned Aerial Vehicle Mainframe**
Putra UAV is biodegradable drone which is made from natural fibre. The frame of the drone is made of composite material known as kenaf. In details, the whole structure of the drone consists of double deck of kenaf frame, motor, blade and battery. In the project, the team had successfully developed a biodegradable double deck kenaf frame for drones. Compared to the current plastics and synthetic composites used, the developed materials possess high strength to weight ratio, cheaper, lighter in weight and low conductivity. The biodegradable kenaf drone known as Putra UAV had been developed with the collaboration of Malaysia Unmanned Drones Activist Society (MUDAS).		

MY-38	NAME(S)	**DR MOHD YUSOF BAHARUDDIN / DR SITI NOOR AZZA AMINUDIN / PROF DR AHMAD HAFIZ ZULKIFLY / PROF DR SHEIKH HUSSAIN SHAIKH SALLEH / PROF DR MUHAMMAD HISYAM LEE**
ORGANIZATION		UNIVERSITI PENDIDIKAN SULTAN IDRIS
TITLE OF ENTRY		**MYHIP - ASEAN LOW COST HIP IMPLANT**
MYHIP is a low-cost hip implant which design process starts with the three dimensional of ASEAN hip morphological datasets from computed tomography scanner, followed with the design of the hip implant, computational analysis using finite element, fabrication using DMLS technique and finally experimental validation. The finite element analysis showed strain distribution was 65 MPa for the implant in the metaphyseal region under staircase physiological loading, which inhibits stress shielding at the medial calcar region, and micromotion was 4.8 µm which prevent the formation of fibrous tissue and promoting osseointegration between implant-bone interfaces.		

MY-39	NAME(S)	**Wani Irdina Binti Muhammad Razak / Putri Amisya Binti Mad Saad / Muhammad Nurrojulul Mulha Al Fateh Bin Mohd Nurrahmat / Muhammad Azib Fariduddin Bin Muhammad Khairi / Muhammad Aniq Syafiq Bin Mohamad Sazali**
ORGANIZATION		Sultan Mudzaffar Shah Primary School
TITLE OF ENTRY		**POWER OF THE HAND**
Human body rejects heat to maintain thermal balance. It primarily rejects heat to the environment from the body surface. An average human body produces 300 BTU/h (100W) of power. This power is enough power to keep a 75-watt light bulb burning. Due to its sustainable power and free energy, this human body thermal energy can be converted into a form of usable energy and to generate electricity. Furthermore can be an alternative from battery to power small electrical and electronic devices. A 3 Volt light-emitting diode managed to be powered just by holding it in the palm of the hand.		

MY-40	NAME(S)	**THARUNESH A/L CHANDRASAKARAN · YUGASURUTHI A/P SURESH · GIRTANISHA A/P SIVAKUMAR**
ORGANIZATION		JENJAROM TAMIL SCHOOL, MALAYSIA
TITLE OF ENTRY		**Rice Vessels**
A relatively new concept is the commercial gas rice vessels. This cookers use rice vessels to produce a uniformly cooked batch of rice. This rice vessels is a manual kitchen appliance designed to boil rice. Rice vessel is one of the must have items, as rice is the principle staple food across the nation. The taste of pot boiled rice with its low starch levels and distinctive taste is a part of the Indian culinary tradition.		

MY-41	NAME(S)	**Assoc. Prof. Dr. Mohd Azizi Che Yunus / Cathie Tan Ah Tee / Bruce Cheong Chiew Soong / Dr. Lee Nian Yian / Zuhaili Idham / Nor Faadila Mohd Idrus**
ORGANIZATION		University Technology of Malaysia / Eco Bee Shop Sdn Bhd
TITLE OF ENTRY		**Malaysian Kelulut (Stingless Bee) Golden Propolis Extract**

Along with other bees' product such as honey and royal jelly, Malaysian stingless bees (kelulut) propolis has outstanding therapeutic properties. However, ethanolic extract of propolis (EEP) raise up the issue of food safety and halal. Furthermore, high content of unpalatable beeswax causing lower quality and purity of EEP. Extraction of propolis with supercritical carbon dioxide (SC- CO_2) produces alcohol-free propolis extract. The high selectivity of SC-CO_2 allows the separation of valuable compound from propolis. Therefore, propolis is dissolved in the SC- CO_2 to remove all unwanted substances, yielding a pure final Gold propolis extract rich in active compounds for extensive health effects.

MY-42	NAME(S)	**DR. AMAL A. M. ELGHARBAWY / DR ADEEB HAYYAN / DR MAAN HAYYAN / ASSOC. PROF. IR. DR. NGOH GEK CHENG / ASSOC. PROF.DR. MOHAMED E.S. MIRGHANI**
ORGANIZATION		International Institute for Halal Research and Training (INHART) / International Islamic University Malaysia (IIUM) / University of Malaya / Muscat University, Oman
TITLE OF ENTRY		**Natural Deep Eutectic Solvents: Green Media for Enzymes Activation**

This project presents the potential role of natural deep eutectic solvents (NADESs) in enzyme-catalyzed reactions as both a co-solvent in an aqueous solution and as a main solvent. Ammonium salts such as choline chloride (ChCl) were paired with different hydrogen bond donors such as glycerol, malonic acid and sugars. For illustration purposes, hydrolysis of p-nitrophenyl palmitate by six different lipases was tested in five NADESs. The results showed that NADES prepared from ChCl/sucrose enhanced the activities of lipases up to 355%. The trend achieved may be a promising approach for applications and further perspectives as genuinely green industrial solvents.

MY-43	NAME(S)	**Shahril Efzueni Rozali / Gazi Samia Nisma Noor / Keshavarthana Mahgendran / Ashley Jeannevol / Faizah Pool-Portluis**
ORGANIZATION		International University of Malaya-Wales
TITLE OF ENTRY		**SMART GROWTH DRAWER FOR INDOOR FARMING OF HIGH NUTRITIOUS VEGETABLES, MICROGREENS**

Microgreens are seedlings of edible vegetables and herbs that have been considered as superfoods due to greater amounts of health-promoting micronutrients. We aimed to develop a smart multipurpose growth drawer for growing the microgreens and investigate the effects of utilization of light-emitting diodes (LED) on its growth quality. The microgreens under normal white fluorescent light condition was used as a control. Results show that the germination and growth rate of microgreens is higher in our growth drawer compared to the control growth condition along with the increasing of biomass accumulation and phytochemical composition. These preliminary findings revealed that this portable growth drawer may be used for an efficient growing of microgreens for learning, research, and commercialization purposes.

MY-44	NAME(S)	**SHARIFAH NUR MUNIRAH SYED HASAN / FARADIELLA MOHD KUSIN / VERMA LORETTA M. MOLAHID / NOOR ALLESYA ALIS RAMLI / IKHWANNUDIN BIN ISKANDAR**
ORGANIZATION		UNIVERSITI PUTRA MALAYSIA
TITLE OF ENTRY		**DEVELOPMENT OF GREEN BUILDING MATERIAL AS PERMANENT CARBON CAPTURE & STORAGE (CCS) PRODUCT**

This innovation promotes development of permanent carbon storage product partially made of mine wastes as supplementary cementitious materials in an eco-efficient brick. The novelty of the innovation resides in the utilization of alumino-silicate minerals (geopolymers) containing in mining waste materials that enables carbon sequestration during carbonation curing of brick production. The carbonated bricks were produced via incorporation of mineral carbonation at low pressure and temperature. The eco-bricks were improved of its strength and have met the engineering specifications for building construction. Innovatively, this innovation highlights the sustainable use of resources in producing green material for construction purposes.

MY-45	NAME(S)	**Rayner Alfred / Rayner Pailus**
ORGANIZATION		Knowledge Technology Research Unit, Faculty of Computing and Informatics, Universiti Malaysia Sabah
TITLE OF ENTRY		**RTFaceDeep: A Real Time Multiple Face Detections and Recognitions for Video Surveillance Using a Deep Learning Architecture**

Current video based Multiple Faces Recognition (MFR) systems can perform well on controlled scenarios, while their performance is not satisfactory in uncontrolled scenarios mainly because of the differences between source and target domains. Most of the efforts in this area have been toward the design of robust video based MFR systems in unconstrained surveillance environments. This work presents a deep learning architecture for the still-to-video MFR system for video surveillance application. The MFR systems for video surveillance application attempts to accurately detect the presence of several target individuals over a distributed network of cameras by using a deep learning architecture.

MY-46	NAME(S)	FAIZ DAUD
ORGANIZATION		THE NATIONAL UNIVERSITY OF MALAYSIA
TITLE OF ENTRY		VETERINARY MANAGEMENT SYSTEM (V-MAGSYS)

Veterinary Management System (V-MAGSYS) is an innovation from a local based Veterinary Management System into a web-based system. It is a management system that is developed for small and medium veterinary organizations, especially for routine clinical and administrative matters. The objective of this innovation was to enhance the veterinary information system. All the features that are built were to achieve user friendly environment that can be connected to other versions of the MagSys product such as the queue system and multiple branch integration. This innovation provides a complete solution to enhance the daily operations of a veterinary organization.

MY-47	NAME(S)	Dr. Faiz Daud / Muhammad Amruha Md Zan
ORGANIZATION		The National University of Malaysia (UKM)
TITLE OF ENTRY		AIRPORT PIT-OPENER (DAG)

Airport oil pits are covered by a pit cover which requires a pit-opener to open the lid. After using the pit-opener, there is no designated place to store the pit-opener. Workers usually throw the pit-opener onto the ground or lorry after use. This causes the pit-opener to be bend, broken and sometimes missing during operation. Innovation of the tool to open the oil pits' cover comes with a special Pit-Opener, Stowage Bracket and Body Support. All these components are known as DAG. The usage of DAG helps prevent backpain among the general workers manning these pit cover.

MY-48	NAME(S)	HANITA BINTI LADJAHARUN / OSMAN BIN MUAMAT / SUKRIAH BINTI LAMAI / RAGINA SIKUA / JESCY JOHN
ORGANIZATION		SMK BANDARAYA KOTA KINABALU
TITLE OF ENTRY		LENG-AT 2.0

LENG-AT 2.0 is a collection of basic drawings that generate imaginatif and creative thinking. LEG-AT 2.0 is a student-centered material that generates teaching and learning, by sketching and drawing, based on given historical-simulation materials. This method encourages students to apply their imaginative skills to sketch the historical event before presenting and narrating on their finished product. The variety in students' imaginations will promote an active, effective, creative and innovative process of learning. Apart from extracting students' talents and potentials in drawing and colouring, LENG-AT 2.0 also maximises mastery learning and creates a pleasant and fun learning environment. It also generates a higher level of thinking skill. What was initially started for extra curriculum activities and was successes applied for Art-Stream students, taking into account their potentials, has proven to be suitably applicable to all level of students. All the basic drawing collection in the modules are a collaboration of teacher and students comprising members of the history club.

MY-49	NAME(S)	S.FATIMAH BINTI MOHAMAD / MOHD AZLI FIKRI BIN AHMAD
ORGANIZATION		LABUAN INTERNATIONAL SCHOOL
TITLE OF ENTRY		Space Board: A factor of persistence learning of the Earth and Space

It is found that there are too many components of earth and space that students need to understand and remember since Year 4. The challenge is when students are in Year 6 where students cannot recall much of the learning content on the Earth and Space Science themes. Therefore, through the innovation of the "Space Board", all three topics have been integrated into one interactive multitasking board to help Year 6 students to gain a clearer picture, to remember the components in space easily, and consequently able to understand and answer related questions well.

MY-50	NAME(S)	Prof. Dr. Norasmah Binti Othman / Adam Daniel Bin Effendi / Iskandar Danial Bin Adam Adonis / Nurulain Binti Rumaizi / Nabilla Afzan Binti Haji Abdul Aziz
ORGANIZATION		PETRONAS University of Technology/University Kebangsaan Malaysia
TITLE OF ENTRY		Final.Ly: B40(Low Class) and M40 (Middle Class) Life Cycle Programme

Final.Ly is systematic financial programme that allows B40 and M40 Malaysian citizen and possibly ASEAN citizen to life up to the fullest. In life, there are several stages that generally everyone goes through such as marriage and funeral. Final.Ly the solution for these group, often, specifically B40 citizen does not have the financial means to fund this event and in fact asked for assistance from other sources. Hence, this programme allows them to plan out and prepare financially for this life event. Allowing and improving their overall life quality through data and systematic financial technology.

MY-51	NAME(S)	MS FAIRZAN NAZZILA BINTI MOHD NAZRIE / MR RIZUAN ASMARAH / MDM WARNNIE MUSAH
ORGANIZATION		LABUAN INTERNATIONAL SCHOOL
TITLE OF ENTRY		TELEMUSIM
Telemusim innovation has been conducted in Labuan, focusing lower secondary students. The purpose of this study is to measure how effective the teaching aid in mastering the students' understanding about the four seasons topic. Most students find it difficult to memorize the information of the four seasons that occur throughout the year at different times in each country. This Telemusim was proven effective when post-test result shows exceedingly increase students' achievement in this topic. Learning environment also was proven to be very exciting. It helps the students communicate well and can be conduct with less supervision from the teacher.		

MY-52	NAME(S)	FADLIN AIMUNI BINTING / WARNNIE BINTI MUSAH
ORGANIZATION		LABUAN INTERNATIONAL SCHOOL
TITLE OF ENTRY		GEAR BULAN
Research on the application of gamification in Gear Bulan has been conducted in Labuan The purpose of this research is to measure how effective this teaching aid is in enhancing the students' understanding on the phases of the moon. Primary 5 and 6 students always find it challenging when answering questions on phases of the moon. The application of gamification Gear Bulan was proven effective when post-test result shows tremendously increased students achievement in the phases of the moon topic. Learning the phases of moon using gamification-based approach has proven to be very effective in enhancing the students' psychomotor, cognitive and affective skills.		

MY-53	NAME(S)	Norasmah Binti Othman / Radin Siti Aishah Binti Radin A Rahman / Abdul Gani Bin Abdul Rahim
ORGANIZATION		National University of Malaysia
TITLE OF ENTRY		Easy Cashflow
Easy Cashflow is a business accounting software for micro and small scale businesses and developed using Microsoft Excel (stand-alone PC based and network sharing via Google Sheets). The simplicity of Easy Cashflow allows non accounting background entrepreneurs to immediately start recording business transactions. Readily available accounting software in the market are expensive and complex. Easy Cashflow is developed for a target group of micro and small business entrepreneurs who have no or very minimum business accounting knowledge and also has budget constraints to purchase expensive accounting software.		

MY-54	NAME(S)	Asnida Abdul Wahab / Wan Muhammad Asyraf Wan Zaki / Muhammad Faiz Md Shahkih
ORGANIZATION		Universiti Teknologi Malaysia (UTM)
TITLE OF ENTRY		Smart Medical Chatbot with Medical Knowledge Base on Serverless System
Most healthcare organisations have a passive relationship to their patients and this situation often worsened because of a lack of inter-operability between client and provider. This availability comes with challenges including great volume and variability of data and increased need for security. We designed an automated self-learning system to provide conversational healthcare integrated with prediction of hotspot of disease in map, nearest hospital, contactless vital sign, food nutritional analysis and patient's database. The system run in real time transfer learning combined with efficient storage and secure access to patient records, flexible analytics, and deep learning models that enable record analyses.		

MY-55	NAME(S)	Asoc Prof Dr ASMA ABDUL RAHMAN / Prof Dr MOHAMMAD HAMIIRUCE MARHABAN / Assoc Prof Dr NURSIILAH AHMAD / Dr AHMAD ABDUL RAHMAN / Col Assoc Prof Dr KHAIIROL AMALII AHMAD
ORGANIZATION		Faculty of Major Languages Studies, Islamic Science University of Malaysia (USIIM)
TITLE OF ENTRY		A NEW NAQLI AQLI INDEXING CONTENT MECHANISM IN THE QUR'AN, SUNNAH AND BIBLE AS AN ALTERNATIVE MIRACLE MEDICINE TO OVERCOME COVID-19 IN THE ERA 2030 BY USING METODOLOGY OF AI-TAWLIDIAH "ATaWM&Mgg NFBPcyLsss"
The Al-Tawlidiah "ATaWM&Mgg NABPsyLsss" improved the students at whole level as well as industerial learning a new NAQLI AQLI INDEXING CONTENT knowledge psycho linguistic semantique and spirituality of the individual for sustainable and the happiness of ummah. This study is also important to raise awareness and understanding students at all types of ages of the community and the quality of our generation in a day and future, a healthy genius brained Malaysia and in the whole country to recovered Covid-19. "ATaWM&Mgg NFBPcyLsss"can used to whole community in secondly, universities education levels as well as industrial sectors: save time, easier to apply to treatments Easier to apply by 41 times training (read and listen), access online and by CD, and access in formulate deferments methods and by formulation books		

MY-56	NAME(S)	Nur Nadia Nasir / Siti Amira Othman
ORGANIZATION		Universiti Tun Hussein Onn Malaysia
TITLE OF ENTRY		Future Biodegradable Plastic
This project is aim to produce corn-based bioplastic with optimal ratio of corn starch and glycerol that acts as plasticizer. The preparation of the sample starts with optimizing corn-based bioplastic produce with different ratios of glycerol (20%, 30% and 40% of total starch) and corn starch (10%, 15% and 20% of water). This corn-based bioplastic offers advantages such as natural resources, sustainability, reduction of production dependence on fossil fuels, biodegradability, compostability, reduction of environmental pollution and carbon footprint, and no harmful additives.		

MY-57	NAME(S)	SUPPAYAH VELAYUTHAM / MOHAMAD ANUAR KAMARUDDIN / VICTOR YOON YONG CHENG / HEAH YONG JOSEPH / LEE SOON KANG / HO YONG SAMSUDDIN / REMY ROZAINY MOHD ARIF ZAINOL / MOHD SHARIZAL ABDUL AZIZ
ORGANIZATION		UNIVERSITI SAINS MALAYSIA & INFOGENIUS SDN BHD
TITLE OF ENTRY		Simple, MAnageable, And Reliable Trash Bins (SMART)
The management of waste is a complex problem in our modern era. The usual way of manually collecting and disposing the waste is a slow and cumbersome process utilizing a lot of manpower. The “SMaRT” Garbage Monitoring System is an innovation in which waste management is automated. This system monitors the garbage Bins using sensors and collects data regarding the Weight and Level of the garbage collected in the Bins. With the aid of a Microcontroller, a GSM module and Web Server, information is send to garbage collection authorities for efficient clearing and disposal when the set threshold level is reached.		

MY-58	NAME(S)	Mohd Hafizal Mohd Isa / Zeyad Amin Al-Absi / Muhamad Azhar Ghazali / Xia Qing
ORGANIZATION		School of Housing, Building and Planning, Universiti Sains Malaysia
TITLE OF ENTRY		PCM-FC cladding
An innovative material with good thermal resistance and thermal mass was developed. This was achieved by the integration of micro-encapsulated phase change materials (PCM) into foamed concrete to fabricate PCM-FC composite, which was used to produce PCM-FC panels to be used as a buildings’ cladding. The thermal resistance of the new cladding panels can reduce the outdoor heat penetration through building facade, while the extra heat can be tackled by the thermal mass. This material has shown significant indoor temperature reduction providing more thermally comfortable conditions.		

MY-59	NAME(S)	Dr. Herni Halim / Khairusy Syakirin Bin Norizan / Dr. Nurul Farhana Binti Mohd Yusof / Wan Mohd Amri Wan Mamat Ali
ORGANIZATION		Universiti Sains Malaysia, Engineering Campus
TITLE OF ENTRY		Soundproof concrete embedded with rice husk powder
The increasing of noise frequency, intensity and duration is one of the forms of sound pollution rising from the booming development of modern industry, and intensive mechanization of all production process. Designing soundproof concrete structures by substituting cement usage with rice husk powder is one of the technological innovations that considered to be new and innovative approach in noise study. Seeing the abundance of rice husk that available locally, it is unfortunate if it is not utilized. By acknowledging the potential of rice husk embedded in a concrete as noise absorbing materials, this invention can be another option for soundproof concrete and represent as a sustainable solution for noise problems.		

MY-60	NAME(S)	MOHD NADHIR AB WAHAB / MOHAMAD ANUAR KAMARUDDIN / MOHD HAFIIDZ JAAFAR / AHMAD SUFRIL AZLAN MOHAMED / PHUAR CHIA SHENG
ORGANIZATION		UNIVERSITI SAINS MALAYSIA
TITLE OF ENTRY		Autonomous Drone Piloting System for Agriculture
In a paddy field, pest birds are one of the main problems that cause loss in rice yields. To solve these problems, an Android mobile application is developed. It that can be used to connect to a drone, set up and manage autonomous flight missions, view, and control live camera on the drone and manage the media in the SD card on the drone. With these features, autonomous flight missions can be created for pest bird control and crop health monitoring.		

MY-61	NAME(S)	Mohd Remy Rozainy Mohd Arif Zainol / Jazaul Ikhsan / Zainordin Firdaus Zulkefli / Mohamad Amirol Mohd Yusof / Muhammad Nasri Nasehir Khan / Muhammad Luqman Mohd Fadzil
ORGANIZATION		School of Civil Engineering, USM
TITLE OF ENTRY		Dr Siphon: Removal Sediment in Water Reservoir
This invention had been made to solve sediment in water reservoir. Principle of siphon is been applied and improve to get effective solution. The design had been analyse using Ansys. The model was fabricated using 3D printing. An experiment of this model had been conducted in hydraulic lab. The result show that Dr Siphon had a capability to remove sediment naturally with optimum effectiveness.		

MY-62	NAME(S)	**MOHD HAFIIDZ JAAFAR / AHMAD SUFRIL AZLAN MOHAMED / AINUN SYARAFANA PAUZI**
ORGANIZATION		UNIVERSITI SAINS MALAYSIA
TITLE OF ENTRY		**Lab Safety Instructional Training using Virtual Reality (ITVR)**
Educational based laboratories can be hazardous, especially to young students. There is a significant risk of accidents in the laboratories because of the carelessness of students and the hazardous nature of the laboratory itself. It is becoming important to understand and adhere to the laboratory safety rules to minimize the damage to a laboratory, laboratory equipment, humans, materials, and the surrounding environment. Meanwhile, virtual reality (VR) technology is a technology that used to provide simulated three-dimensional (3D) environment for the training or education purpose. Therefore, we proposed to build Virtual Reality (VR) Lab Safety Instructional Training. This project enables the student to train safely in a simulated laboratory accidents environment without injuring themselves or damaging the laboratory and laboratory equipment in the laboratory. Other than that, it also enhances the student understanding by relating information with the actions based on the correct answer through a series of simulated physical activities.		

MY-63	NAME(S)	**Mohd Sharizal bin Abdul Aziz / Mohd Ariff bin Abdullah / Mohd Khairul Anuar bin Zulkepli / Wan Mohd Yusof Rahiman bin Wan Abd Aziz / Mohd Remy Rozainy Mohd Arif Zainol / Mohamad Anuar Kamaruddin**
ORGANIZATION		School of Mechanical Engineering, Universiti Sains Malaysia
TITLE OF ENTRY		**iClever: Smart hand-controlled for disabled driver**
Disabled people generally want to achieve mobility in their life independently. The ability to drive a car can radically alter the lifestyle quality led by disabled people. The challenge of designing their needs is to provide adequate mobility and a safe environment. One way to enhance mobility is the use of a lever to overcome the limited function of lower limbs. A smart hand-controlled lever mechanism could solve the weakness of their legs to perform brake and accelerator pedals.		

MY-64	NAME(S)	**Nurul Izzati Saleh / Wan Mohd Yusof Rahiman / Mohd Sharizal bin Abdul Aziz / Mohd Remy Rozainy Mohd Arif Zainol**
ORGANIZATION		Universiti Sains Malaysia
TITLE OF ENTRY		**Automated Collision Avoidance Car Follower**
This invention employs the vision-based approach to ground vehicle follower navigation. The system utilizes fuzzy logic controller to navigate itself. There are two components of the prototype which is the vision system component and the actuating component. The vision system component is controlled by a microprocessor, Raspberry Pi. The actuating component is controlled by the microcontroller, Arduino Mega. The vision system component utilizes Camshift tracking and the illumination inconsistency is corrected using histogram equalization. The consequent parameters obtained from the pilot test is used to design the appropriate fuzzy membership functions and rules.		

MY-65	NAME(S)	**Assoc. Prof. Dr. Jamal Hussaini / Assoc. Prof. Dr. Fadzilah Mohd Nor / Prof. Dr. Ariza Adnan / Dr. Navindra Kumari Palanisamy / Ms. Haniyeh Houssaini**
ORGANIZATION		Faculty of Medicine, Universiti Teknologi MARA (UiTM) / Sekolah Menengah Kebangsaan Seri Hartamas
TITLE OF ENTRY		**Interactive Microbiology Kit**
In this era of distance and online learning, it is challenging to stimulate inquisitiveness and interest in students, there will be lack of desire to learn. Due to lack of facility and improper infrastructure, teaching of medical microbiology can be challenging. Hence, we have created a teaching kit that provides a complete learning experience (visual, hands-on and interactive) for medical microbiology without having to access any specific facilities or equipment. This kit is equipped with various materials, such as organisms on petri dish, DIY media preparation and AR videos which provides a fun and safe learning environment for both teacher and students.		

MY-66	NAME(S)	**Neda Shokrollahi / Mui-Yun Wong**
ORGANIZATION		UPM
TITLE OF ENTRY		**Non-ribosomal peptide synthetase has the potential to be used as a biomarker for early detection of Basal stem root infection in oil palm**
The deathly disease for oil palm which is basal stem rot (BSR) caused by the pathogenic fungus, *Ganoderma* sp, had diminished the yield of oil palm production that contributes to the crop loss and affects the country's economic performance. The molecular approach has been actively emphasized to survey the fungal biological cycle. Secondary metabolite especially produced by nonribosomal peptide synthetase (NRPS) has recently gained interest due to its wide array of biological activities and virulence factors. NRPS. Thus, NRPS has the potential to be used as a biomarker for early detection of BSR infection in oil palm to control.		

MY-67	NAME(S)	Dr. Nurhafizah Binti Md Disa / Assoc. Prof. Dr. Nurhayati Binti Abdullah
ORGANIZATION		School of Physics, USM
TITLE OF ENTRY		**Rapid Synthesized Graphene Oxide from Coconut Frond Wastes as Potential Supercapacitor's Electrodes**

In this work, biomass wastes produce a useable graphene material for nanomaterials and nanotechnology application especially as a filler for increasing the existence properties in terms of strength and conductivity for many industries nowadays. Basically, the whole invention work is consisted of three parts: (i) production of activated carbon (AC) derived from biomass wastes, (ii) synthesizing graphene oxide from the activated biochar, and (iii) fabrication process as conductive electrode materials in supercapacitor application. The invention could become the source of cheaper graphene application especially in nano-electronic devices. As graphene material is now emerging from lab into the commercial product, soon our nation will be recognizing as key player involved in this frontier technology.

MEXICO

MX-01	NAME(S)	Thania Monserrat Montoya Olmedo / Leonardo Tonatiuh González García / Emmanuel Campos Genaro / Fabiola Rodríguez García / David Campos Genaro
ORGANIZATION		UAEM & IPN
TITLE OF ENTRY		**AXOLCARE (Automated system for preservation and conservation of species)**

The simulation of artificial ecosystems has led humanity to develop technological alternatives, the human is characterized by wanting to have control of the environment around it, from the beginning man began with agriculture, now intends to colonize planets and create habitats for its survival; the recreation of natural habitats in systems of captivity for conservation and preservation of species, implies as a priority a more in-depth knowledge of these and provide the necessary elements for the well-being of this species, covering all the physiological requirements for its development and reproduction cycle.

MOLDOVA

MD-01	NAME(S)	TANASE BEATRICE
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		**TOY-SET "GLOOMPY"**

My project is a utility, it is a school pencil box toy, bag for girls cosmetics, as you want. Nice depo- bag –toy for girls and boys in pink for girls and gray for boys. It is comfortable, cute fluffy toy-animal, it is newly invented by me for health, you can fix the toy where you travel, it is multi-usual you can fix it to the chair, to a bar, or of the car door or bicycle or scooter. It is a Gloompy-toy with bear ears, like long Barbie legs with three fingers, paws with three fingers too, the toy is fluffy, it is not simple, it is magnetized, it has magnets in its ears for health. Patented by Agepi-Modova Certificate PI-rights. This toy project-invention is an affordable object and I think not only for children but also for mature persons. Toys who have not simply view not simply invested money to catch dust, but to be used multilaterally, the price is affordable 10 euros, made of Natural cloth, health magnets made in Poland, magnets promote the exchange of energy and migraines. In conclusion I can say the product is usually practical and solvent.

MD-02	NAME(S)	Rubanovici Paula
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		**Magno-Hat**

Magno-Hat is a detachable hat on two sides for winter and for rainy autumn, it is made of natural material, waterproof, snow resistant, the innovative project is intended for children 5-15 years but also for those who want such a product it is two colors for girls and boys. It is a unique product, has maximum use and is used with detachable animals ears on health Poland magnets, affordable price 12 euros, has a high economic importance, represents quality, multilaterality in service shape, color, design, and nice animal ears and give us health. The client will be thankful and healthy stop headaches, migraines, stop radiation. In conclusion, I can say that it is a useful, important product, I think should be used it when talk about health. Patented by Agepi-Modova Certificate PI-rights.

MD-03	NAME(S)	Bivol Adelina
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		**Rucsak-Coat**

Rucsak-Coat is an innovation among ,,Wow,, products, because you have never seen such a jigsaw puzzle product with zippers, for two seasons-cold spring and rainy autumn, by two colors for boys blue and girls pink. Firs this product it can be used as a backpack, then it turns into coat with several zippers.

MD-04	NAME(S)	Adelina Bivol
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		**K-shirt**

This year I invented a transforming coat. It can change into a stylish satchel that any girl or boy would love. I created this product with my brother, Fabian in mind. The magic behind the switch consists in magnets. These magnets have healing properties, they increase blood flow to any area of the human body that needs it. The invention itself is called "K-shirt" and it is a prototype that's being forwarded to obtaining a patent for the invention.

MD-05	NAME(S)	Sara Simionel
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Klam-girl
My invention is called “Klam-girl” and is in the prototype stage. These clams are based on various cute animals that have been invented by me. The design of the jewelries has been forwarded to obtaining a patent by “AGEPI Moldova“. It contains therapeutic magnets that can ward off against migraines and tension headaches, improve logical and critical thinking by bettering the blood flow to those areas. This product is aimed for consumers of all ages be it a child or an adult.		

MD-06	NAME(S)	Daria Damian
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		IMAK-DAM
My invention is a prototype called “IMAK-DAM”. It is a series of necklaces and bracelets which are unique and personalised to its wearer. The drawings and the overall design has been patented by “AGEPI Moldova”. Another feature of the neck-wear is that it has magnets which increase the blood flow to your brain and in some cases can be used as an alternative treatment to depression. The bracelet also contains magnets which promote the healing of arthritis and other wrist injuries.		

MD-07	NAME(S)	Marius Scortescu
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Solar-Stand
My invention is called „Solar-Stand”. It is a multi-functional, informative solar panel. The invention is a prototype project extension of a previous innovation and it has been forwarded to be a registered patent. The way it works is that during the day it gathers energy from sun light. This energy is deposited and then used during night time. The accumulated energy also allows the stand to rotate to create a well-lit atmosphere. It is aimed at people of all ages who are even a bit self-conscious about the environment.		

MD-08	NAME(S)	Alexandru Boaghe
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Kup-sol
My invention is a prototype called „Kup-sol”. This invention is a cup with solar panels. The energy gathered from the panels is used to keep the liquids inside of it warm. It is a free and renewable type of energy that accomplish its purpose without harming the nature. This invention has been forwarded to be patented.		

MD-09	NAME(S)	Beatrice Tanas
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Magno-school-toy
My invention is a prototype called „Magno-school-toy”. It’s a satchel, pencil box and a toy aimed at pupils and students. The invention is a convenient portable product which has magnets in its components. The therapeutical magnets help with a problem which is rampant throughout pupils - scoliosis and back problems. Aside from healing back aches it also can help treat migranes and headaches.„Magno-school-toy” has been forwarded to be patented.		

MD-10	NAME(S)	Bogdan Gorceac
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		S-Student-Box
My invention is a prototype called „S-Student-Box”. This invention represents a case which is separated in different compartments. In one section you can store copybooks, pens and pencils. In another section you can keep you electronic devices and even charge them. „S-Student-Box” is the product through which you can use ecological energy to recharge your gadgets. This innovation has been forwarded to be patented.		

MD-11	NAME(S)	Paula Rubanovici
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Dual-H
My invention is a prototype called „Dual-H” which is a dual hat. This hat can be worn on both sides. It is a warm, stylish and impermeable hat. Another way it can be useful is by having healing magnets etched into it. Because of their location the brain of the wearer has better blood flow which facilitates increased problem solving abilities and overall cognitive improvement. As a part of its design ”Dual-H” also has a pair of cute animal ears. This innovation has been forwarded to be patented.		

MD-13	NAME(S)	Ion Levinta
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Smart-House
This invention is a program or more exactly an app that connects your phone to the gates and doors of your house. This app allows you to connect, open or close your gate or door without even getting up. „Smart-House” was created with drivers and busy people in mind. The invention has been forwarded to be patented.		

MD-14	NAME(S)	Ion Ujavca
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Contry MAIL
This invention is a program that allows people to contact and visualise a person online. I made this because I wanted to create a better way to communicate with my fellow colleagues. „Contry MAIL"has been forwarded to be patented.		

MD-15	NAME(S)	Tudor Axiutin
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		T-port
„T-port" is a little programed robot that can dance and hold things. This robot can provide children with lots of happiness and entertainment. This invention has been forwarded to be patented.		

MD-16	NAME(S)	Chironeţ Madalina / Chironeţ Cătălin
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Pointy game
This invention is a game out of recyclable plastic cans and ropes. The game is played by players answering general science questions. By answering right the player has to step on the cans, hold the ropes and hop forward. "Pointy game" was created as a fun way for us and our classmates to spend their time away from gadgets while learning something new and being eco-friendly. This invention has been forwarded to be patented.		

MD-17	NAME(S)	Teodor Lozinschi
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Game-hor
„Game-hor" is a program for your telephone. This program is a game with animals and colors. It is a fun way to spend your time. „Game-hor" has been forwarded to be patented.		

MD-18	NAME(S)	Nicu Frumusache
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		School Admission-tracking
This invention is a program in which you can input the names and grade of every single student in a school and then check their presence. The purpose of this program is to make the process of registering absences easier for the students and school faculty. "School Admission-tracking" is also going to be accessed from a website which will allow parents to see their children's records. This invention has been forwarded to be patented.		

MD-19	NAME(S)	Nichita Levandovici
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Mop-flat
"Mop-flat" is a robotic mop with a remote controller. Its purpose is making cleaning much easier without putting a lot of physical effort in it. I created this invention with disabled people, people who are in a wheelchair and elderly people in mind. "Mop-flat" has been forwarded to be patented.		

MD-20	NAME(S)	Nichita Levandovici
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Drone-clean
This invention is a flying drone. The drone has some particular cleaning supplies attached to it in order to be able to be used as a cleaning device. This way cleaning the house is not only easier but also fun and entertaining. "drone-clean" was created for people with disabilities and people who are in a wheelchair. The invention has been forwarded to be patented.		

MD-21	NAME(S)	Cristina Ursu
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Magno-glasses
This invention is a pair of glasses that have therapeutic magnets in them. The magnets help prevent headaches, migraines and spasms from acute neuroticism by increasing blood flow to the brain. It keeps tiredness at bay and also makes a pretty stylish accessory. "Magno-glasses" has been forwarded to be patented.		

MD-22	NAME(S)	Daniela Buga
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Shoes-darf
"Shoes-darf" is a dual shoe that can transform from a casual footwear to a more classical leather one. It uses zippers to facilitate the switch. This invention also has black peppers and other medicinal plants and oils in its sole. The peppers create an anti-inflammatory reaction while giving the foot a massage and the herbs and oils combat the sweat and smell. "Shoes-darf" has been forwarded to be patented.		

MD-23	NAME(S)	Daniela Buga
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Snakeling
"Snakeling" is a series of jewelry out of real snake skin. They were made using my pets shed skin. The jewelry has a variety of design and colors each unique in its own way. Another component of "Snakeling" is the presence of healing magnets which help combat pain, inflammation and anxiety. The invention has been forwarded to be patented.		

MD-24	NAME(S)	Olga Surugiu
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		Raw-doll
It is a toy doll for children of all ages that is made out of organic straws. The doll also has medicinal plants and essential oils which come in different smells such as mint, lavender and lemon balm. These essential oils help in calming down the child and boosting its immunity. "Raw-doll" has been forwarded to be patented.		

MD-25	NAME(S)	Gorceac Bogdan
ORGANIZATION		JUNIOR ACHIEVEMENT MOLDOVA
TITLE OF ENTRY		SUDOKU GAMES BOOK
Sudoku games book is an excellent way to develop a child's memory and logical thinking.		

MONGOLIA

MN-01	NAME(S)	Myagmarsuren Tsanjid
ORGANIZATION		Urangar Urlal NGO
TITLE OF ENTRY		Mongolian Khalkh doll and hand bags
The KHALKH doll: A pair of KHALKH dolls are 21cm tall. It is crafted using the macramé art with colorful threads. The dolls are crafted using a combination of the ancient and the modern style of KHALKH nation. The dolls are made out of metal. The decoration of the female doll's hat made using a piece of silver.		

MOROCCO

MA-01	NAME(S)	Mohamed Yalouh
ORGANIZATION		N/A
TITLE OF ENTRY		The Hexagon Rotor Rotary Engine
This invention is a 6 stroke and multi-Powerstroke diesel helicopter and car engine. There are 2 other models that I have made which use gasoline and hydrogen. This engine relates to the Wankel Rotary Engine invented by Felix Wankel. The H.R.R.E stands unique with absolutely no model with similar features. Some of the features it has are low fuel consumption, powerful, light, environmentally friendly, fast, and so on. These qualities completely innovate and advance the old Rotary Engine which is what was always looked for.		

NIGERIA

NG-01	NAME(S)	EMEKA NELSON UGWUEZE
ORGANIZATION		AIKON GLOBAL LTD
TITLE OF ENTRY		AKPAIKE
Akpaike is a hydroelectric power generator that runs on water. It does not emit any gas that is harmful to the environment. It is one of the invested power generator that will contribute to saving the world from global warning.		

NG-02	NAME(S)	Taoreed Abayomi AKINLABI / Obianuju ONONUJU / Purity OCHANG / Jason OWOLABI / Chimamanda NWOLISA
ORGANIZATION		New Hall International School, Lagos, Nigeria
TITLE OF ENTRY		TREATMENT OF TYPE 2 DIABETES USING MOMORDICA CHARANTIA AND PARQUENTINA NIGRESCENS
The aim is to research on a permanent cure for diabetes using plant extracts. Ten male rabbits were used for inducing type2 diabetes. The rabbits received alloxan by IV-injections. 2 plant-extracts of Momordica charantia and Parquentina nigrescens were used in the ratio of 1:1. This was administered on the 10 samples of rabbits that have been artificially induced. The plants' extracts contain secondary-metabolites like alkaloids, charantin, phlobatinnins etc. which are responsible for glucose reduction in the rabbits and the optimization of the pancreas function. This is a very useful scientific breakthrough which will bring succour to patients living with diabetes.		

PALESTINE

PS-01	NAME(S)	Abdul Fattah M. Shehadeh / Nuwar A. Kurdi
ORGANIZATION		An-Najah National University
TITLE OF ENTRY		WALTER
WALTER reduces 40% of total household water consumption as shower water is collected in a built-in tank under the shower and used for the toilet, the solution is for those who suffer water shortages and high costs.		

PS-02	NAME(S)	Obada Bashar Dwekat / Ali Taj-alden Musmar / Taha Foad Karaki
ORGANIZATION		A.O.T SOLAR
TITLE OF ENTRY		**EXPERIMENTAL INVESTIGATION ON THE PERFORMANCE OF PHASE CHANGE MATERIAL (PCM) INCORPORATED SOLAR WATER HEATING SYSTEM**

An experimental research study performed on increasing the performance of solar water heating system (SWH), a new technique depending on phase change material (PCM) has used for enhancing hot water supply for the usage. Paraffin as PCM selected very carefully to ensure that its physical properties and the thermal characteristics are appropriate for household usage, to illustrate, new heat system exhibited better results for hot water supplied increased by 75 minutes. this technology increase the efficiency of solar water system by 33%.

PHILIPPINES

PH-01	NAME(S)	Iman Hadi Vincheh / Ma. Chat Donna V. Ofilas
ORGANIZATION		Manila Young Inventors Association (MYIA) /Farin Technologies
TITLE OF ENTRY		**VIGORION**

An energy efficient solution is provided to infiltrate the air through an innovative cyclone sweeper to infiltrate air and destroy airborne viruses and bacteria through an innovative, responsive negative ion dispenser that adjusts to the air stream dynamically to ensure the maximum and uniform ion delivery including an activated carbon filter which is replaceable and an Ultra Violet C light is used to kill the viruses and bacteria trapped in the filter. The system has a sound proof design and is consistent to all settings of the household usage to the hospital and classrooms through a scalable product design.

PH-02	NAME(S)	Firstene Arvhie A. Badua coached by Rovie P. Labastida
ORGANIZATION		Manila Science High School
TITLE OF ENTRY		**Affordable and Effective Texting Fire Detector (AETFD) 2.0**

The researcher created a device that alerts the owner through SMS/text to prevent the fire from causing more damage. Upon detecting a certain temperature threshold, it will send a continuous SMS to the programmed number. It can detect varying gases such as butane, methane, LPG, etc. Its effectiveness was tested by exposing it to fire and smoke. The delay of detection of the flame and gas sensors are 11.42s and 35.99s. The statistical treatment tells that the device is effective in cutting down the delay of detection to the texting and it can accurately detect fire and its fume.

PH-03	NAME(S)	Danielle R. Ajoc / Danika Mae D. Soberano / Jason Gil P. Villanueva
ORGANIZATION		Philippine Science High School Caraga Region Campus
TITLE OF ENTRY		**PATAK: A Pro-Active Technology on the Amelioration of Kalikasan (Nature) - A Low Cost Community Based Sewage Treatment System**

This research technology was able to determine the most appropriate helophyte filtration system for the Philippine setting that is low cost, environmental friendly, requires the least space consumption and quality of processed water continuously monitored. It involves the development of an automated water quality monitoring system using an Arduino based electronic device. The information gathered from the system was then transmitted to a GSM based data receiving and a web based information dissemination system. An Arduino device with a turbidity sensor, pH sensor, Dissolved Oxygen sensor, and temperature sensor was used to facilitate the monitoring of the water. The data of which was transmitted real time to a newly developed website through a GSM based data consolidation system. This study concludes that the Vertical Subsurface flow showed high removal efficiencies, cost practicality with respect to size compared to other subsurface flow systems, and environment friendly properties by virtue of using recycled materials as container. The transmission of data from the Arduino to the website was also effective in the dissemination of data.

PH-04	NAME(S)	Daveigh Kate C. Abogado / Shaula D. Andiano / Bryah Arabelle M. Anos
ORGANIZATION		Philippine Science High School Caraga Region Campus
TITLE OF ENTRY		**MASISTEMA: Monitoring and Automation of Solid Infrastructure with the use of Sensor Technology for Energy Management and Water Application**

With building management systems becoming an energy-saving and economical friendly network for regulating network buildings energy levels, the researchers have designed MASISTEMA designed for monitoring water piping damages through SINGAW and electrical wiring damages through KISLAB using sensor technology and connective devices to the Internet of Things (IoT). Creating transmitter devices from Arduino microcontrollers and flowmeter sensors for water pipes and current sensors for electrical wires, the transmitters were connected to a central transmitter, with a core gizDuino as its controller, for it to transmit the data to a software on a computer device. The results yielded that an automated building monitoring network for electrical and water systems can be produced and be fully functional. The system proves to be a more efficient method of monitoring and troubleshooting for potential damages in water pipes and electrical wires. With current electrical and water system management, it is difficult to identify area of parts and troubleshoot damages in the systems. By allowing the detection for damages and providing the area for damage, it is much easier for damages to be easily found and repaired at the earliest convenience to prevent a loss in electrical and water resources.

PH-05	NAME(S)	RONIE MORATO ER-ER
ORGANIZATION		SURIGAO DEL NORTE NHS / FIS-LUMAD CHAPTER
TITLE OF ENTRY		**INDIGENOUS AEROTHERMAL INHALATOR**

This utility model is Indigenous Aerothermal Inhalator steamer disinfectant is among oldest healing tool for the descendants of Manubo tribes used for steaming water, vaporization of herbal oil, humidifier with certain therapeutic efficacy with almost the same principle with modern ventilator comprising: an indigenous clay-pot tank, cupping coconut shell, bamboo tubes component according to its inherent traditional "TUOB" or steam can be used with herbs oil such as artemisia and lemongrass to disinfect virus and as inhaler to decongest symptoms of sneezing, cold, sore throat, cough, asthma, spasm which is also the same symptoms of novel coronavirus (COVID-19) diseases.

PH-06	NAME(S)	HANNAH ALYEAH S. ARRIOLA / SEAN JENERY I. QUINTO / HAITHAM AL-QUASSIM R. ACMAD / ZOSIMA V. AUMENTADO
ORGANIZATION		RAMON MAGSAYSAY HIGH SCHOOL / Manila Young Inventors Association (MYIA)
TITLE OF ENTRY		**SeaCuReD: Seaweed Culture Self-Replenishing Device**

The local production of seaweeds continues to dwindle due to lack of modern techniques in propagation (SEAFDEC,2016).To help rejuvenate the ailing of seaweed farming, the proponents came up with the prototype device SeaCuReD which aimed to boost the cultivation of seaweeds efficiently with less human labor. Also, this study tried to assess if the seaweed will grow with the aid of monitoring device. The green seaweed (Eucheuma, sp.) and marine water was placed in the glass tank with all the monitoring key parameters such as temperature, pH, salinity and light which function automatedly using C++ as its programming language. The efficiency of the prototype device was assessed by monitoring the response of the whole system. The glass tank self-replenishes when the volume of saline water lowers. After 6.5 hours it did replenish 160ml in 8seconds. The result varies for every trial. The growth of the seaweed was measured every 10 day-interval. The frond increased by 2.5mm and 3.5mm from the first to third trial, respectively. Hence, the prototype device is an efficient aid to cultivate sea weeds in an alternative environment.

PH-07	NAME(S)	Mellen May M. Dizon / Israel Miguel G. Biscarra / Hellen M. Dizon / Mayet R. Dela Cruz
ORGANIZATION		President Sergio Osmeña High School / Manila Young Inventors Association (MYIA)
TITLE OF ENTRY		**NatuSheet**

Natusheet is handmade multipurpose commercial paper from hotdog plant fibers. The leaves of the plant underwent has undergone manual process of fiber extraction and paper bag production. The end product was cut to achieve the desired shape of a commercially-used paper bag and was made to undergo a folding endurance test. Compare to the old corrugated carton, the NatuSheet paper is better in terms of Basic weight which is 113.17 g/m2, 0.260 thick, has a burst index of 4.31 kPam2/g and 67.43 folding endurance. The findings proved the inventors' hypothesis that hotdog plant fibers could be a good pulp in making handmade commercial paper bag.

POLAND

PL-01	NAME(S)	Grzegorz Zima / Małgorzata Uliasz / Sławomir Błaż / Bartłomiej Jasiński / Anna Szajna
ORGANIZATION		OIL AND GAS INSTITUTE – National Research Institute
TITLE OF ENTRY		**Rock hydration inhibitor**

The present invention relates to application of polyol compounds as active shale formation hydration inhibitors in drilling muds. This compounds ensuring optimum properties of the drilling mud in a wider temperature range experienced in borehole conditions. In the presented invention were used agents which are products of ethoxylation and propoxylation of long-chain hydrocarbon fatty alcohols. The polyol molecule leaks into the rock pores and displaces water from them thus limit their hydration. It creates adsorption film on the rock surface as well thus limits hydration rate. The new shale hydration inhibitor can be used in industrial conditions.

PL-02	NAME(S)	Maciej Basiura
ORGANIZATION		OIL AND GAS INSTITUTE – National Research Institute
TITLE OF ENTRY		**Modular, segmented mixer for making combustible mixtures**

The presented invention is a component of a gas mixing plant enabling the making of mixtures with assumed energy parameters and possibly close to the assumed percentage compositions of component gases. The developed mixer is designed to make the assumed mixtures in the process of continuous delivery of the output mixture. The quality of the received mixture doesn't depend on the size of the output stream flow. The designed mixer maximizes the usage of actuators and measuring devices provides the possibility of independent working of each segment when making mixtures with fewer components.

PL-03	NAME(S)	Falkowski Piotr / Marek Pachuta / Klimasara Wojciech / Pilat Zbigniew
ORGANIZATION		Łukasiewicz Research Network – Industrial Research Institute for Automation and Measurements PIAP
TITLE OF ENTRY		**Protective cover for the robot arm**

A new, convenient, simple and effective means of personal protection for programmers and servicemen of industrial robots. In programming and service work carried out in robotic installations, there is a frequent need for the presence of an industrial robot operator in his work area, in the immediate vicinity of the manipulator arm and the tool it operates. In these works there is a hazard of human collision with the robot arm and associated elements. Such situations, which are most often the result of a malfunction of a robot or human error, may lead to injury to the operator. The risk of such accidents can be reduced by using a protective cover according to the submitted proposal / idea. The protective cover is made of flexible, soft, multi-layer fabric in which high-sensitivity and fast-reacting pressure / touch sensors are attached. The fabric is cut and sewn in the shape of a shell, which is enough to put on the robot frame and fasten. The cover is made in several sizes, which allows it to be used for a wide range of manufactured industrial robots.

PL-04	NAME(S)	Joanna Ortyl / Emilia Hola / Wiktoria Tomal / Anna Chachaj-Brekiesz / Maciej Pilch / Dominika Krok / Magdalena Jankowska / Alicja Gruchała / Monika Topa / Paweł Fiedor
ORGANIZATION		Cracow University of Technology
TITLE OF ENTRY		**Beneficial biphenyl and terphenyl derivatives - from the synthesis of new photosensitizers to the production of photocurable printing products, including 1D, 2D and 3D printouts, using UV-A and visible safe light sources**

Today, the production of polymer coatings, as well as 1D, 2D or 3D photo-curable materials using the photopolymerisation technique is becoming increasingly widespread in many areas of industry, including the printing industry, the solvent-free paint industry and electronics. Modern technologies for the production of polymeric materials, such as rapid prototyping techniques, and especially additive manufacturing techniques using stereolithography, play an important role at the moment. The growing interest in light-induced polymerization processes as well as the expansive development of technologies for the production of photo-materials leads to a constant search for more efficient, high-performance and fast initiating systems which will ensure significant conversion of the used monomers, while maintaining good mechanical and optical parameters of the obtained polymeric materials. Proposed initiation systems consist of biphenyl and terphenyl derivatives as photosensitizers of commercially used iodonium salts are highly efficient and versatile, thus ensuring various types of polymerization processes, including: radical, cationic, thiol-ene and hybrid. These systems are particularly suitable for paint coatings, protective layers or rapid prototyping techniques, i.e. wherever the access of oxygen or moisture to the monomers cannot be limited. Highlights of this technology include increasing the initiation efficiency of such systems by reducing induction time and improving the polymerization rate, increasing the compatibility of commercial initiators with UV-LEDs and Vis-LEDs that are mercury-free, providing favorable optical and mechanical properties of the produced materials, and reducing the adverse effects of atmospheric conditions such as the presence of oxygen or moisture on the efficiency of photopolymerization processes.

PL-05	NAME(S)	Lech B. Dobrzański / Prof. Leszek A. Dobrzański / Joanna Dobrzańska / Karolina Rudziarczyk / Anna Achtelik-Franczak
ORGANIZATION		The Medical and Dental Engineering Centre for Research, Design and Production ASKLEPIOS Ltd in Gliwice, Poland
TITLE OF ENTRY		**Accessory for personal protection of dental staff against SARS-CoV-2 coronavirus and other pathogenic microorganisms**

The subject of the invention is an accessory against SARS-CoV-2 coronavirus and other pathogenic microorganisms, for personal direct protection of medical staff during dental, laryngological and anesthesiological procedures against harmful inhalation of bioaerosol resulting from patient's breathing, as a colloidal system, where the dispersing medium is air, and colloidal particles are liquid and solid substances, in addition to water mist associated with cooling during the treatment of hard tooth tissues and dental materials with the help of drills by high-speed drilling and very fine solid particles resulting from this treatment, as well as particles of bones formed during the preparation of the implant bed, also containing colloidal saliva particles, and often also the patient's blood and bioaerosol formed under unnatural conditions and difficulty breathing and contact of inhaled air with the mucosa of the walls of the nasal cavities, mucus capture of particles contained in the air, including especially pathogenic microorganisms. The accessory is characterized with: provides the best possible protection directly at the source of infection, is designed using CAD/CAM methods using additive manufacturing technologies, causes negative pressure to protect against harmful bioaerosol, has pipes having a partially open cross-section similar to the letter "C", has an integrated nose pad, has an integrated transparent eyes shield, has double-winged profiled mouth openers, has a suction nozzle for saliva and blood removal, has a nasal cannula providing oxygen supply, has bandpasses elastic for fixing on the patient's head, can be used repeatedly, provided that it is sterilized every time.

PL-06	NAME(S)	Stefan Cichosz / Anna Masek / Karol Tutek
ORGANIZATION		Lodz University of Technology, Faculty of Chemistry, Institute of Polymer and Die Technology
TITLE OF ENTRY		**Environmentally friendly polymer materials**

Nowadays, in accordance with the requirements of ecology and the principles of sustainable development, efforts are being made to intensify the use of natural substances in polymer technology, which contributes to the degradation potential increase of plastic products. To meet these expectations, the subject of the presented invention is an innovative method of producing a polyolefin composition filled with modified cellulose fibers intended for polymer composites of an increased mechanical strength. This composition is unique because it is characterized by the ability to adjust the lifetime of the finished product in a very simple way - by adding the right amount of natural filler. The advantage of the solution over previously known materials is also the fact that the product is not only characterized by simplicity of manufacture, but also reduced production costs, which is extremely interesting due to the high prices of biodegradable polymers available on the market. In addition, thanks to the selection of an appropriate method of modification of natural fibers, which is presented in the patent, one can observe an increase in the strength of the final product, which is not a common effect. The proposed solution is undoubtedly innovative also due to the fact that the waste material (biomass) may be employed in the production process in order to create the presented invention. Moreover, the high mechanical strength of the product allows a wide range of applications: from the packaging industry to the automotive.

PL-07	NAME(S)	Łukasz WARGUŁA / Mateusz KUKLA / Bartosz WIECZOREK / Piotr KRAWIEC
ORGANIZATION		Poznan University of Technology
TITLE OF ENTRY		**Rotational speed control system for wood chipper with a spark ignition engine**

The essence of the invention is the wood chipper drive rotational speed control system with a spark ignition engine equipped with the object detection sensor in the chipper's feed channel and a controller that regulates the angular position of the carburetor throttle flap. In this system, the throttle controller is connected to a stepper motor, which works with the speed control lever. The lever is connected to a centrifugal mechanism regulating the position of the throttle flap in the carburetor by means of a strand. According to the invention, the preferred solution is when the carburetor, through a pressure reducer, is supplied with LPG gas from a suitable tank. An alternative possibility of using CNG gas is also envisaged. In this case, gas from the tank is supplied to the carburetor through a high pressure reducer and a low pressure reducer.

PL-08	NAME(S)	Adam Lewczuk / Krzysztof Adamkiewicz / Jakub Drobiński / Julia Dominiak / Jacek Nowakowski / Mikołaj Woźniak / Adam Rylski / Andrzej Romanowski
ORGANIZATION		Lodz University of Technology, Institute of Applied Computer Science
TITLE OF ENTRY		**Smart Medication Dispenser for Elderly with Remote Monitoring for Doctors and Caretakers**

Our device helps people with managing medication and allows device's users, doctors and caretakers to monitor the adherence. We defined 4 main features we included in our device. We made notification system that notifies an elderly that a medicine should be taken using LED diodes and sound, dispenser system based on time and user input, notification system for doctors and caretakers, which would tell them if the patient took the medicines or not, a treatment progress bar for patients gratification. We added also 1-month-long battery life, modular architecture to be able to store more medicines, build-in buttons to give the patient a sense of control over his treatment and an ability to dedicate a dispenser module for urgent medicines. The suggested solution was designed in collaboration with doctors and caretakers so as to focus on the user's comfort and safety. The whole device is designed to offer the simplest possible experience for the elderly. All they have to do is to wait for the alarm and press a button. Our device's capacity can be easily expanded by adding more cartridges with medicines. The device can be simply managed through a website. One more feature is a mobile application connected with the device. Thanks to this application caretaker can monitor patient treatment remotely. The low weight of the device and its mobility make it very comfortable in use.

PL-09	NAME(S)	Mikołaj Woźniak / Julia Dominiak / Adam Lewczuk / Krzysztof Grudzień / Zbigniew Chaniecki / Adam Rylski / Andrzej Romanowski
ORGANIZATION		Lodz University of Technology, Institute of Applied Computer Science
TITLE OF ENTRY		**Pedestrian navigation for visually-impaired using vibrotactile feedback on the neck**

The suggested system of navigation for the blind and visually-impaired conveys information regarding possible direction of movement through vibrotactile stimulation localized on the neck. The presented invention consists of a vibrotactile collar enabling us to code 8 geographic directions (4 basic and 4 compound) as well as simple maneuvers (stopping, turning) as a sequence of short vibrotactile stimuli on the neck. The collar directed wirelessly by a microcontroller can be connected to popular navigation applications, e.g. Google Maps. Thanks to our project, a visually-impaired person could follow directions without involving their sense of hearing, being the key part of their perception. The suggested solution was designed in collaboration with doctors and physicians so as to focus on the user's comfort and safety. The wireless controller, including an energy-efficient power unit, receives information on the movement direction and the necessity to perform a maneuver via Bluetooth. The system passes on the information to the user through short vibratory impulses, executed by at least one vibrotactile motors with suitable time intervals or at particular moments, when the maneuvers should be done. The collar is made of a breathable sports fabric and enables the actuators' adjustment according to the user's preferences. The low weight of the device and its mobility make it very discreet in use.

PL-10	NAME(S)	Zbigniew Szczepański / Marek Macko / Dariusz Mikołajewski / Joanna Nowak
ORGANIZATION		Kazimierz Wielki University
TITLE OF ENTRY		DEVELOPMENT OF TECHNOLOGY FOR CREATING POLYURETHANE BREAST PROSTHESIS BASED ON 3D SCANNING AND 3D PRINTING
The growing number of breast cancer cases and the negative effects of the disease impair the physical and social functioning of patients and their relatives. The main idea of this project is concentrated around development of materials imitating physical and mechanical properties of organs and also on acquisition data concerning their actual geometry, obtained from 3D laser scans optimized for missing organs production (in this case, reproduction maintaining amputated breast parameters, like volume and shape).		

PL-11	NAME(S)	Paula Kiełbik / Jarosław Olszewski / Michał M. Godlewski / Jarosław Kaszewski / Bartłomiej S. Witkowski / Marek Godlewski
ORGANIZATION		Faculty of Veterinary Medicine, Warsaw University of Life Sciences / Institute of Physics, Polish Academy of Sciences
TITLE OF ENTRY		New generation of biocompatible markers for detection and treatment of tumours
The key of invention is patented eco-friendly production of biodegradable or biostable oxide nanoparticles for cancer detection and therapy. The final product acts as an effective drug carrier to the tumour loci and as efficient tumour detection marker for the MRI-based screening, fluorescence assisted biopsy and surgery. Furthermore, modification of nanoparticle doping results in scintillating properties for photodynamic therapy of deep-tissue tumours.		

PL-12	NAME(S)	Joanna Feder-Kubis
ORGANIZATION		Wrocław University of Science and Technology, Faculty of Chemistry
TITLE OF ENTRY		Highly biologically active surfactants with natural origin component: a path to new wood protection products
The subject of the invention are new surfactants containing natural occurring terpene component having bifunctional properties: impregnations in the wood industry and as antimicrobial agents. The present invention is innovative due to the production of effective biological substances as wood preservatives that are environmentally friendly, produced from naturally occurring in nature (–)-menthol, safe, and their effectiveness far exceeds the commonly used patterns.		

PL-13	NAME(S)	Jerzy Alenowicz / Adam Bajcar / Marek Onichimiuk
ORGANIZATION		"Poltegor-Institute" Institute of Opencast Mining
TITLE OF ENTRY		A system for continuous monitoring of the state of effort of the superstructures of opencast mining machinery
The subject of the invention is a system for continuous monitoring of the state of effort of the superstructure of opencast mining machinery, enabling the assessment of this state both in terms of fatigue strength and immediate strength along with early warning about the depletion of fatigue strength as well as exceeding the conditions of immediate strength, additionally equipped with a module enabling obtaining information on the electrical parameters of the main drives and the relative positions of basic working sets of opencast mining machinery.		

PL-14	NAME(S)	dr Michał Majcherek (PhD) / dr inż. Sylwester Borowski (PhD Eng.)
ORGANIZATION		University of Economy in Bydgoszcz, Institute of Economics and Management
TITLE OF ENTRY		HOME GRINDER FOR PLASTIC WASTE, SPECIFICALLY INTENDED FOR PET BOTTLES, POWERED BY A RENEWABLE ENERGY SOURCE
An output of R+D efforts is the prototype of an innovative design being a universal compactor for waste plastic containers, intended for home applications.		

PL-15	NAME(S)	dr Piotr Szymański (PhD) / mgr Robert Lauks (MSc.)
ORGANIZATION		University of Economy in Bydgoszcz, Institute of Economics and Management
TITLE OF ENTRY		SMART PLAYING PIECE FOR BOARD GAMES
A research team at the University of Economy in Bydgoszcz proposed a solution being a smart playing piece for a board game. The smart playing piece will identify its location on a programmable game board; if positioned on a suitable field on the board, the smart playing piece will communicate with a connected computer device and perform a specific game action (displayed with specific LEDs or on the device's screen), and process counting / interact with the player. The different playing pieces on the board should also respond in a specific way when present on the same field at the same time.		

PL-16	NAME(S)	**Janusz Sitek / Aneta Araźna / Marek Kościelski / Wojciech Stęplewski / Kamil Janeczek / Krzysztof Lipiec / Sebastian Karolewski / Ireneusz Rafalik / Piotr Ciszewski**
ORGANIZATION		Łukasiewicz Research Network - Tele & Radio Research Institute
TITLE OF ENTRY		**Electronic product life cycle balancing for optimal use as a more environmentally friendly approach to electronics –New production and hardware concepts for reuse and assembly**
Changes in the life cycles of mobile communication devices will be possible through develop a new approach to the design of electronic products and the reuse of installed components. This method will allow the reuse of raw materials and thus the protection of the environment and natural resources. The research part of the project has been completed. Positive effects were obtained and the possibility of using this technique in a wide range of products was confirmed.		

QATAR

QA-01	NAME(S)	**Hissa Fahad J A Al-Kuwari / Roudha Jumah M D Al-Kuwari / DR. Muazzam Ghous Sohail**
ORGANIZATION		Qatar University
TITLE OF ENTRY		**Ductile Fiber Reinforced Ultra-high Performance Concretes (DFRUHPC)**
The reinforced concrete (RC) structures in Arabian Gulf are subjected to extremely hot and humid environmental conditions with chlorides present in the air. These conditions cause concrete to deteriorate well before the designed service life of the structures. The cost to repair the degraded RC structures sometimes exceeds the replacement cost. Therefore, there is a need to adopt new construction materials to minimize the damage caused by these aggressive marine conditions, and fulfill the requirements of high strengths required for major structures. The low porosity, high strength Ultra-high Performance Concretes (UHPC) are expected to be the one such material.		

QA-02	NAME(S)	**Dr. Noora Jabor Al-Thani**
ORGANIZATION		Qatar University
TITLE OF ENTRY		**Qatar University – Young Scientists Center**
Qatar University – Young Scientists Center is the first Qatari Project-based learning STEM initiative that focuses on introducing interactive learning experience. The program takes initiatives to innovate educational practices for transforming youth to scientists and inventors who will take on prominent roles in shaping the future. The center gives participation opportunities for all students in Qatar both male and female while ensuring diversity and inclusion of students with learning difficulties. Since our establishment in 2010, 7040 students have joined our program, who came up with 947 products and innovations, which were presented in national and international competitions and won prestigious awards.		

ROMANIA

RO-01	NAME(S)	**Mihaela-Doina Niculescu / Carmen Cornelia Gaidau / Doru-Gabriel Epure**
ORGANIZATION		INCDTP-Leather and Footwear Research Institute Division
TITLE OF ENTRY		**Process to obtaining a collagenic film composition**
The invention relates to a production process for a collagen based composition recovered from leather by-products, cross-linked with Tara vegetable tannin, for the design of multifunctional supports for agricultural seeds implantation and seedlings support. The invention leads to 80-90% residual proteins recovery for elastic films forming by crosslinking, permeable to water vapor, whose biodegradation generates free amino acids for germination stimulating, nutrition and plant increasing resistance to insect and fungal attacks. The invention contributes to the capitalization of secondary protein resources in the circular economy and reduces the need for ferlilizers and synthetic pesticides in agriculture.		

RO-02	NAME(S)	**Marin Laurentiu**
ORGANIZATION		National Institute for Research and Development in Chemistry and Petrochemistry
TITLE OF ENTRY		**A 00075/ 2018 Process for obtaining space formations composed of carbon atoms fullerene-type by electric discharges in pulse, in under-excitation mode, using pyrolytic graphite cathode**
The invention relates to a procedure for obtaining space formations composed of carbon atoms of the fullerene type by applying pulsed electric discharges between a metal anode and a pyrolytic graphite cathode. The highlighting of these spatial formations was performed following thermogravimetric analyzes when mass additions were detected, as well as by SEM electron microscopy analysis.		

RO-03	NAME(S)	**Costoiu Mihnea Cosmin / Semenescu Augustin / Doicin Vasile Cristian / Ulmeanu Mihaela Elena / Cîrstoiu Cătălin / Doicin Ioana Cristina / Mateș Ileana Mariana**
ORGANIZATION		UNIVERSITY POLITEHNICA BUCHAREST
TITLE OF ENTRY		**Orthopedic device for correction of the TALIPES CALCANEUS / TALIPES CALCANEOVALGUS DEFECT**
The invention relates to an orthopedic device for the correction of a malposition of the foot expressed by the defects talipes calcaneus and talipes calcaneovalgus, particular variants of Talus valgus, and to the process for obtaining it. The orthopedic device for Talipes calcaneus / Talipes calcaneovalgus defect correction, is composed of a fixed subassembly, which is fixed to the leg of the foot, a movable subassembly, which is attached to the foot of the defective foot, a snail-snail gear and a graduated cap, which is fixed with the help of screws with clogged head.		

RO-04	NAME(S)	**Minea Marius / Dumitrescu Cătălin / Chiva Ionuț-Cosmin / Minea Viviana-Laetitia / Semenescu Augustin**
ORGANIZATION		UNIVERSITY POLITEHNICA BUCHAREST
TITLE OF ENTRY		**Method and system for anonymously collecting position and mobility information in public passenger transport, based on Bluetooth and Artificial Intelligence**
The invention relates to a method and system for the anonymous collection of position and mobility information in public passenger transport, based on Bluetooth and Artificial Intelligence, for improving public transport management systems.		

RO-05	NAME(S)	**Ruxandra Vidu / Augustin Semenescu / Ileana Mariana Mates / Cristian Dragos Vidu**
ORGANIZATION		UNIVERSITY POLITEHNICA BUCHAREST
TITLE OF ENTRY		**Biocompatible Medical Device and Method of Making Same**
This patent describes a biocompatible medical device that include two supported meshes for providing mechanical strength and osseointegration properties of the implant, and a multiplayer porous material in between them that is loaded with the required bioactive antibacterial compound to promote a controlled and sustained release of the pharmaceutical agents at the site of surgical intervention. To increase osseointegration, meshes are designed with an open structure and coated with biocompatible materials such as hydroxyapatite.		

RO-06	NAME(S)	**Andreea-Cristina HEGYI / Henriette SZILAGYI / Carmen-Silvia DICO / Vasile MEIȚĂ**
ORGANIZATION		National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development URBAN-INCERC
TITLE OF ENTRY		**Composite thermal insulation composite panels with sheep wool core, production methods and execution**
The invention refers to composite thermo-insulating panels with sheep wool core, including production methods and execution. The novelty of this patent application derives from the decrease of mattress type products disadvantages, through an encasing of the mattress sheep wool core in a composite shell based on inorganic binder. The technology envisages the inclusion of a mineral wool strip between two adjacent composite panels, making the reuse of mineral wool waste. The purpose is to efficient use of wool resource and to improve energy efficiency and thermal comfort in buildings, spaces for industrial or agro-zootechnical activities.		

RO-07	NAME(S)	**Gabriela-Adela CĂLĂTAN / Andreea-Cristina HEGYI / Henriette SZILAGYI / Vasile MEIȚĂ**
ORGANIZATION		National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development URBAN-INCERC
TITLE OF ENTRY		**Wall construction system based on unfired clay**
The proposed construction system consists of adobe-brick masonry elements, masonry mortar and clay-based finishing mortar, based on unfired clay, which, by design, significantly reduces CO_2 pollution from the construction industry. Ecological building materials made of clay and vegetable fibers are easy to make, in harmony with nature, aesthetic, offering a pleasant indoor climate and numerous benefits on the health of users. The purpose of this invention is to provide a complete and environmentally friendly solution for making unfired clay-based walls.		

RO-08	NAME(S)	**Adrian-Victor LĂZĂRESCU / Henriette SZILAGYI / Cornelia BAERĂ / Andreea-Cristina HEGYI / Vasile MEIȚĂ**
ORGANIZATION		NIRD URBAN-INCERC Cluj-Napoca Branch
TITLE OF ENTRY		**Process for the realization and alkali-activated geopolymer binder, without cement**
The invention refers to an alkali-activated geopolymer process and binder, without cement content, using as raw materials fly ash available in Romania and an alkaline activator based on sodium silicate (Na_2SiO_3) and sodium hydroxide (NaOH), intended for the construction of civil and industrial building elements. The aim of this invention is to provide a complete solution and a user-friendly environment production of new alternative binders, with no negative impact on the environment.		

RO-09	NAME(S)	**Adrian-Victor LĂZĂRESCU / Henriette SZILAGYI / Cornelia BAERĂ / Andreea-Cristina HEGYI / Vasile MEIȚĂ**
ORGANIZATION		NIRD URBAN-INCERC Cluj-Napoca Branch
TITLE OF ENTRY		**Process for the realization and system for alkali-activated geopolymer pavements, paving slabs and road edges, without cement content**
The invention refers to a process for the realization and systems of paving blocks, slabs and road edges produced by using alkali-activated geopolymer concrete, without cement content, using as raw materials thermal power plant Class F fly ash available in Romania, an alkaline activator based on sodium silicate (Na_2SiO_3) and sodium hydroxide (NaOH) solutions for prefabricated paving elements for pedestrian use (pedestrian paths, pedestrian zones), bicycle lanes, parking lots, roads, motorways, industrial spaces, public transport stations, gas stations etc.		

RO-10	NAME(S)	**Constantin-Dorinel VOINIȚCHI / Flavius-Valeriu CLADOVEANU / Miron ZAPCIU / Adriana NICOLAE / Nicoleta-Adaciza IONESCU / Cătălin DIMA / Vasile MEIȚĂ / Claudiu-Lucian MATEI / Henriette SZILÁGYI / Cornelia BAERĂ / Andreea-Cristina HEGYI / Mihaela SANDU / György DEÁK / Mihaela-Andreea MONCEA / Florina-Diana DUMITRU / Ana-Maria PANAIT**
ORGANIZATION		SC INCERTRANS S.A / NIRD URBAN-INCERC / INCDPM
TITLE OF ENTRY		**Cement-based materials with self-repairing properties induced by reactive grains with protective coating**
The invention refers to cementitious materials with self-repairing properties, generated by the use of an intelligent reactive addition to the cement-based matrix. The addition consists in reactive grains with protective, impermeable polymeric coating against inherent hydration during mixing and also with friability capacity when necessary, namely when cracks occur within the cementitious matrix. This way the contact between the reactive core and water or other components is produced, developing the specific reactions generating healing products with crack clogging, self-sealing effect. The overall infrastructure durability is improved, reducing the maintenance & repair costs and also expand their service life.		

RO-11	NAME(S)	**Alina Ortan / Narcisa Babeanu / Sorin Avramescu / Simona Spinu / Lia Mara Ditu / Milen Georgiev**
ORGANIZATION		University of Agronomic Sciences and Veterinary Medicine of Bucharest
TITLE OF ENTRY		**Standardized extracts of Melissa *officinalis L.* - method for obtaining and potential therapeutic use**
The present invention relates to a vegetable extract obtained from a species of the genus Melissa, with concomitant antioxidant and antimicrobial properties. The plant extracts are obtained through a process with good extraction efficiency of the active principles, the obtained product is ecological and natural, has potential applications in natural treatments for topical use, which does not involve the use of synthesis substances against which high resistance has been developed over time. The authors gratefully acknowledge the support obtained through the project SusMAPWaste, SMIS 104323, Contract No. 89/09.09.2016, from the Operational Program Competitiveness 2014-2020, project co-financed from the European Regional Development Fund.		

RO-12	NAME(S)	**Radu Claudiu Fierascu / Irina Fierascu / Roxana-Ioana Brazdis / Anda Maria Baroi / Alexandru Stirban / Ariana Codruta Leahu / Alina Ortan**
ORGANIZATION		National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM Bucharest / National Museum of Union Alba Iulia (MNUAI) / University of Agronomic Sciences and Veterinary Medicine of Bucharest (USAMVB)
TITLE OF ENTRY		**Antimicrobial pulverisable solution for restoration / conservation of leather supports and method of obtaining it**
The present invention relates to an antimicrobial pulverisable solution based on a mixture of hydroxyapatite, calcium oxalate and zinc apatite, used for conservation/ restoration of heritage objects. on leather support. The solution uses compounds whose synthesis is fast, economical, and without negative action on the environment and human health, having an antimicrobial component easily to synthesize and nontoxic, and doesn't influence the treated objects from an aesthetic point of view. This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS/CCCDI – UEFISCDI, project number PN-III-P1-1.2-PCCDI-2017-0413, contract 50 PCCDI/2018, within PNCDI III.		

RO-13	NAME(S)	Ofelia-Cornelia CORBU / Henriette SZILAGYI / Gabriel PIRGARIU
ORGANIZATION		Technical University of Cluj-Napoca
TITLE OF ENTRY		ECO- INNOVATIVE CONCRETE BASED ON CEMENT AND RECYCLED WASTE GLASS AND PET (POLYETHYLENE TEREPHTHALATE) FOR APPLICATIONS IN CONSTRUCTION "BESTiPET"
The invention relates to obtaining a new, eco-innovative, sustainable concrete, based on cement and recycled waste in the alternatively glass aggregate and PET (Polyethylene_Terephthalate) flakes form, as raw material, which successfully replace the non-renewable natural aggregates. The eco-innovative concrete was made within the research-development-innovation project "CHECKS OF INNOVATION 2018" in order to develop the SMEs, where the beneficiary company, NEW NCR RECICLARE SRL becomes the final recycler. The main activities of the research results beneficiary, NEW NCR RECICLARE, are: collection and recovery of waste and concrete products manufacturing. The alveolar concrete blocks based on cement and recycled waste (glass aggregate and PET) already obtained the Technical Approval no. 001SC-02/635-2019 for the purpose of commercialization in Romania.		

RO-14	NAME(S)	Petrică VIZUREANU / Mădălina Simona BĂLȚATU / Andrei Victor SANDU / Mircea BERNIC / Mihail BĂLAN
ORGANIZATION		"Gheorghe Asachi" Technical University of Iasi
TITLE OF ENTRY		TITANIUM-BASED ALLOY
The invention relates to the metallurgy of the alloys, namely to a titanium alloy. The titanium alloy, according to the invention, contains molybdenum and silicon. The problem solved by the proposed invention consists in the development of an alloy with high corrosion resistance in SBF solution, with a low elasticity mode, close to that of the human bone, high biocompatibility, ensuring the possibility of manufacturing from this alloy implants for medical applications.		

RO-15	NAME(S)	Dumitru Doru BURDUHOS NERGIȘ / Petrică VIZUREANU / Ofelia-Cornelia CORBU / Mohd Mustafa Al Bakri ABDULLAH / Victor-Andrei SANDU
ORGANIZATION		"Gheorghe Asachi" Technical University of Iasi / Technical University of Cluj Napoca / Universiti Malaysia Perlis / Romanian Inventors Forum
TITLE OF ENTRY		Ecologic Geopolymer Based on Thermoelectric Power Plant Ash and Glass Powder from Recycled Wastes for Applications in the Field of Buildings Materials and Obtaining Procedure
The invention refers to an ecologic geopolymer based on thermoelectric power plant fly ash and glass powder from recycled wastes for applications in the field of constructions and procedure of obtaining it. The raw material, rich in aluminum and silicon oxides, is activated with an alkaline solution of sodium silicate and sodium hydroxide.		

RO-16	NAME(S)	DINU-PÎRVU Cristina Elena / POPA Lăcrămioara / GHICA Mihaela Violeta / ANUȚA Valentina / VELESCU Bruno Ștefan
ORGANIZATION		"Carol Davila" University of Medicine and Pharmacy, Bucharest
TITLE OF ENTRY		Biocompatible oil in water microemulsions with hyaluronic acid and salicylic acid and method for obtaining thereof
The invention refers to a biocompatible oil in water (O/W) microemulsion, with hyaluronic acid and salicylic acid, designed for topical application in dermatologic therapy of acne and a method for obtaining thereof. The technical issue solved by the invention consists in: (i) designing a oil in water microemulsion, (ii) selection of two phases, an aqueous and an oil phase, a surface active mixture formed by two surfactants and a cosurfactant, the selection of a biopolymer and an antiacne active, in order to obtain stable systems characterized by adequate physico-chemical parameters, for obtaining a superior action in acne treatment.		

RO-17	NAME(S)	MARIN Ștefania / ALBU KAYA Mădălina Georgiana / GHICA Mihaela Violeta / UDEANU Denisa Ioana / CONSTANTIN Vlad Denis
ORGANIZATION		"Carol Davila" University of Medicine and Pharmacy, Bucharest
TITLE OF ENTRY		Collagenated textile meshes impregnated with minocycline for surgical use and process for their preparation
The invention refers to the use of collagenated meshes impregnated with minocycline in general surgical procedures for the treatment of abdominal hernia and the formulation process. The technical issue solved by the proposed invention consists in the formulation of a delivery system of an antibiotic with broad spectrum (minocycline) from a polymeric support developed as textile mesh functionalized by collagen and cross-linked in a specific manner to simultaneously ensure controlled drug delivery and collagenic film degradation, in order to treat the potential infection and to regenerate the damaged tissue after the surgical intervention.		

RO-18	NAME(S)	UIVAROSI Valentina / GALATEANU Bianca / MUNTEANU Alexandra-Cristina / HUDITA Ariana / VELESCU Bruno Stefan
ORGANIZATION		"Carol Davila" University of Medicine and Pharmacy, Bucharest
TITLE OF ENTRY		**Trivalent chromium compound with antiadipogenic activity and process for synthesis**
The Cr(III) compound, the subject of the invention is a Cr(III) complex with 5-hydroxyflavone with the general formula: $Cr(Pri)_3$. The process of preparing the complex consists in dissolving the ligand in ethanol in the presence of triethylamine, adding the solution thus obtained to an ethanolic solution containing $CrCl_3$, for a ligand:metal ion molar ratio: 3:1 and refluxing the final mixture until a red crystalline precipitate is obtained. The influence of $Cr(Pri)_3$ compound in the dynamics of the adipogenic differentiation process is highlighted by the evaluation of intracytoplasmic lipid accumulations and the expression of perilipine as a marker of adipogenesis.		

RO-19	NAME(S)	Petre Lucian SEICIU / Valentin BARBU
ORGANIZATION		University POLITEHNICA of Bucharest
TITLE OF ENTRY		**Vibrating Reclining System for Medical Rehabilitation**
The invention presents the Vibrating Reclining System (ViReS) for medical rehabilitation. The actual vibrating systems comprise platforms on which the user stands up. They are used in limited domains such as sport, fitness, athletic and home activities. Due to its versatility given by the reclining seat ViReS is conceived for multi-purpose medical rehabilitation treatment. ViReS is developed in order to apply the vibrations to the targeted body area that needs to be treated. ViReS goals are: 1. Enhancing the vibration treatment efficiency by stimulating the targeted body area. 2. The system usability by elder or patients that cannot sustain the standing position.		

RO-20	NAME(S)	Constantin Romica STOICA / Petre Lucian SEICIU
ORGANIZATION		University POLITEHNICA of Bucharest
TITLE OF ENTRY		**2 DOF Device for Satellite Components Orientation**
The invention presents a device (SOD) for the orientation of the satellite's components (sensors, solar panels, antennas, jet thrusters) used in space technology. The actual problem is that there are no acceptable marketable solutions for space sector which present specific challenging conditions of extreme conditions functioning. The invention solves these problems by using a 2 degrees of freedom device that presents several advantages: simple design (1 part), machining simplicity, enhanced satellite components positioning capabilities, no lubrication required.		

RO-21	NAME(S)	Mircea MANOLESCU
ORGANIZATION		iSentinel
TITLE OF ENTRY		**iSentinel® Home/Immo/Industry IoT – the earthquake intelligent protection and early warning solutions**
A fully customizable IoT integrative solution for life saving and industrial plants, buildings, assets and environment protection if major earthquake and other disasters. Structured on three levels, detection-decision-execution this innovative solution allows to integrate alternative inputs in order to connect in any moment to other reliable technology systems and complementary inputs (gas, smoke, water and/or personalized). The second level allows the intelligent management of the input data and triggers the appropriate protection by following pre-set protocols. The third level realizes the physical protection and communicates with the BMS and the Fire Central to realize an integrated protection.		

RO-22	NAME(S)	Anton FICAI / Denisa FICAI / Ludmila MOTELICA / Ovidiu-Cristian OPREA / Ecaterina ANDRONESCU
ORGANIZATION		University POLITEHNICA of Bucharest
TITLE OF ENTRY		**COMPOSITIONS AND METHOD FOR TREATING MATERIALS FOR THE DEVELOPMENT OF (MEDICAL) PROTECTIVE DEVICES WITH ANTIVIRAL AND ANTIMICROBIAL ROLE**
The present invention provides the technology for modifying protective devices (masks, overalls, gowns, gloves, visors) by applying a polymeric layer loaded with Ag nanoparticles (of various shapes and sizes from spherical nanoparticles to triangular, truncated triangular, hexagonal, cubic, cylindrical, etc.), Cu, ZnO, etc. stabilized with suitable agents and loaded with antiviral / antimicrobial substances based on pure components such as eugenol, eugenyl acetate, ..., oils or extracts with low volatility to ensure long-lasting action. In the formulations to be applied on the protection devices, the nanoparticle content can reach 1-2%; antiviral / antimicrobial components also 1-2% while the polymer content varies in the range of 0.1-100% the difference being solvent.		

RO-23	NAME(S)	**Mihail Aurel ȚÎȚU / Constantin OPREAN / Ion MĂRGINEAN / Alexandru-Marcel MOLDOVAN / Adrian BOGORIN-PREDESCU**
ORGANIZATION		Romanian Association for Alternative Technologies Sibiu – A.R.T.A. Sibiu
TITLE OF ENTRY		**PORTABLE HYDRO-ELECTRICAL TURBINE WITH DEFORMABLE PADDLES**

The invention refers to a floating construction which can be easily transported and being placed on a nearby stream, anchored to the shores, produces electric energy for the necessities of one house, the construction being done at accessible costs compared to those for windmills and solar panels currently used for individual households. The kinetic energy is taken from the stream directly, linearly, with the help of a textile belt extended as a chain track, being foreseen with deformable textile pockets as hydraulic paddles, the linear movement required by the water being converted into rotation movement and engaging an electric generator. It can be used as individual household electric energy generator, at the level 1 constructive size, producing units of kW for every beneficiary who has a water flowing nearby. Also, it can be used as portable electrical energy source for cabins and tourist's groups with tents.

RO-24	NAME(S)	**Ovidiu Alexandru MEDERLE / Dumitru ȘUTOI / Cosmin Iosif TREBUIAN / Cosmin LIBRIMIR / Theodor-Romeo STOIANOV / Octavian Maris CRETU / Augustin SEMENESCU**
ORGANIZATION		„Victor Babeș" University of Medicine And Pharmacy, Timișoara
TITLE OF ENTRY		**Lumbar region mold for the practice of lumbar puncture and loco-regional spinal anesthesia**

The invention relates to a method of learning and practicing two practical maneuvers used in the hospital, especially in the field of anesthesia and intensive care. Through this invention, lumbar puncture and spinal anesthesia can be practiced. The mold consists of a skeleton of 5 lumbar vertebrae made of polylactic acid that mimics the anatomy of the lumbar region, and other elements that simulate the anatomical layers of this region. The main advantages of this invention are the decrease in the rate of complications caused by the execution method, offering the possibility to doctors without experience of effective practice both in terms of quantity and quality of lumbar puncture and spinal anesthesia, the short labor time of the mold and its low cost.

SAUDI ARABIA

SA-01	NAME(S)	**Aziza Ali Mohammed Aqeely**
ORGANIZATION		Intermediate Gifted School
TITLE OF ENTRY		**Science Fiction Techniques, The Art of Making Inventors**

Teaching Science Fiction is an area of interest in creative thinking in an age of information revolution that relies on memory techniques to translate learners' ideas into inventions. This project is a book which teach Science Fiction for all stages, attached to worksheets and sample stories to illustrate the outcomes and effectiveness od Science Fiction Teaching.

SA-02	NAME(S)	**Dr. Haleema H. Albohiri / Prof. Dr. Najia A. Alzanbagi / Majed S. Alzahrani / Saad H. Albohairi**
ORGANIZATION		Biology Department in the Science College & King Abdulaziz University Hospital, King Abdulaziz University / College of Applied Medical Science, Jeddah University
TITLE OF ENTRY		**A New Antimalarial Agent from Betalain Aqueous Extract of *Beta vulgaris* in the Experimental Mice**

Malaria is responsible for around half million people dying yearly and it is hard to destroy because the resistance of *Plasmodium* parasite to most of the anti-malarial chemical drugs, that proving to be a challenging problem in malaria control. This underscores the continuing need for the discovery and development of new effective and safe antimalarial drugs. The *in vivo* antiplasmodial activity of Bio active compounds of *Beta vulgaris* aqueous extracts in mice infected with *Chloroquine sensitive Plasmodium berghei berghei* was studied and the effectiveness of Betalains, Nitrate, Phenolic Acids and Saponins were evaluated against early infection. Each mice group were administered separately in concentrations of 30, 50, 70 mg/kg comparing with distilled water and 5 mg/kg Chloroquine as positive control. Betalains (70 mg/kg) showed the best inhibition activity with 80.85% while (30 mg/kg) gave 60.91%, inhibition level in the early infection (suppressive test). The Betalains aqueous extract at all doses did not show dose-dependent activity against *Plasmodium* in the early infection. This effort provides a stimulus to conduct further investigation to examine Betalains active components as malaria inhibitor combinations.

SA-03	NAME(S)	**Dr. Rabab Mohamed Aljarari / Prof. Dr. Ebtisam Abdullah Bawazir**
ORGANIZATION		Jeddah University, Jeddah City, Kingdom of Saudi Arabia
TITLE OF ENTRY		**Effect of combination of *Boswellia carteri* and Black Raisins (*Vitis vinifera*) on Alzheimer's disease induced by aluminum chloride ($AlCl_3$) in male albino rats**

Alzheimer's disease (AD) is common dementia cause. *Boswellia carteri* and raisins used for memory enhancing. This study designed to evaluate *Boswellia carteri* and black raisins (*Vitis vinifera*) combination effects on aluminum chloride ($AlCl_3$) induced AD in rats. Forty adult male Albino Wistar rats were distributed to five groups that received treatment for 8 weeks. Results revealed that aluminum exposure significantly decline memory and learning in maze learning test as revealed by increase in elapse time and errors number in maze. Significant increase of cortex and hippocampus homogenate levels of AchE, LPO but decreased in DA, NE, GABA, GSH, GSSG, SOD was observed in $AlCl_3$ rats. Histopathological evaluations of hippocampus from $AlCl_3$ treated rats showed increase of degenerated cells with structural damage. Rats treated with *B. carteri* and raisin or rivastigmine showed improvement of behavioral, biochemical and histopathological alterations. In conclusion, *B. carteri* and raisin had neuroprotective effects in AD animal models due to their antioxidant constituents.

SENEGAL

SN-01	NAME(S)	Etienne Thibault
ORGANIZATION		N/A
TITLE OF ENTRY		**Agglofil**

Agglofil is a resistant product that can replace the chipboard wood used in the manufacture of furniture, parquet floors, thermal and sound insulation partitions, etc. It helps prevent the felling of trees. The chipboard wood used in the manufacture of certain products (furniture, parquet floors, etc.) is not very resistant. The manufacture of certain products (furniture, parquet floors, etc.) is based on the felling of trees and contributes to deforestation. Agglofil is more resistant (stronger, resistant to water, shocks and pressure) than the chipboard wood currently used. It helps to slow down deforestation for the protection of the environment and reduce production costs.

SINGAPORE

SG-01	NAME(S)	TAN Wei Kok / Joleen Seto
ORGANIZATION		Citizen Innovation
TITLE OF ENTRY		**SNIFFER**

During early 2019, there has been large scale poison gas exposure in oil refinery port town of Pasir Gudang, Malaysia. Over 4000 were affected by the illegal dumping of chemicals in the river, resulting in release of toxic fumes exposure. More than 940 seek medical treatment for breathing difficulties at its peak and 111 schools was closed for about 2 weeks. All these unfortunate events can be prevented if there was a system in place for early warning detection of toxic gas in place. In SNIFFER, our system utilizes a network of sensors that can monitor a high risk area 24/7. Using 5G or NB-IoT, we can also put the sensors on lamppost of populated areas, giving an accurate reading of the gas safety level. It also ensures that the authorities can trace the direction & source of pollution to take action quickly.

SLOVENIA

SI-01	NAME(S)	Srečko Pisnik
ORGANIZATION		N/A
TITLE OF ENTRY		**Innovative Plate Easebelt Dynamic MM**

Innovative Plate Easebelt Dynamic MM is a plate that you integrate in (office) chair with purpose of dynamic seating between a seat and the supporting part of a chair. As a result, when sitting, body moves and thus activates muscles that act as splints in a spine. *This reduces the* pressure in an intervertebral pads. When we sit down on a chair, the seat surface with a body moves back, partially rotates and a pelvis is raised. This action bends a lumbar part of a spine. *The* system works due to gravitational force and dynamic forces.

SRI LANKA

LK-01	NAME(S)	K.D SRIMAL CHRISANTAS CHINTHAKA
ORGANIZATION		Sri Lanka Inventors Commission (SLIC)
TITLE OF ENTRY		**A new method of increasing the speed of movement of the human sperm**

First of all with the help of weak human sperm microscope it must be found that its movement speed is slow. Secondly ,The sperm must then be placed over the electronic device of the new invention then there is the reduced movement of semen about 80% percent of the velocities are seen to increase the speed of motion. Eventually, this inventive device should be placed near the testicles that produce the sperm. This is a Testing/Treatment procedure for boys without children.

LK-02	NAME(S)	K.D SRIMAL CHRISANTAS CHINTHAKA
ORGANIZATION		Sri Lanka Inventors Commission (SLIC)
TITLE OF ENTRY		**Fire prevention plug base**

When taking a high current from the 13A/15A plug tops in the usage those plug tops will be over heated and a fire will occur. But by this product the trip switch will be activated and disconnect the circuit. The same goes for short contacts. (The thermo sensor mounted on the plug base will cut off the power supply when it is heated for various reasons)

LK-03	NAME(S)	K.D SRIMAL CHRISANTAS CHINTHAKA
ORGANIZATION		Sri Lanka Inventors Commission (SLIC)
TITLE OF ENTRY		**Low cost L.E.D panel lighting system**

The usual way to control two common panel lights with two switches is to wire two live (L) wires and one neutral (N) wire. But for my new design, I have come up with a way to reduce the number of wires three to two, by controlling two panel lights in two switches.

LK-04	NAME(S)	Helani Dulanya Balasuriya
ORGANIZATION		Musaeus College
TITLE OF ENTRY		**Automatic Garbage Segregation Bin**

Garbage has become a burden worldwide. Sri Lanka as a nation faced enormous disasters as mounted garbage collapse causing harm to life and property. Having analyzed the root cause for the above situation I present you with my invention a bin that functions automatically to separate waste. Instead of several bins which are labeled as metal , plastic etc., I provide u with one bin which has compartments within it for several categories of waste and a single platform to dump garbage onto. Therewith the bin will automatically recognize the categories and separate the waste. Meanwhile alert messages will be sent when the bins are about to be filled. This system helps for proper garbage disposal and management.

LK-05	NAME(S)	KUREMPALA RALALAGE CHATHURA MADHUMAL
ORGANIZATION		SRI LANKA INVENTORS COMMISSION (SLIC)
TITLE OF ENTRY		**WALKING CHARGER**

• Using the method of rotating discs such as CD/DVD/VCD.
• Moving the dinamo clockwise and anticlockwise using the levers.
• Rectifing AC generated in the dinamo in to DC.
• Charging the mobile phone battery using the DC.
• Reducing the friction between the leg and the ground to supply stable DC to the mobile phone.
So we can charge 75% of the battery within 1.5 hours of time by normal walking speed.

LK-06	NAME(S)	ASHANI SHALIKA RANASINGHE
ORGANIZATION		UNIVERSITY OF KELANIYA
TITLE OF ENTRY		**BRAILLE, AUDITORY AND KINETIC READING TOOL FOR CHILDREN WITH VISUAL IMPAIRMENTS (BrAK)**

The invention comprises a text written in Braille, puzzles with sliding pieces, audio system and serves as a reading tool for children with visual impairments. It is shape of a book with buttons to push open the pages to the side. Only two of the three puzzle pieces have a portion of a picture on its outward face with the complete picture formed there on while the puzzle pieces are arranged correctly. Once the pieces of the embossed picture of the puzzle are in the correct position the child can hear the sound representative of character shown on the puzzle.

LK-07	NAME(S)	Dr.R.G.S. Wijesekara
ORGANIZATION		Wayamba University of Sri Lanka
TITLE OF ENTRY		**Environment Friendly Horticultural Plugs**

The current invention is made of from coir dust and compost. The horticultural plugs has very high capacity of moisture absorption and retention. There is a whole in the middle of the top for placing the seed. Plugs with seeds can be arranged in trays for germination. When apply water into trays plugs absorb water and germination takes place. Any horticultural seeds can be effectively germinated in horticultural plugs. Seedling can directly be planted in the field without damaging the root system. Fertilization is not necessary during seed germination. Seedling plugs are decompose in the soil after planting.

LK-08	NAME(S)	Dr.R.G.S. Wijesekara
ORGANIZATION		Wayamba University of Sri Lanka
TITLE OF ENTRY		**Multipurpose Hybrid Solar Dryer**

This dyer is designed to trap solar heat during sunrise and sunset. Drying chamber is constructed vertically with several racks for storing drying materials. The exhaust fan has installed at the most top part of the drying chamber to remove moisture effectively. Additional heating chamber located just below the drying chamber is used during night or cloudy weather. Two transparent heat absorbing chambers designed to absorb maximum amount of solar heat and heat absorbing material absorb heat and provide heat for drying. Heat flow is moving upward through drying material due to the action of exhaust fan which support to maintain low RH in the drying chamber.

LK-09	NAME(S)	WARNAKULASURIYA SAMPATH RUWAN THAMEL
ORGANIZATION		SRI LANKA INVENTORS COMMISSION (SLIC)
TITLE OF ENTRY		**HORIZONTAL/VERTICAL COLLAPSIBLE LOW-COST FACE SHIELD**

Horizontal/Vertical Collapsible Low-Cost Face Shield is designed to protect human face from fluids that may contain the COVID-19 virus. So by using this, all the elements of the face and both ears are covered, thus this helps to prevent contact of the face by hand as well. Also this design can be collapsible in both horizontal and vertical directions. Special features of this product include higher protection, reusable facility, collapsibility, user friendliness and cost effectiveness. But existing similar products in the market did not have collapsible feature for horizontal and vertical direction and there no any protection for both ears as well.

LK-10	NAME(S)	WARNAKULASURIYA SAMPATH RUWAN THAMEL
ORGANIZATION		SRI LANKA INVENTORS COMMISSION (SLIC)
TITLE OF ENTRY		**SAFETY AUTOMATED TOOTHPICK DISPENSER**

One of major way of spreading the Covid-19 among the peoples is surfaces touching by hand specially in public places. In order to avoid direct contact with user interface specially in ATM and elevators, toothpicks can be used. In existing toothpick dispensers have many drawbacks based on safety measures. In this design all toothpicks are properly sealed in order to avoid direct contact and to prevent on purpose virus spreading by people. When someone's hand comes closer to the device, a toothpick will be dispensed automatically. Toothpicks are not dispensed to a tray because it can cause to virus spread.

LK-11	NAME(S)	Abdul Azees Ajmal
ORGANIZATION		University of Ruhuna
TITLE OF ENTRY		**Non-Invasive Screening Tool to Detect Anemia**

Non-Invasive Screening Tool to Detect Anemia – 'HemoX'. HemoX is a non-invasive device that calculates the hemoglobin concentration to identify the possibilities of having Anemia in patients. Affordable blood checkups where safe and accurate readings can take place without the need to extract blood via a syringe from patients of wider age range. HemoX provides real-time data readings of blood samples in hemoglobin rather than the traditional invasive method. This is the only non-intrusive way to collect samples using cutting edge technology where patients are provided with a pleasant experience. Uses machine learning algorithms to intelligently predict the risk of Anemia. Approval to test the device was obtained from Ministry of Health and Indigenous Medicine and tested the device at 3 hospitals in Sri Lanka.

LK-12	NAME(S)	Thambawita Maddumage Mewanya Minduli Thambawita
ORGANIZATION		Ku/Holy Family Balika Vidyalaya, Kurunegala, Sri Lanka
TITLE OF ENTRY		**Mosquito repellent, antiseptic, healthy and natural air-freshener mainly with Ceylon Cinnamon oil or waste water in manufacturing cinnamon oil (prohibited to dump in environment by law), water, emulsifier, alcohol and menthol**

Mosquito repellent air-freshener with natural, antiseptic, air purifying, healthy & herbal qualities is a liquid which spreads Ceylon Cinnamon oil, alcohol and menthol mixed water droplets into air, controlling bacteria, fungus, microbial or virus based & insects (mosquitoes) based, respiratory and skin diseases. The liquid is manufactured by mixing cinnamon oil (or cinnamon oil mixed water{harmful to bio-diversity if dumped in environment} wasted when manufacturing cinnamon oil), menthol, alcohol, emulsifiers with a homogenizer with many health benefits to all stake holders helping country's productivity, blue-green economy, carbon footprint index, creating many job opportunities & an additional income to cinnamon farmers.

LK-13	NAME(S)	MOHAMED SAKKAFF MOHAMED RIZNY
ORGANIZATION		N/A
TITLE OF ENTRY		**DISTANT ENT EXAMINER**

In the COVID 19 Era and even in future in any pandemic or infectious period, or even in normal condition examination of an ENT patient is a very procedure. We have to be very close to the patient (few inches away) in examination of ear, nose and throat even the larynx, with very high chance of droplet transmission to the doctor with the current instruments used in worldwide. In my equipment, the doctor and the patient are separated completely from a screen and the distance of at least 1.5-2 meters away. The camera gives a very clear details and picture/video of the patient's ear, nose, throat and larynx. Even we don't need to have separate session to do a fibro optic laryngoscope to visualize the vocal cords, which saves time and money. This can be performed from this equipment. It is portable and can be kept over the table or even can be fixed to a wall where we can examine the patient from the next room.

LK-14	NAME(S)	ASIRI DILHAN DE SILVA
ORGANIZATION		SRI LANKA INVENTORS COMMISSION (SLIC)
TITLE OF ENTRY		**ALL IN ONE STERILIZER**

All in Sterilizer is a portable sterilizing device for bacteria and viruses with an effectiveness of 99.9%, which has a quick 90 seconds process free of moisture and high heat. It is ideal to sterilize electronic devices, documents, currency notes, face masks, wallets, jewelries, saloon tools, other tools, etc. This invention was mainly intended to safeguard the lives of people by effective and easy sterilizing of day to day essential things, thereby helping to prevent the spreading of COVID-19 pandemic.

LK-15	NAME(S)	MOHAMED DAROOK MOHAMED ZACKI LATHEEF
ORGANIZATION		N/A
TITLE OF ENTRY		**PASTE TO TREAT FOR SKIN DISEASES**

This is a herbal medicine which is approved by the Department of Ayurveda – Ministry of Health & Indigenous Medicine Sri Lanka & 1st Place Presidential Awards Winning Invention in Field of Traditional Medicine By President of Sri Lanka. The compound is made by using natural herbal leaves and herbal parts. It is an effective treatment for skin conditions such as Psoriasis, Eczema, Rashes, Pimples, Cracks, Infected foot and Marks. The paste works as effective treatment without internal medicine and has no reported side effects.

LK-16	NAME(S)	ASIRI DILHAN DE SILVA
ORGANIZATION		SRI LANKA INVENTORS COMMISSION (SLIC)
TITLE OF ENTRY		AUTOMATED ROOM STERILIZER

"Automated Room Sterilizer" is an invention that can be used to sterilize any place within any small periodicals of time, continuously, through the day. It helps the health & security authorities to continuously & efficiently sterilize common places & surfaces that have a high risk of being contaminated by harmful bacteria/viruses, at any time of the day. It is an automated device. Hence the sterilizing process could be completed with minimum labour and time.

LK-17	NAME(S)	HEMASHRI BANDARA WAAS THILAKARATHNA
ORGANIZATION		N/A
TITLE OF ENTRY		"Vision Handy capped Read Currency"

To get the currency notes read by a person (may be a cheater)will give in correct information to the "Visually Handy capped". This innovation will read the Currency note and read loudly for everyone to hear when inserted as shown in the photo. This will help everyone inclusive of the businessman and the public if displayed at public places. This system of reading money loudly can eliminate unwanted or unexpected problems. Most of the advanced countries have NOT looked into this problem of the innocent people.

LK-18	NAME(S)	HEMASHRI BANDARA WAAS THILAKARATHNA
ORGANIZATION		N/A
TITLE OF ENTRY		"Disabled abled"

To get to the attention of the nurse or the care taker this would be an opportunity when in need of immense help. This innovation will call the NURSE or the Caretaker Loudly. This will help everyone inclusive of the patient in the hospital or at the Nursing Home. This system of calling loudly can eliminate unwanted or unexpected problems. Most of the advanced hospitals etc., have NOT looked into this problem of the innocent patient or the "Disabled" or "the Bed ridden" people.

LK-19	NAME(S)	Wije Welgama
ORGANIZATION		Sri Lanka Inventors Commission (SLIC)
TITLE OF ENTRY		ANTI COVID 19 VIRUS KILLER STEAMER

My Invention is mainly focused on present COVID-19 pandemic situation. It will definitely help house wives in order to develop confidence in preparing meals without any fear and keep family health 100% secure. It will destroy mold and virus on the surface of consumable goods; vegetables, fruits, meat, fish, and any packing materials, etc. My intention is not use any chemicals or harmful materials for human being. It is 100% environment-friendly .

LK-20	NAME(S)	Lakmali Chandima Pathirana
ORGANIZATION		Institute of Indigenous Medicine, University Of Colombo
TITLE OF ENTRY		Formulation of healthy herbal valued nutritional biscuit incorporating turmeric as main ingredient

Emerging nutraceuticals and functional food innovations make major impact with many herbal nutraceuticals. Thus using tumeric in day to day life as mode of biscuit for preventive and curative purpose is very beneficial according to ayurvedic science and modern sciences. In this study, healthy nutritional biscuit was produced using various ingredients such as *Curcuma longa*, cow milk, cow ghee, sugar and additives (*Zingiber officinale, Piper nigrum, Piper longum, Cinnamomum zehylanicum, Elattaria cardamomum, Cinnamomum tamala, etc.*), wheat flour, egg, butter, ginger and red raw flour. For this purpose turmeric had been processed according to many mechanical and thermal processes with regards to sensory analysis.

LK-21	NAME(S)	Wijayapala WELGAMA
ORGANIZATION		Sri Lanka Inventors Commission (SLIC)
TITLE OF ENTRY		ANTI COVID 19 VIRUS SAFETY GLASSES

My Invention is mainly focused on present Covid 19 pandemic situation. American scientists have found that this virus could also be penetrated through eyes. Therefore, I have made this invention to prevent the above with a "pair of glasses" to safe guard human beings. This Special glass is in cylinder shape made out of polycarbonate with a very special eye guard to cover both sides & front sealer to avoid any air leakage. We could also use it as a sunglass or a reading glass as well.

LK-22	NAME(S)	Wijayapala WELGAMA
ORGANIZATION		Sri Lanka Inventors Commission (SLIC)
TITLE OF ENTRY		PERSONAL WATER FILTER

My Invention is mainly forecasted on DRINKABLE WATER for everyone as we are in the water polluted world. Even bottled water is not safe at all in rural area in a country like ours. Thus, my Invention is a very small Filter in filtering 100 Liters in one cartridge could be replaced easily. Very compact design with 3 parts: water store part on the top, Filter cartridge in the middle and Removable down part to get filtered water and drink directly. We could take it anytime, anywhere we go, like a mobile phone in future.

LK-23	NAME(S)	Chamika Inomal Gamage / Minuwangala Gamaathiralage / Sanchitha Udalamal Dayarathna
ORGANIZATION		N/A
TITLE OF ENTRY		**A process to produce growing medium based on spent tea leaves and coco peat mixture**
This innovation presents preparation of thrown out tea leaves and coco peat based growing medium for industrial agriculture applications. In most of countries which produce tea and its product has the by-product of refuse tea or spent tea leaves. In this innovation a method to process of thrown out tea leaves as a mixture of coco peat and its product, and the process of tea and coco peat-based compress growing medium is presented.		

LK-24	NAME(S)	Thushan Gunawardane / Chamika Inomal Gamage / Viraj Perera / Dhanushka Madhushan Gamage / Diunuge Buddhika Wijesinghe
ORGANIZATION		N/A
TITLE OF ENTRY		**High scalable Emergency Ventilator with Pressure and BPM feedback**
This invention consists of high scalable emergency ventilator with comprehensive PEEP, PIP pressure measurement and breath per minute feedback system and alarms. Initial design was done in Spain by few inventors and opensource. But design didn't have proper sensors to measure output. In our invention we added pressure sensors to measure PIP and PEEP pressure, And RPM sensors to measure BPM. And also an app to get data and notification to doctors mobile.		

SUDAN

SD-01	NAME(S)	Israa Yousef Altaher Aboh Ahmed
ORGANIZATION		Ahfad University for Women
TITLE OF ENTRY		**Wireless copy and paste device**
Wireless copy and paste device, "We will dispense from the printer", the device is four small devices worn at the front of the thumb and index finger for both fingers, and there is a fifth device "mother" and the function of storing ink and the information that was copied and memory, the four devices It is responsible for ink, radiation and scanning.		

SD-02	NAME(S)	Babekir Mohammed Elmostafa Babekir Jomaa
ORGANIZATION		Federal minister of health Sudan
TITLE OF ENTRY		**Vascular blood pump device**
It is a small device that enhance blood flow in certain direction so that the device is installed around (or inside) the blood vessel to control the blood flow in that vessel (increase decrease or stop). The device generates a wave movement that presses the blood vessel and enables the direction of blood flow to flow. Stop blood flow and controls the size of the blood vessel too. Its device contain intravascular air (bag) or extravascular unit and subcutaneous unite (contain the small pump). The vascular unit create wave movement that enhance blood flow in the direction of the wave. and the vascular unit must be made of [Polytetrafluoroethylene (PTFE)] to minimize the risk of rejection.		

SWEDEN

SE-01	NAME(S)	Sajad Shabanpourhaghighi
ORGANIZATION		N/A
TITLE OF ENTRY		**ENERGY PRODUCTION DEVICE WITH CAPILLARY CHARACTERISTIC AND GRAVITY FORCE**
The Invention of "Energy Production Device with capillary tubes and gravity force" which includes several capillary tubes helps the fluid reach a specific height in the opposite direction of gravity and gravitational force by the help of surface adhesive energy after which it directs the fluid towards the turbine by the help of gravity and in the same direction. By moving the turbine blades by the help of gravitational force on the fluid, rotational energy of the turbine is converted to electricity energy. The whole system is comprised of lower storage tank and an upper storage tank and two units of A and B, a penstock, turbine, and generator. Capillary tubes transfer the fluid from lower tank to upper tank. The system has a bleeder valve to migrate against the air pressure. Later, the fluid is directed by one-way valve towards the upper tank Fluid is directed from the upper tank by the gravity force towards the turbine through penstock and the cycle recurs repetitively.		

SWITZERLAND

CH-01	NAME(S)	François Thury
ORGANIZATION		N/A
TITLE OF ENTRY		**Solfegietto® - Glissando®**

The idea is to learn music while having fun. It allows anyone who doesn't know anything about music, but interested in learning it. For kids, it allows them to learn music like a play with their teachers, grandparents, friends and siblings. With the 2 in 1 solution, all musicians will find their account there. Glissando® is the basics. It allows you to learn the name of musical notes. To learn, without fuss and in a fun way, the main names of the notes of the bass and treble clefs. The app chooses the note for you to hear it, sing it, and place the puck on the corresponding note on your staff. The Solfegietto® is played on an A1 format tarpaulin sheet. The aim is to give a playful aspect to learning music for young and old alike. The application that accompanies the players makes the flow of the game more fluid and manages the questions to be asked. It takes between two and seven players to play.

CH-02	NAME(S)	Céline Chevalier Delerce
ORGANIZATION		Association Suisse Corée (ASAMCO)
TITLE OF ENTRY		**Amythis Sàrl: New concept for inventors from / for Switzerland**

This concept is new and unique in the world. Switzerland is a small country where we speak many languages & dialects: French, German, Italian and Romanche as four main languages. Switzerland is a federation of 26 "Cantons" like small "States" and "half states": so each of them has their own leadership to decide rules of laws. How to help all our inventors in this context? Amythis Sàrl was founded in 2013 to support ASAMCO members (inventors) to boost their innovation and inventions in South Korea and now in other Fairs in the world like in Canada. We provide global services for the inventors: Public Relations, fund raising, communication & web marketing, graphism support and websites, logistics supports, translation, etc. to help our inventors to show their inventions and to bring them all solutions for their needs even sales. We are a platform of networking where all partners can join us. More we are, more choices of solutions we bring. You are welcome to become a member.

SYRIA

SY-01	NAME(S)	Muhammad Altibani
ORGANIZATION		University of Aleppo
TITLE OF ENTRY		**Axial Internal Combustion Engine (Qasioon)**

It is a new internal combustion engine in all its small and big details. It is different from any other engine (4 stroke or 2stoke or Wankel engine). It has three strokes(2+1) and operates by petrol or diesel. It realizes the conditions of burning in respect to gas or petrol and realizes the conditions of combustion of the continuous mechanical motion

SY-02	NAME(S)	Mwaffak Shamma
ORGANIZATION		Al Baath University
TITLE OF ENTRY		**FUTURE HEAT EXCHANGERS**

CARBON NANOTUBE ARRAYS HAVE UNIQUE COOLING CHARACTERISTICS DUE TO ITS ANISOTROPIC THERMAL CONDUCTIVITY (MORE THAN 3000 W/M.K WHERE THE COPPER IS 400 W/M.K), THUS IT WILL BE THE BEST TO INCOORPORATE IT WITH THE HEAT EXCHANGER FINSE TO INCREASE THE HEAT TRANSFERE AREA AND EFFICINCY, NOT ONLY THAT BUT ALSO USING THE NANOTUBE CHARACTERISTICS FOR ABSORBING THE AIR HUMIDITY TO DO SUB COOLING .

TAIWAN

TW-01	NAME(S)	Chen Chin-Chu / Chen Yen-Lien / Lin Shin-Wei / Chen Yen-Po / Wang Ci-Sian
ORGANIZATION		Grape King BIO
TITLE OF ENTRY		**Administration of Bifidobacterium lactis GKK2 to promote longevity**

The present invention relates to Bifidobacterium lactis GKK2 enhancing longevity Cisd2 gene expression, decreasing mitochondrial damages and delaying aging-related symptoms such as neurodegenerative diseases as well as sarcopenia.

TW-02	NAME(S)	Kuan Yu-Hsiang / Chen Chin-Chu / Li I-Chen / Hsu Jui-Hsia
ORGANIZATION		Grape King BIO
TITLE OF ENTRY		**Use of Cordyceps Cicadae mycelia for preventing and/or improving acute lung injury**

Chronic Obstructive Pulmonary Disease is the fourth cause of death in the world. The present invention relates to the use of Cordyceps Cicadae mycelia in preventing and improving lung inflammation caused by inhalation of harmful gases, such as cigarettes, air pollution and dust.

TW-03	NAME(S)	CHOU, HSIU-JUNG / HUANG, JIA-HONG / XIAO, ZHONG-REN / PHAM THI THUY HANG / YE, JIA-WEI
ORGANIZATION		Cheng Shiu University
TITLE OF ENTRY		**Phone Stand Cup Lid**
The "Phone Stand Cup Lid" designs breathable hole and the cup water vapor can be dispersed. It also can balance the pressure of the cup and convenient for drinking. The product can be used as a mobile phone rack.		

THAILAND

TH-01	NAME(S)	Asist. Prof. Dr. Ruttiros Khonkarn
ORGANIZATION		Faculty of Pharmacy, Chiang Mai University
TITLE OF ENTRY		**Improving efficacy of Thai herbal extracts by nanotechnology for pain treatment**
In eastern countries, traditional medicines are virtually mainstream practice to treat symptoms including pains. Many researches show that combining herbs have synergistic effect that can effectively cure pain equivalent to conventional medicine. However, conventional topical formulations cannot sufficiently penetrate to the target site and do not offer prolong duration of action. Our research introduces western techniques in form of microspheres to effectively entrap and control the release of herbal active ingredients to the desired area. This will create a mechanism that allow the active ingredients to active site with full efficiency and less side effect.		

TH-02	NAME(S)	Assoc. Prof. Dr. Thitiphan Chimsook / Mr. Poompob Pitakkwanskul / Asst. Prof. Dr. Narissara Lailerd
ORGANIZATION		Faculty of Science, Program of Chemistry and Applied Chemistry, Maejo University / F&B Organics Co., Ltd. / Department of Physiology, Faculty of Medicine, Chiangmai University
TITLE OF ENTRY		**ANDRO : Super Boost for Immune System and Alternative Treatment for Diabetes Mellitus**
ANDRO, Fah-Talai-Jone tablet, extract from kariyat (*Andrographis paniculata*), contains andrographolide (8.82 mg/1 tablet of 500 mg). Interesting, it is formulated by using natural honey as solvent and plant starch for tableting. Honey is used to preserve precious active substances even essential oil and help to increase the efficiency of ANDRO for therapeutic purposes such as immune stimulation and anti-hyperglycemic.		

TH-03	NAME(S)	Surachet Soontorntaweesub / Phiyada Khayak / Panudet Pramunsin / Srung Smanmoo / Thatchaphon Chonwattanasakul
ORGANIZATION		Healthiness Co., Ltd. (AVS Innovation)
TITLE OF ENTRY		**BESUTO-12, Non-alcohol hand sanitizer gel with thin film forming technology**
Besuto-12, the non-alcohol based hand hydrogel is the innovative hand sanitizing product that combines the thin film forming technology (TFilmX™) with the synergistic effect between benzalkonium chloride with natural extract for the disinfection of virus, bacteria and fungi. With TFilmX™ technology, the hand gel forms the thin film on treated hands for at least 12 hours. The synergy between benzalkonium chloride with natural extract exhibits viricidal activity towards coronavirus within 1 min for contact time.		

TH-04	NAME(S)	Patcharapak Suriwong / Khemmaphat Hooncharoen / Nathanan Thongdeewong / Srung Smanmoo
ORGANIZATION		Wellness life Co., Ltd. (Innovated by AVS Innovation)
TITLE OF ENTRY		**KAO VEE PLUS, Probiotic Fermented Houttuynia cordata for Diabetes**
Houttuynia cordata has been used as a traditional medicine for treating with diabetes in Thailand. Although there are a number of studies indicate anti – inflammatory, oxidative stress, anti–oxidant and anti–viral properties of *H. Cordata*, a little research information is on the use for diabetes. We have demonstrated that *H. Cordata* extracts obtained from the fermentation with selected probiotics exhibits the significant upregulation of glucose transporter type 4 in steptozotocin-induced diabetic rats. Therefore, KAO VEE PLUS which the active ingredient from probiotic fermented *H. Cordata* may contribute the beneficial role for the treatment of diabetes.		

TH-05	NAME(S)	Phiyada Kayak / Varinthon Chairojrat / Duangsiri Laikijrung / Sahawish Rojviroon / Srung Smanmoo
ORGANIZATION		AVS Innovation Co., Ltd.
TITLE OF ENTRY		**PHUM PHLAI SPRAY (Muscle Pain Relief Spray From Phlai Microcapsules)**

This Muscle Pain Relief Spray is invented with active pharmaceutical ingredient (API) extracted from Thai traditional herb, Phlai, that is known for its recognition for anti-inflammation and pain relief. The API from Phlai is identified as (E)-4(3',4'-dimethoxyphenyl)but-3-en-1-ol which is responsible for its high pharmacological activities on the anti-inflammation and muscle pain relief (myalgia). Our clinical studies indicate that this API could be used as an effective reagent for osteoarthritis and muscle pain through the short-time reducing of inflammation. (E)-4(3',4'-dimethoxyphenyl)but-3-en-1-ol extracted from Phlai is prepared as microcapsules using the microencapsulation technique which sustained release of the active compound over 6 hours on the treated area. The active compound is formulated as PHUM PHLAI SPRAY, a cooling and soothing spray for those who suffer from muscle pain (myalgia) and osteoarthritis.

TH-06	NAME(S)	Ms. Niratchaporn Jongchansittho / Ms. Wirinya Kongsri / Mrs. Natpassorn Laonet
ORGANIZATION		Princess Chulabhorn Science High School Phitsanulok
TITLE OF ENTRY		**Biodegradable Banana Container**

People used a lot of foam container in daily life, which caused a big number of non-biodegradable plastics waste. Thailand as well knew that a tropical country, banana can quickly grow and cheap. This project creates the innovation which solves non-biodegradable plastics waste by made the biodegradable container from banana which added pineapple leaf fibre for improved strength and coated by chitosan solution for getting more a properties not only antifungal but also strong. From the results shown, our innovation easy to degraded, environmental friendly, and add value to the banana. Besides, after use, it becomes to biofertilizer as well.

TH-07	NAME(S)	Miss Nichakamon Vongsopa / Miss Suphawadee Amjai / Mrs. Natpassorn Laonet
ORGANIZATION		Princess Chulabhorn Science High School Phitsanulok
TITLE OF ENTRY		**Beads Mixed with Fang Herbal Extract for Medical Application**

At present, antibiotic cream is active fast, but it does not last long. So it is not possible to cover the disinfection. Besides, most of the antibiotic creams made from chemical substance. It's caused to the contact dermatitis where antibiotics are applied. The *Caesalpinia sappan* extract liquid, from Thai herb "Fang", now is called Fang extract. Fang extract has an antibacterial effect such as *Staphylococcus aureus* which affect to skin infection. So, our innovation filled fang extract in soft let beads in cream for Longer-lasting action. Moreover being environmental friendly and add the value of Thai herb as well.

TH-08	NAME(S)	Kawin Leephakpreeda / Nicha Muninnimit
ORGANIZATION		Harrow International School Bangkok
TITLE OF ENTRY		**Stymus — an invention that lets you draw and write with a mouse**

The Stymus is a cuboid frame that can be placed over a computer mouse, allowing users to control the mouse naturally like a pen. The invention features a hole above a mouse button, in which a pen-shaped object can be inserted into the Stymus. Users can augment their computer mouse, enabling them to effectively write and draw by hand, with the Stymus. With the rise of technology use in education, the Stymus is a novel, low-cost, user-friendly device for digital writing and drawing needs in the market. The simple design minimizes material usage, reducing its environmental impact.

TH-09	NAME(S)	Mr. Krissadin Oonmai / Mr. Thanabhum Pipadkajonekitt / Mr. Noltawat Rattanawan / Mr. Tanaboon Jaroonyingyong / Mr. Vasupol Jintawong
ORGANIZATION		Debsirin School, Bangkok
TITLE OF ENTRY		**Nanoparticles Solution Battery in Calamine Mixed ZnO and TiO_2**

We have found that calamine contains nanoparticles Zinc Oxide (ZnO) which is a good electric conductor. Calamine is composed of 5% ZnO which is diluted in distilled water in the ratio of 10:100 ml with 10 ml of 5% white vinegar and 0.06 g of TiO_2 which are stirred well. Then, measure the voltage of mixture to be ≈ 1.04 volts per cell, the maximum current is 10.12 mA per cell to be able to keep energy for 3 months. We can create 12 electric cells connected in series circuit and is approximately equal to ≈ 12.48 V.D.C, electric current 120.44 mA (equal to a commonly used car battery).

TH-10	NAME(S)	Korn Hemrungrojn / Theerapas Apinankul / Suteepan Khovidhunkit
ORGANIZATION		Chulalongkorn University Demonstration, secondary school and CUD innovation Hub
TITLE OF ENTRY		@Train (Trans Brain computer Interface Neurofeedback training)

@Train is Brain computer Interface device for neurofeedback training for both the elderly whose brain is near to Alzheimer's and ADHD children. The novelty of this work is at algorithm of waveform scoring pattern to link with attentional mode of cognition used in daily life (patent in progress). This pattern is designed to boost up concentration holding ability-valence-phasic mode of focusing related with training elderly for daily survive and practice brain. We did pilot study found that our @Train can improve working memory, concentration in both healthy and early Alzheimer's patients.

TH-11	NAME(S)	Charita Kumworachai / Pawarisa Lerdloompheephan
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		2-in-1 Eraser Dust Cleaner

A 2-in-1 Eraser Dust Cleaner combines replaceable eraser with dust cleaner which can collect the eraser shavings through its fine bristles and store them in the storage box that is a part of the device. This box can be emptied once full. The solution effectively gets rid of eraser shavings and helps reduce messiness on any workplace. The innovation is compact and light, easily portable. It is an ideal innovation for students and artists who use pencils in their studies/work. The innovation effectively collects the dust, allowing for mess-free work and reducing cleaning up time.

TH-12	NAME(S)	RONNAPAT SRIVORAVILAI / DHARMATOUCH POURPONGPUN / BOONYAKORN S. LEWSUWAN
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		Anti-Pandemic Pen

COVID 19 has forced everyone to live with the new normal lifestyle. For example, we need to wash our hands more often with soap and avoid touching the things. Our team has built in 3 features in the everyday use pen to help people prevent from COVID19: (1) Alcohol Spray for dry handwash or spraying to contaminated area, (2) Button pressing when using elevators or ATM, and (3) Roll-on liquid soap to wash hand with water.

TH-13	NAME(S)	Tanyapat Triwitayakorn / Alisa Triwitayakorn
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		Automatic Envi-Save Sink

Currently, water supply shortage is one of the world's major problems due to global drought and excessive use of water, thus conserving the water resources and using water efficiently should be concerned. Therefore, "Automatic Envi-Save Sink" is created. The "Automatic Envi-Save Sink" is an effective automatic sink that can save water by taking the water back for reusing. It is adjustable for installing in limited areas. Moreover, if the concept of the "Automatic Envi-Save Sink" is furfure applied to other household appliances involved in producing gray water, lot of water will be saved which is most important for earth and life.

TH-14	NAME(S)	Thipok Tungsiripat / Chiratchaya Hemrungrojn / Nara Sthapitanonda / Siranat Tovikkai / Nattam Osornprasop
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		Boost Brain Up^2

Boost Brain Up^2 is an innovative brain training device designed to stimulate brain and hand control coordination of stroke survivor and severe autistic children, who are suffering from motor disability and cognitive error. Boost Brain Up^2 consists of five well designed games according to neuropsychological guideline. The main goal of the device is to train visual memory, working memory and executive function of the patients as daily home based rehabilitation practice. Boost Brain Up^2 was designed to stimulate cognitive skills evolution and improve muscle movement of patients by exercising their brain and muscle with a fun and challenge.

TH-15	NAME(S)	PALIDA RONGKAPICH / RAPEEPUTCH RATTANATAYMEE / PROM SERMSAKSASITHORN / KITTAPAS PORNCHAROENCHOT
ORGANIZATION		TRIAM UDOM SUKSA SCHOOL
TITLE OF ENTRY		BRAINY BLINDS

Brainy Blinds is an innovation on clothe line protection system for condo life style to protect clothes on it clothes line from rain by automation system. Sensor detects humidity that signals to the water proof curtain to shut down. After that the heater will start working and fan will help to circulate hot air around the wet clothes. The system is controller and alert through the mobile application and view through the cameras. Brainy Blinds will help natural clothe drying to be more convenient and worriness of rain wetting the hanging clothes.

TH-16	NAME(S)	Naruporn Samuntathanakul / Jisue Youn Kumwilaisak / Rachapon Thammacharo / Thanyanan Poonbundansin / Papichaya Kummetha
ORGANIZATION		King Mongkut's University of Technology Thonburi / Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		CAL-KUNG-HUB: The AI-based Food Recognition Bot for Estimating Calories Intake
This invention presents an AI-based bot that can recognize different food types and analyze their corresponding calories. It is called the “Cal-Kung-Hub” bot. Our project's objective is to help people manage and track their calorie consumption, resulting in weight loss and general health improvement. Users can provide the bot their genders, weights, heights, and ages. The bot recognizes the taken food pictures and estimates their calories based on deep learning technology. The bot records the calories of food consumption to track the eating habits of users. Our current prototype can recognize twenty menus of Thai food.		

TH-17	NAME(S)	Poramit Sangmanee / Nyanole Dardarananda / Woratat Kosolpisitkul / Primluck Bovornvanich / Pluemkamon Thongkham / Pavarit Tantrarattana / Tos Bovornvanich / Bhira Piromsopa
ORGANIZATION		CHULALONGKORN UNIVERSITY DEMONSTRATION ELEMENTARY SCHOOL
TITLE OF ENTRY		Crushed Bottle Bank
CRUSHED BOTTLE BANK, Innovation machine designed to reduce plastic pollution, optimize space in recycling bins, as well as increasing awareness with happy return on e-money.		

TH-18	NAME(S)	Rattchapol Singtoroj / Tanyapat Triwitayakorn / Varissanan Jaiweerawattana
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		CU WASH (SEE YOU WASH)
During the pandemic of COVID-19 and other diseases in the past, sanitation becomes increasingly important. Handwashing is a powerful antidote to illness and may turn into our new normal hygiene. “CU WASH” was invented with aims to encourage people especially children to wash hands in properly way and at optimal time. When users get close to the sensor, clip videos of 7-stephandwashing will be operated as programmed. Teaching and washing modes in English and Thai are available. This palm-sized device is easily to be installed. Applying “CU WASH” will prevent disease spreading and promote public health hygiene in many countries.		

TH-19	NAME(S)	Waranyu Kittithawornkul
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		EASY GET
A university and school are educational area which I expected to build up the Digital Ecosystem with EASY GET and also use it to solve some problems in the educational area e.g. a waste time to get in line for buying food and some learning materials, cash payment may be not safe, limited number of person entering the library makes some students cannot access and the worried problem about picking up children at school. EASY GET is developed and used as a smart platform which connecting between service provider in the educational areas (e.g. canteen, restaurant, shop, library etc.) and end-user (students, teachers and parents) with easily usage via smart phone. Just download EASY GET on your device. It will help everyone have a better daily lives and safe in COVID-19 situation.		

TH-20	NAME(S)	Lapasrada Paseephol / Nichanun Subsompon / Nathaporn Piboonratanakit
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		Eco Nut
Nowadays we use more plastic in daily life, plastics are thrown away causing pollution in the ocean and marine creatures are killed by eating them. Our project uses a biodegradable material replacing plastics. The material such as bacterial cellulose, made from agricultural waste like coconut juice from old coconut, is usually thrown away causing water pollution. This bacterial cellulose material is biodegradable and will not harm the earth or animals because it will degrade faster than normal plastic and leave no harmful chemicals. We create value added products from bacterial cellulose such as shopping bags, wallet, name tags.		

TH-21	NAME(S)	BOONYADA SANGMANEE / PATTANAN LEELAWATTANAPANIT
ORGANIZATION		CHULALONGKORN UNIVERSITY DEMONSTRATION ELEMENTARY SCHOOL
TITLE OF ENTRY		ECO BAND
Plastic waste is big problem and there is huge effort to reduce the use of plastic bags. However, they are not convenient to bring along so people are lazy to bring it out or forget to. Our solution is to create an innovative way that people will bring out from home in a form of “Accessories”, a wrist band for keeping bags which can be decorated to look modern and attractive.		

TH-22	NAME(S)	BOONYADA SANGMANEE / PORAMIT SANGMANEE / WYNN BOONYANUSASNA / CELINE BOONYANUSASNA
ORGANIZATION		CHULALONGKORN UNIVERSITY ELEMENTARY DEMONSTRATION SCHOOL
TITLE OF ENTRY		EFFERVESCENT DISPENSER
Effervescent Dispenser helps eliminate the hassle when people have to take many effervescent vitamin tablets every day to maintain good health. It also helps ensure good hygiene, especially during the Covid-19 pandemic, because it dispenses effervescent tablets into the glass without us touching them with our dirty hands. It also dispenses water with a touch of a button. The easy-to-use and appealing functions would encourage more people to take vitamin regularly and stay healthy.		

TH-23	NAME(S)	Pranrak Baikloy / Bharawee Nhongharnpitak / Bhuricha Nhongharnpitak / Kaweewat Santivorapong / Yanawatana Krisdathanont
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		FunPlosion – Smart Bathroom in the New Normal !
FunPlosion is your Smart Bathroom in the New Normal lifestyle that is full with FUNction and refills everyone with freshness exPlosion. No matter how many times you need to take shower during this pandemic, every shower will be refreshing for everyone. We created 5 main features: Fun Screen, Fun Audio, Fresh Scent, Fresh set water, and Free Light. FunPlosion helps building good habits and personal hygiene for kids. While for adults, it can dissolve all stress naturally and effortlessly. With your profile setting in FunPlosion mobile application, your bathroom will be ready in just one click.		

TH-24	NAME(S)	Nichamon Supatgiat / Irinraya Sotangkur / Supawitch Wannadelok / Supacheep Sahakitrungruang
ORGANIZATION		Chulalongkorn University Demonstration School
TITLE OF ENTRY		Happy CP Gloves
After visiting a Cerebral Palsy (CP) children center, we learned about their suffering especially on their fists that are in constant tightened state, leading to damage fingers and palms. We then invented special gloves to protect their fingers and palms by having a small doll in the center. Also, the gloves are designed with kid-like mind to be a toy, improving their imagination and senses of sight, hearing, touch, and most importantly, joy, through different materials, colors, and characters. All the pieces are baby proof where there are no loosing parts or sharp edge.		

TH-25	NAME(S)	PHICHPHANITA MATHASURIYAPONG / PAPITCHAYA RATANAJONGKOL / MAWIN PORNNIMIT / THUMMADEJ WATANASATITARPA / KARNSINEE JAKSEMASATITKUL
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		HEAT-O-GO
Easy to setup: No tools needed! The base frame is designed to pop up and fold with ease. Its unique hinge design enables easy and robust connection to the table top. There are two compartments on the table included dual USB charger socket power to store cups or bottles for warming / cooling. Just pop it open and attach the table top and you are ready to go! Wide application: Lightweight for all indoor and outdoor occasions such as café shop, coffee shop, picnic, camping, backpacking, etc.		

TH-26	NAME(S)	EKACHOL PRASOPPHON / PATINTHORN KUMMETHA / SIRIRASA CHULACHARIT
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		Heat stroke alarm
This system is to take care of the risky people who have activities in hot weather. By wearing a device with sensors and GPS to monitor and report temperature, heart rate, and location of those at risk and alert the administrator of cases beyond the specified threshold to provide immediate assistance.		

TH-27	NAME(S)	Pran Limlarpphon / Piratpol Pholkajornkij / Chawanvit Sirisak / Nabuddha Tantipoj
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		JIG-PEN
The pen that we invented is called “Jig-Pen”. Jig-pen is a multifunctional all-in-one stationery item designed for maximum convenience. It has many functions and easy to carry and store. It is small in size, around the same size as a normal pen, and has many uses. It can be used for writing drawing and colouring, eraser, whiteout tape. More over the sanitizer spray function attached with the pen make it very useful in this day and age. The Jig-pen is made from PLA plastic, making it eco-friendly and is also re-fillable, Which eliminates and reduce the waste of plastic. After a jig-pen is used up, it is still usable for child can play with it as a toy to exercise his hand muscles.		

TH-28	NAME(S)	Jaomai Tungsiripat / Thanyanan Poonbundansin / Marjimar Suvivhasopon / Korn Hemrungrojn
ORGANIZATION		Chulalongkorn University Demonstration, secondary school and CUD innovation Hub
TITLE OF ENTRY		Less snore More sleep
Snoring is a health problem causing insufficient sleep and disrupt marital relationship. The less snore more sleep, our novelty has better than current market solution from head repositioning system that actually reduce snoring in all positions on the pillow adjusted to the special algorithm according to the doctor's guide, AI detection of severe snoring and contactless system to promote the best sleep.		

TH-29	NAME(S)	Chutirada Santivorapong / Natthanicha Lertsrisakulrat / Rungarun Ausawalarp / Sita Malakorn
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		MAG BOXZ
People have plenty of small belongings that are used quite often, and the most common problem they face is that their belongings scatter everywhere and they forget where they have put the things. The Mag Boxz is designed to help with this problem. It's a small box, yet very practical, with magnets on all sides. This gives users the option to assemble the boxes in any way they would like. Just stack them up and you're done! Now everything is in one place and things won't be lost anymore.		

TH-30	NAME(S)	Napakapol Pitakteeratham / Chatprapat Baikloy / Nonlanee Kittipongwat / Puttipat Kittipongwat
ORGANIZATION		Singapore International School of Bangkok
TITLE OF ENTRY		ReLeep – A New Lifestyle Technology
ReLeep is new lifestyle technology designed to boost up everyone's quality of sleep and start the day fresh. Many people have problems with sleeping, sleepwalking and falling down, then lead to bad mood and losing focus at work. Our innovation is created to promote healthy lifestyle. ReLeep has four features; Safe Band, Smell diffuser, Sound machine and Shaking mat. Set up your profile in mobile application and start boosting up your quality of sleep with detector to alert on abnormal signs. ReLeep benefits to all ages. It also comes in portable bag. Carry on and sleep healthy everywhere you go.		

TH-31	NAME(S)	Athip Twinvitoo
ORGANIZATION		International School Bangkok
TITLE OF ENTRY		Remora-1
Remora-1 is an easy and affordable solution to improving health in the modern household. The device uses a ultrasonic mister to disperse a sanitizing liquid. Similar to a remora, the device can be attached to a host, in this case a robot vacuum. The device greatly enhances a robot vacuums ability to sanitize surfaces by helping kill bacteria and viruses. Other uses of the device include also turning small enclosed spaces, such as closets, into sanitization chambers.		

TH-32	NAME(S)	THUN MINGKAEW / SUPAKORN KITTANANUN / SARANYAPONG PIYAYOPAB / KANTAPON PRASARNSUK
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		Smart snorkel
Water accident is one of the major accidents that cause loss and casualties especially kids and elderly people who need special attention. One of the most popular water activities is snorkeling which is fun, adventurous and allows people to explore the under Waterworld. However, there is also hidden danger beneath the blue water that is beyond people's imagination due to the change in the surroundings such as water waves, water and body temperature and self-balance in the water. These factors result in the inability of the body to adjust and thus cause unexpected incidents. Smart snorkel is the device for snorkeling and it will send out the warning alarm when a user has abnormal heart rate or pulse so that a user can be assisted in time. Then we can save the life of our beloved ones.		

TH-33	NAME(S)	RONNAPAT SRIVORAVILAI / DHARMATOUCH POURPONGPUN / BOONYAKORN S. LEWSUWAN
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		Smart Umbrella
"THE SMART UMBRELLA", designed for outdoor usage, has a fan to cool the heat, storage box to keep valuable things or place smartphone when charging and USB charger. Also, the Solar Cell tapes which are highly flexible, light and slim are attached to power all functions with intention to use the green energy. Last but not least, "THE SMART UMBRELLA" has Foldable and Movable Design for convenience.		

TH-34	NAME(S)	**Jeerathep Kosavisutte / Naruechol Chinwattanakul / Nattadanai Pinthanon / Pannathorn Phinitwongwitthaya**
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		**Smart Wheel Chair (SWC)**
Realizing with the difficulty, instability to access and limitation of regular wheelchair for both lower limbs amputees, our "Smart Wheel Chair [SWC]" is designed to correct these problems by fully electric control. It can move all direction by a joystick especially the seat can be adjusted up and down to the floor more than regular wheelchair by screw and electric motor system helping them to easily get on and do daily activities. It has triangular base (2 electric powered wheels in the front and a small regular rear wheel) for its stability. It also has automatic emergency alarm when the wheelchair is overturn.		

TH-35	NAME(S)	**Thitchaya Monkhong / Napassanun Sumetpimolchai / Tarntham Ruangwuttisakulchai**
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		**Smart School Bag**
A lot of stuff and very heavy bag are the most common problems for students around the world. Sometimes they forget where they have put their stuff; left it at home or at school. Moreover, it would be great if there is a smart helper to help student find his bag when it's lost. The Smart School Bag was created by a group of 8-years-old kids trying to find solutions of stated problems. The Smart School Bag design focuses on proper fits to students' posture, in addition with other useful functions, such as a scale that limits the weight of the bag, the reflexive straps for safety, an easy to use rain hood, the wireless Bluetooth for tracking. Furthermore, a very useful Mobile App is developed for help students packing their bag according to their school timetable and stuff. So, it is the best bag that respond to students' needs and keep students' school stuff organized.		

TH-36	NAME(S)	**Punna Amornvivat / Nuttaporn Prasitdumrong / Phenpicha Wongvanichtavee / Panalee Dechawatanapaisal**
ORGANIZATION		Chulalongkorn University Demonstration School
TITLE OF ENTRY		**$mart $chool $aving ($$$)**
Smart School Saving is the small banking machine located in school. The purpose of the innovation is to encourage students on their saving behavior. It includes the machine and the application. Student can deposit their remaining daily allowance in the machine. On the application, parents and student can set the saving goal together. If the student completes their goal, they gain reward. Parents also can monitor their child saving habit by using this application.		

TH-37	NAME(S)	**Nattatida Pinthanon**
ORGANIZATION		International Community School
TITLE OF ENTRY		**Sterilizable**
The objective of this invention is to secure a mean of ridding our footwear to be free of germs, in this case, COVID-19 specifically. It must minimalize any contact with the contaminated shoes. The process must not discolor the shoe while still having the potential to kill the germs, we decided to use 0.05% Benzalkonium Chloride. In order to achieve a very fine mist, we use sonic pulsation. This is a totally enclosed unit to contain both the mist and to prevent the contaminant from leaving.		

TH-38	NAME(S)	**Supitchaya Hemrungrojn / Kullanat Tovikkai / Phuvadech Laophadungruchakorn / Korn Hemrungrojn**
ORGANIZATION		Triam Udom Suksa School / Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		**SURF Tent for SHOT (Special UVr Filter tent for Self Heliotherapy in Thailand)**
SURF tent for SHOT was invented for the use of natural sunlight to treat the certain skin condition called phototherapy or climate therapy, to promote the wellness and prevent diseases by filtering the harmful UVA and UVB wavelength and releasing only UVB narrow band (311 wavelength) through the tent. The silatrane© in the novelty coat will change the grain of Zn2+ and Ti4+ into uniform and narrow pore size, only narrow band UVB can get through to provide the user the vital narrow band UVB while exposing to the sunlight for self-heliotherapy to treat skin disease and better health.		

TH-39	NAME(S)	**SARANYAPONG PIYAYOPAB / SUPAKORN KITTANANUN / THUN MINGKAEW / KANTAPON PRASARNSUK**
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		**Thermoscan face shield**
Dermatologists Sherry Yu of Brigham and Women's Hospital, Boston, said face shield can protect your eyes and face and can aid people with hearing impairment who depend on lip-reading as it shows facial expressions and helps maintain social distancing. Additionally, it can solve problems of people wearing masks incorrectly which can increase the risk of being exposed or infecting others. In Covid-19 pandemic, people who are positive with Covid-19 will have high fever and only wearing masks cannot detect people with high body temperature. Thus, face shield that can tell body temperature in real-time works more efficiently than wearing masks.		

TH-40	NAME(S)	Weeris Supatgiat / Tanthong Nimnuankul / Jidapa Snidvongs Na Ayuthaya
ORGANIZATION		Chulalongkorn University Demonstration Secondary School
TITLE OF ENTRY		The Third Eye

There are over 200,000 visually impaired people in Thailand. Their biggest challenge is to move around within a new or non-familiar location/building. To solve this problem, we created The Third Eye, a navigational device for the visually impaired using image processing. The visually impaired can easily equip our device, which automatically locates the user's position by using image processing. The user can say their desired location and, by using voice recognition, the device then navigates its user through the ear piece.

TH-41	NAME(S)	WYNN BOONYANUSASNA / CELINE BOONYANUSASNA / BOONYADA SANGMANEE / PORAMIT SANGMANEE
ORGANIZATION		CHULALONGKORN UNIVERSITY ELEMENTARY DEMONSTRATION SCHOOL
TITLE OF ENTRY		TRAVEL POTTY

Everywhere Potty, using innovative technology to make dogs feel comfortable to answer the call of nature wherever they need without causing any complication. It is user friendly, neat and easy to clean up after. The design is compact and light-weighted, thus is excellent for traveling. It is useful when taking dogs to unfamiliar places. It can also be used as a potty-training kit for puppies.

TH-42	NAME(S)	Thanyanan Poonbundansin / Nichaphat Komonbut / Pannathut Chitpakdee / Napapone Leedamrongwattanakul / Jeerawat Poonbundansin
ORGANIZATION		Chulalongkorn University Demonstration Secondary School / Kamnoetvidya Science Academy
TITLE OF ENTRY		Up Lift Shift Life - an innovative tool to prevent back and neck pain

This invention is intended to solve people's health problem caused by incorrect sitting posture resulting in back and neck problems. It suggests ergonomically correct postures. The Up Lift Shift Life tool comprises two devices: a sensor detecting back's position and earpods detecting neck's curve. They will vibrate as soon as user's back and neck are in incorrect posture. The information on user's posture will be sent to its application and propose stretching exercise. The ultimate goal is to prevent office syndrome.

TH-43	NAME(S)	Tos Bovornvanich / Nabuddha Tantipoj
ORGANIZATION		Chulalongkorn University Demonstration Elementary School
TITLE OF ENTRY		UV pop pen

UV POP PEN is an innovation invented to solve the problem caused by the use of a pen in common in public places such as banks, government offices, department stores. People need to use a pen to fill out and sign forms. These places usually offer a pen for services which is used and touched by a large number of people, and this is where the infection of diseases occurs. This innovation, UV POP PEN, is created to solve this problem: killing germs by UVC light and a non-touch innovation.

TURKEY

TR-01	NAME(S)	REZA VOSOUGHI MORADI
ORGANIZATION		N/A
TITLE OF ENTRY		Smart capsules to Increase Plant immunity against disease.

These Capsules are made of natural polymers. and delivers nutrients to the soil at the same times as the plant needs. These capsules are completely smart. As we know, soil rich in nutrients is suitable for plant growth when the soil less its nutrients according to the needs of the soil and plants.

UKRAINE

UA-01	NAME(S)	Khrystyna Ambroziak
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		Prefabricated buildings based on transforming-frame technology

Two constructions on the basis of technology of kinetic-frame construction are developed. The first with an arched roof, the second with a spire roof. X-shaped transforming elements were used to transform structures. They are combined in a parallel block, which allows you to increase the rigidity of the structure.

UA-02	NAME(S)	Oleh Gennadievich Bielous / Vladislav Valeriovich Kramarenko
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		AI Fresh Station

We create indoor gardening system that allows growing of 960 greenery/veggie fully automatically all year round just from 1 sq. m. Our main advantages over competitors is: (1) Module system — This system consists of Starter Kit(has controller and tray), Expanded Module(has tray for 10,20,30 pots), Water Tank Module. (2) AI — analyzes plants in real-time and sends report for user if some plant has disease. (3) Mobile app — is main interface for our station: schedule growing, receive notifications from station, earn growing advices. (4) Individual growing — each plant grow controlled separately, it means that you can schedule growing of each plant.

UA-03	NAME(S)	Maksym Lan / Andrii Velikhovskyi
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		ProWir

The charger consist of 2 parts: A certain frequency electromagnetic field generator and a case for a phone or tablet with a built-in receiver. At the moment, there are many wireless chargers, but they have a number of disadvantages: Not all phones are adapted for wireless chargers. Low efficiency and inability to charge tablets. There are also no wireless chargers for tablets on the market. All these shortcomings have been eliminated in our device using powerful two-stroke auto-generator, our device has much more power. Greater efficiency is provided by calculation of the LC contour.

UA-04	NAME(S)	Yelyzaveta Lazarova
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		Improving the efficiency of a solar power panel with a solar energy concentrator

Install a double-sided photocell and two reflectors on a two-axis tracker system to provide maximum illumination of photocell and increase its efficiency. Rotation and use of a double-sided solar panel will help reduce the shadowing of the earth, several times reduce the area of the solar power station and avoid soil erosion. In addition thermal energy from heating the reflectors can be converted into electrical energy by attaching Peltier elements to the rear walls of the reflectors.

UA-05	NAME(S)	Oleksandr Luchyn
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		Development of voice to text transcriber - Telegram bot

The bot can be accessed through Telegram, a popular messaging service. It transcribes audio to text in many languages, thus enabling communication with deaf people in real life and allowing them to listen to audio messages in online chats. This way, people with a hearing disability do not feel excluded from real and online conversations. This bot supports all platforms, is free and all processing is done on remote servers, so it is possible to use it on devices with limited computational power. Also, because it runs in the cloud, it does not require installation or storage.

UA-06	NAME(S)	Alisa Sergieieva
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		K-line

Packaging materials such as plastic and polystyrene decay for a long time, creating a material that will not harm the environment and will not be worse in the properties of its inorganic analogues will be relevant. The material, which based on organic glue and chestnuts, can be a solution to the problem with plastic waste, thereby helping the environment recover. Target audience B2B: transport and logistics organizations. The material does not burn/get wet, lightweight, has sufficient strength, due to which it is fashionable to make different geometrically complex shapes, self-decomposing, cheaper than its analogues. Can be used as packaging material.

UA-07	NAME(S)	Mykhailo Shtopko
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		Biosynthesis of nanomaterials and their applications in medicine

The purpose of the research is to obtain selenium nanoparticles, cadmium selenide quantum dots by means of biological synthesis, to obtain a complex drug and to test its toxicity to microorganisms. To stain epithelial cells with biosynthetic quantum dots. During the research, selenium nanoparticles were firstly synthesized using Bacillus thuringiensis culture. Bacteria do not become resistant to the drug with selenium nanoparticles and viburnum juice. It could be used as an antimicrobial drug in medicine. Cadmium selenide quantum dots with a diameter of 3 nm were obtained. Areas with different pH could be visualized with them (cell nucleus).

UA-08	NAME(S)	Ihor Shybka
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		THE DEVELOPMENT OF MULTIPROCESSOR COMBINED TELEMECHANICAL SYSTEM FEATURING COMMUNICATION CHANNEL WHICH BASED ON COMPUTER NETWORKS AND INTERNET PROTOCOLS

Developed and manufactured a multiprocessor combined telemechanic system, which is designed to control a cobot. This system provides control, telemeasurement, telesignaling and television using a existed communication channels based on computer networks and modern Enternet protocols for data-transfer.

UA-09	NAME(S)	Dmytro Steblyna / Vitalii Kriuk
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		**The Hypercoil: high-efficiency wireless electricity transmission technology**

The Hypercoil allows wireless electricity transmission over a distance of 2 meters with almost no energy loss. It is more powerful and safer than the existing technologies, and allows free wireless charging in motion. Special design of antennas and strong resonant coupling significantly increase the transmission range and efficiency. The Hypercoil technology is scalable and can supply electric vehicles, medical and industrial appliances or portable devices.

UA-10	NAME(S)	Anastasiia Venchkovska
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		**Mathematical modeling of an environmentally-friendly cup**

Over 600 billion paper cups are created in the world annually If at least 1% of it gets into the environment it will be overmuch. It is developed a method of finding such disposable paper cup form which with given working volume will need a minimal amount of paper for its manufacturing. We could achieve up to 10% saving the paper which will cost insignificant loss of the cup stability. The real quantity of the paper economy will depend only on consumer psychology. Suggested algorithm allows us to make real and even double caring about the environment: thanks by reducing the amount of the paper for manufacturing and due to reducing costs for utilization used cup.

UA-11	NAME(S)	Ivan Zahorulko
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		**Eco-friendly multifunctional device for bathroom**

My device solves such environmental problem as rational water use for the purpose of environmental protection and increasing the economic efficiency in housing and communal services. A model of the device was developed. This device is designed for children, so they will not interfere with the measurement of all processes. The device has the following functions: measuring the water temperature in the bath; measuring the water level in the bath; illuminating water depending on the temperature by different LEDs; floating on the surface of the water; searching for the deepest point in the bath, alarming when the water limit is reached.

UA-12	NAME(S)	Matiushenko Ivan
ORGANIZATION		"Junior Academy of Sciences of Ukraine" under the auspices of UNESCO
TITLE OF ENTRY		**Creation of a hybrid multilayer energy- generating heat-insulating coating for the residential and working building**

This work is devoted to creating a coating that uses alternative solar energy for domestic purposes. This development can significantly reduce the cost of heating a building, and is also an alternative way to use solar energy. A mathematical model for the description of lighting processes in the coating has been built, with the study of the optimal parameters of its composite elements. For a comprehensive study of side factors, several experimental samples have been made. All external factors that significantly affect the developed coating have been taken into consideration. Recommendations for use in various conditions have been offered.

UNITED ARAB EMIRATES (UAE)

AE-01	NAME(S)	Mohammad Ali Fahim / Saber Vahmani
ORGANIZATION		ARAMIS GROUP – DUBAI
TITLE OF ENTRY		**Reinforced Organic Nano fertilizer (RONF)**

Today, food supply chain products are of particular importance. Organic nano-fertilizer (RONF) is a new research product made according to different environmental requirements. The use of RONF fertilizer leads to a 50 to 150 percent increase in the production of various agricultural products. The ability to control the release of solutes in fertilizers over different time periods and Ability to store water in this fertilizer, can play an effective role in the growth and fertility of first and second crops.

UNITED KINGDOM (UK)

UK-01	NAME(S)	Andrew Smith
ORGANIZATION		Raydyne Enterprises Ltd.
TITLE OF ENTRY		**Mixed Flow Centrifugal Pump**

This recently patented Mixed Flow Centrifugal introduces several new inventive concepts. These concepts deliver greater pumping efficiency and production cost efficiency to the pump industry. It increases pump design options and combinations of construction materials. The design principally utilises the benefits of a specially engineered sinusoidal impeller within a toroid shaped pump chamber that closely mirrors the concave rotating profile of the sinusoidal impeller. This facilitates the use of double acting aqua plane technology to ensure ultra-smooth, reduced turbulence and interference, pumping efficiency and power. The pump is fed by a double intake suction system which counter-balances the high speed rotating impeller.

UNITED STATES OF AMERICA (USA)

US-01	NAME(S)	Onega Ulanova / Konstantin Dolgan
ORGANIZATION		LA New Product Development Team
TITLE OF ENTRY		**UP Dock**

Modern organization and charging options—whether at home or in the office—has failed to keep up with our growing number of devices, accessories, and digital tools. While traditional charging stations accommodate most phones, the rest of our workspaces, and even our living spaces, have become cluttered with Micro-USB devices needing an outlet and a place to call home. The UP Dock is a charging station made for every type of upright Micro-USB device. Charge your smartpen, stylus, pointer, vape pen, remote, or even your electric screwdriver—all in one functional, stylish charging station.

US-02	NAME(S)	Valeriy Nenov, PhD.
ORGANIZATION		Brainventions Corporation, Inc.
TITLE OF ENTRY		**MusiShuZ: Feet operated MIDI controller (Virtual Musical Instrument)**

MusiShuZ is a one-of-a-kind MIDI controller - musical instrument for playing sheet music with your feet while walking, dancing and even while sitting. It consists of a pair of light sensor devices mounted under the shoe soles. The sensors are paired by Bluetooth to an Android or iOS smart phone or tablet.

US-03	NAME(S)	Dr. Ali Keyvanfar / Eng. Sumit Gevaria
ORGANIZATION		Kennesaw State University
TITLE OF ENTRY		**CNRM (Construction Neighborhood Risk Mitigation Tool)**

The construction neighborhood risk mitigation tool is developed to help professionals in neighborhood risk assessment, management, and planning. CNRM executes professionals' input, social input, CSR input around a comprehensive set of risk factors while allowing them to visualize the result of Morden risk assessment. The system reports all the results in a series of dashboard outputs, meeting every stakeholder's demand. The biggest advancement of this tool would be the contribution to sustainable development by eliminating/ mitigating all the causes of neighborhood work stops. Mobile app development and CNRM crypto proposal are the next activities for the future development of this tool.

US-04	NAME(S)	Theresa Marybeth Lay
ORGANIZATION		N/A
TITLE OF ENTRY		**Edible Holy Communion Gel Capsule**

An edible communion gel capsule including a gel capsule having at least one interior cavity and at least one of a liquid, alternately, a powder disposed within at least one interior cavity. The liquid is one of wine, alternately, grape juice, and the powder is an edible grape juice powder. An edible solid material is disposed around one section of a medial section of the capsule, and entirely of an exterior surface area of the gel capsule, and one-half of an exterior surface area of the gel capsule. The solid material is bread.

US-05	NAME(S)	TERESA HARRIS
ORGANIZATION		STILLWATER DISPENSER
TITLE OF ENTRY		**Multi-dispenser refrigerator**

A refrigerator having ice and water dispensers on both the front, back and side improves efficiency and utilization of the refrigerator. Home floor plans show openings in interior wall to access the second and third dispensers. Great for large families or group homes by reducing traffic jams at the refrigerator and increases accessibility while maintaining energy efficiency.

US-06	NAME(S)	Cyrus Nejat
ORGANIZATION		University of Washington, Mississippi State University, WPI
TITLE OF ENTRY		**Advanced Satellite Pitch-Flight Path Angle-rates Attitude Control System Method**

In this project report, I am presenting a new idea for spacecraft attitude control. I plan to investigate transfer trajectory from Uranus to Jupiter and then orbiting about moon of Io. My plan is to use Walker constellation method using twenty satellite about moon of Io. During my investigation, I thought that the attitude control can be evaluated based on flight path angle and pitch angle instead using the classical attitude equations of motion and I presented it in this paper by using Matlab/Simulink.

UZBEKISTAN

UZ-01	NAME(S)	Matyakubova Paraxat Mayliyevna
ORGANIZATION		Tashkent State Technical University
TITLE OF ENTRY		**THERMAL HYDROGEN OF BULK MATERIALS**

The invention relates to instrumentation, Namely to thermal moisture meters for bulk and dispersed materials. The objective of the invention is to increase the accuracy and speed of the moisture meter and expand the functionality by controlling the operation of the moisture meter in the absence of supply of bulk material and stopping the device for transporting bulk material of the moisture meter during operation.

VIETNAM

VN-01	NAME(S)	Tran Nguyen Khanh An / Đỗ Trọng Minh Đức
ORGANIZATION		Chu Van An Junior High School – Vietnam / Montverde Academy – USA
TITLE OF ENTRY		VIHELM- Power air purifying respirators

Firstly, Vihelm focuses on convenience, attaching gloves to the head cover, ensuring unrestricted movement and eliminating both physical and mental stress caused by users being unable to touch their own faces (according to statistics, people touches their face 23 times/hour on average). Two pockets to store food/drink inside the hood help maintain users' energy during long working hours. Six holes, made by latex, are optimally placed at the top of the head cover to allow easy head scratching. Secondly, Vihelm strives to improve users' comfort. A fans is attached to the hood to ensure adequate ventilation inside. Along with enhanced convenience, Vihelm also has an Assigned Protection Factor of 25, protecting either the wearers in a contaminated environment or people in their surroundings if they have contracted the virus. Vihelm are also designed to be easily disassembled, cleaned, and replaced.

VN-02	NAME(S)	LE THANH BINH / NGUYEN NGOC TRANG / NGUYEN THI THUY LINH
ORGANIZATION		DAO DUY TU HIGH SCHOOL – HANOI, VIETNAM
TITLE OF ENTRY		Development of a cement mortar containing silicon dioxide to plaster a walls help against the heat of the sun in the summer

In that spirit, our research team has successfully developed a cement mortar containing silicon dioxide to plaster a walls help against the heat of the sun in the summer. Our mortar has a lower heat transfer coefficient (k=1,025) than conventional cement mortars (k=1.57) so they will make the houses cooler. Thereby saving national electricity energy, reducing electricity costs and contributing to climate change drums. Another advantage is that our product is developed on the basis of cement mortar so it is very simple to use, they have low prices, opening up the possibility of great practical application and possibilities high trade.

VN-03	NAME(S)	Gia Bao Ngo / Gia Khanh Do
ORGANIZATION		Ha Noi – Amsterdam High School for the Gifted
TITLE OF ENTRY		IRAS – Intelligent Rubbish Can At School

- Automatically open when putting hand in front of the bin. - Able to identify and classify wastes into 3 main types: +) Cans and plastic bottles +) Milk packages +) Others - A cap shall be set on top of the can cover, with ability of automatic opening based on identification sensor. When we put wastes near the sensors, it will recognize and automatically open the cap. - The IRAS includes layers: + 1st Layer: A container for all kinds of waste in general, a preliminary place for classification. + 2nd Layer: A device with waste classification function. For greater effectiveness, the device shall be funnel-shaped. + 3rd Layer: consists of 2~3 chambers for containing classified wastes. + 4th Layer: As an automatic vacuum, increase flexibility for the can and maintain a green and clean environment.

VN-04	NAME(S)	Mai Ha An / Le Hoang Long / Nguyen Hoang Manh
ORGANIZATION		M.V Lomonoxop Secondary & High School
TITLE OF ENTRY		PM2.5 negative ionization air cleaner (PNIC)

In our invention, this machine is created by many components including a device that produces/ generates negative air ions from a direct current, an air vacuum, a membrane filter, 4 sensors measuring the temperature, measuring the concentration of dissolved oxygen, measuring PM2.5 and total dust, 01 screen showing 4 parameters on and an alert which indicates the time when the membrane filter needs cleaning or replacing. Depending on the room size, the negative air ions produced by equipment will be diffused in the room through the convection of air-suction equipment. Negative air ions will stick small dust particles in the air, shape larger dust particles, settle the dust particles by force of gravity or by the suction of muscle air from the vacuum brought in and filtered via a membrane filter, it will hold the dust particles in the surface filter if the dust particles in here too much change the vacuum pressure. The concentration of PM 2.5 is divided into different groups. This air cleaner assure to keep the air quality in the safe level (AQI value 0 – 50) and the alarming light is always kept in GREEN.

YEMEN

YE-01	NAME(S)	Mohammed Ali Ahmed Humran
ORGANIZATION		The Union Of Arab Academics
TITLE OF ENTRY		Arabic Balsam (fig) Tree Bark

Arab bark or the so-called Arab fig is one of the forms of Natural Medicinal preparations that are used for deep wounds. It protects the deep wound from contamination and the speed of sterilization, as well as it is complete quickly without reference to the use of preparations and medical drugs. Method of Use: Part of the bark is cut from the balsa tree and placed directly on the wound, after that we left for a number of days and then replaced with a new shear and the process continues for 2 weeks. The wound becomes sterile and healed. Advantages: Cheap and does not need to spend money, naturally available in farms, does not need surgery and suturing the place of the open wound, does not need to use sterile materials and disinfectant, used in dressing and treatment of pups and difficult surgical procedures for suturing.

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The results: a 25% increase in conference attendance, something that had never been achieved previously.

Holly Beverly, Vice President Marketing

Howard and his team showed us how to articulate our company brand vision, philosophy, values, position and brand promise into a solid core brand essence, including our brand identity, website, trade show display, printed collateral and other critical touchpoints. The result was ATI won #41 on the "Inc. 500" list of fastest growing privately held companies the following year.

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Thanks, Howard.

Nancy Ridge, Vice President

FREE (Value $250.) Consultation with Howard A. Lim
Email: Info@HOWCreative.com
Tel: 310-455-0389

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UNDER THE AUSPICES OF UNESCO

UNESCO Centre "Junior Academy of Science of Ukraine" (JASU) is a governmental scientific and educational organization, working as the extracurricular centre for middle and high school-aged students and teachers gathering around 250,000 of Ukrainian school students engaged in science and research activities. JASU is the 2nd category centre of UNESCO for development science education in the world according to the 4th Goal of SDG "Quality education". JASU is well recognizable educational provider both in Ukraine and abroad, and is a prominent partner for international cooperation and joint projects. Our mission is a public well-being through the involvement of the individuals in science activity.

As a main promoter of science education in Ukraine, JASU organizes, maintains, and develops a plenty of various extracurricular activities both for school student and for educators. For instance **Ukrainian Scientific Project Competition for School Students** annually unites more than 100,000 of school students engaged in scientific and research activity; **Innovative Expo "Future of Ukraine"** presents

around 100 of unique and innovative developments to identify best young innovators within 7 modern majors; **MANLab** is the largest cross-disciplinary laboratory for schools students in Ukraine; **Laboratory of Experimental Research Ex Lab** is the permanent science oriented laboratory in chemistry, biology, IT and robotics; **Summer Schools** in various majors; **UF Incubator** is a modern platform to transform innovative activities of young entrepreneurs into mature business models; **Children's Academy "Futurum"** provides for an initial phase of science education among children of 6-13 y.o.; **National Final of "Destination Imagination" Program** is a licensed program of Olympiad in Creativity "Destination Imagination"; **Activities for Educators**.

International activity of JASU includes **hosting of TOP world-known events in Ukraine** (European Girls' Mathematical Olympiad, EGMO 2019 attended by 196 participants from 49 countries), **Ukrainian delegations** at world-known science competitions and Olympiads over the last 5 years involved more than 700 participants at 60 international events won 100 awards; **Science Schools abroad** jointly with our strategic partners; **Project "Lectures of the Future"** means visits of the most known scientists of nowadays, including visits of 4 Nobel prize laureates.

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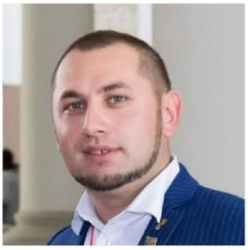

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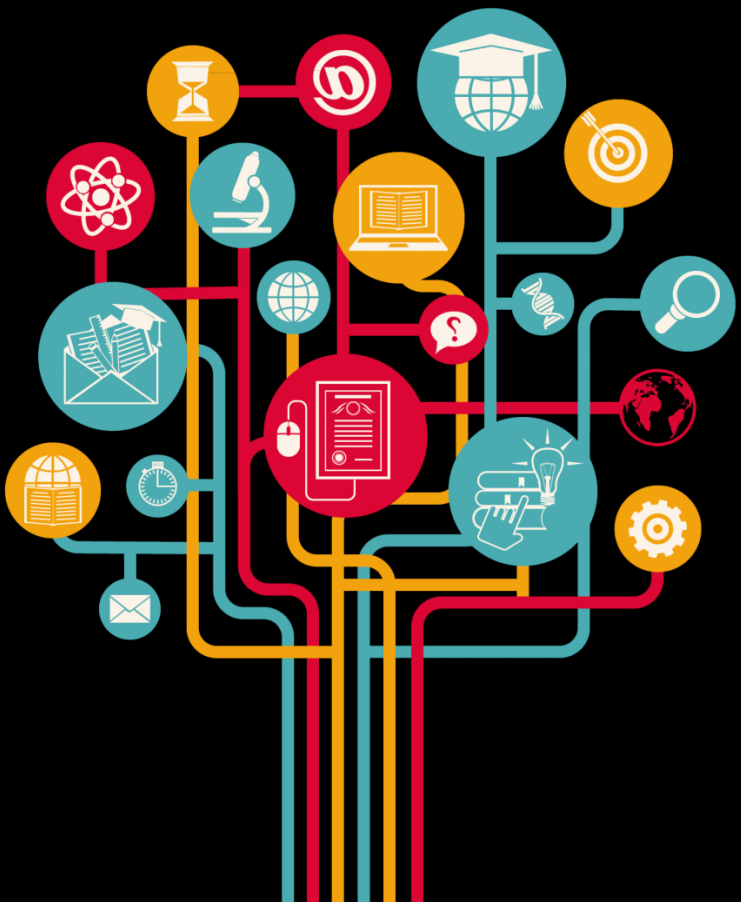

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