INNOVERSE INVENTION & INNOVATION EXPO 2022

INTERACTIVE COLLEGE OF TECHNOLOGY
GEORGIA, USA

Content

INNOVERSE INVENTION & INNOVATION EXPO 2022

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Smart Care tech - Sudan

Australia

AU.1.	
Inventors	Inv Valiant Yuk Yuen LEUNG
Invention	Synergistic Dual-Modes Sustainable Interchange
Institution	Synergistic Traffic Limited
Abstract	This application relates to a freeway interchange capable of coordinating two-phase traffic circulation and is reserved for future sustainable development. This interchange is mainly formed by two freeways themselves and or intersected with another staggered road, in which traffic lights managed intersection with pedestrian crossings are available. Under the two-phase cycle, the plane intersection connects the freeway to and from or enter and exit the freeways from the staggered road; while the two continuous forward flows split and cross over the intersected road/freeway outside the core intersection region and meet again at the other end. The entry and exit connecting passages and the ring passages with remedy mechanism are arranged in between the forward and backward flows of the freeway, making the intersection far more compact and concentrated, shortening the intersected distance and the time required for entry and exit. Integrated with the prior patent CN109415877(B)/EP3455407(B1) Synergistic Traffic Intersection, these sorts of freeway interchange can be cooperated with two-phase circulation. The designed outer side reserved accessible lanes are prepared for any sustainable development at any time as needed. It saves one red phase waiting time and is 50% more efficiency compare with 3-phase cycle design - Single Point Urban Interchange.
AU.2.	
Inventors	Constantin MIRON, PhD (Engineering)
Invention	Eco-efficient energy building envelope
Institution	National Institute for Research and Development Colleague
Abstract	Energy-efficient and ecological building envelope, achieved with water modules, with a multiple role as solar energy convertor, thermal accumulator and self-protection against fire. Green Energy is also known as clean energy and renewable energy. It is relatively friendly to the environment and has low greenhouse gas emissions. It can generate endless energy through the circulation of nature. Energy is green energy, such as solar energy, wind energy, water resources, and geothermal energy.
AU.3.	
Inventors	Kamel EARAR, Mădălina Nicoleta Mateinara
Invention	ECOLOGICAL TOOTHPASTE
Institution	National Institute for Research and Development Colleague

Abstract	The invention refers to an ecological toothpaste with multiple implications in cleaning the oral cavity. This is a creamy paste, made from concentrated aqueous dispersions based on extracts of herbs (basil / lavender, rosemary), fruit (pineapple) and seeds of buckthorn, flax, hay, jasmine, blended in proportions technological defined with very fine crumb of rice, egg shell, spirulina, sodium bicarbonate and NaCl. The paste is applied with a toothbrush and is used to clean and improve the health and aesthetic appearance of teeth. The application brings a number of advantages, among which: • Protecting and strengthening teeth • Protection of gums • Teeth Whitening • Prevent bacteria • Reduce plaque plate • Reducing dental stains • Stabilization of pH in the mouth • Maintaining a fresh breath
AU.4.	
Inventors	IOANI Adrian Mircea, SZILAGYI Henriette, MIRCEA Călin Radu Grigore
Invention	SELF-COMPACTING CONCRETE (C50/60) WITHOUT MINERAL ADDITIONS, MEANT FOR PRECAST ELEMENT MANUFACTURING
Institution	National Institute for Research and Development Colleague
Abstract	The invention concerns self-compacting concrete (SCC) composition with C50/60 strength class, made only with commonly used materials in the production of precast / prestressed concrete elements: cement, aggregates, admixtures and water, without any additions.Energy is green energy, such as solar energy, wind energy, water resources, and geothermal energy.
AU.5.	
Inventors	Alexandru-Ionut PETRISOR, PhD (Ecology), PhD (Geography), Habil. (Urban Planning) Vasile MEITA, PhD (Architecture), Habil. (Urban Planning)
Invention	National Institute for Research and Development Colleague
Institution	Wetland planning methodology
Abstract	The invention consists of a geospatial methodology used for the spatial planning of wetlands, and consists of a set of analyses integrating social, environmental and economic data. Advantages include scientific soundness, replicability and flexibility.

Bulgaria

BG.1.	
Inventors	Daria Ilieva, Andriana Surleva
Invention	Development and validation of an ICP-OES method for determination of As in solid waste from barite mine

Institution	University of chemical technology and metallurgy
Abstract	An algorithm for determination of As content in solid waste material from closed barite mine is developed. The method is based on sample digestion and ICP-OES analysis. Toxicity of material and its impact on the environment is assessed using the data obtained by the validated method.

Cambodia

KH.1.	
Inventors	Dr. So Sokuntheary, Mr. Chuop Sopheak
Invention	Angkor Smart Bike
Institution	Norton University
Abstract	The main location will take place in a heritage town that could be discovered in the northwestern Cambodia in Siem Reap province. The Angkor Smart Bike will enable passenger to rent the bike and explore the spectacular view of Angkor Wat temple. Back in the early 19th century, bicycle was only spotted with an ordinary two wheels which was influenced from the outside country and made its way to Cambodia which then has its own local design. Since bike was a convenient way to transport, people often use them to travel to far places for businesses and other purposes. However, throughout the history, vehicles have been developed to fits the requirement of people such as a more comfortable seating and a faster speed which was made possible with the installation of machine and engine to motorbikes and cars. As vehicles are getting more advance, the number of people in Cambodia who uses bicycle deteriorates. Although, in recent days, it is visible that people often prefer to ride bicycle to sightsee and as a way to exercise instead of transportation.
KH.2.	
Inventors	Mr. Sreng Ramo, Mr. Nheng Makara, Mr. Theng Soyannpich, Mr. Channy Neat, Prof. Ung Yean
Invention	NU Website SAKKAL
Institution	Norton University
Abstract	Our website providing accurate information and research on detailed disciplines from within the university to present accurate, clear, and reliable information. All students can access information quickly and easily, which can reduce expenses and avoid time wasting.
KH.3.	
Inventors	Mr. Seng Noeurn, Mr. Sour Sakada, Mr. Long David, Mr. Horn Sphat, Prof. Luy Mithona
Invention	NU Self-Driving Detection
Institution	Norton University
Abstract	We desire to invent Software Self-Driving Detection that has ability to calculate and detect colors of the traffic light. In addition to that, there will be an alert and notification in sound to driver in order to prevent them from risky and traffic accident.

KH.4.	
Inventors	Dr. So Sokuntheary, Mr. Chuop Sopheak
Invention	Vernacular Khmer House with Sustainable Rohat Teck (Water Wheel)
Institution	Norton University
Abstract	Rohat Terk in Khmer means "Water Wheel" that is one of attractive decorative device also use to drain water. As we observe that nowadays Rohatt seems to be gradually losing its popularity and function. One of Water-Wheel in Siem Reap that was built in 60s repaired by the (APASA Authority) and has some difficulty with function. That's cause us then create and it is an idea to inspire for new design Khmer Traditional Water-Wheel that be based on the ancient and can also produce electrical appliances. Then use that electric to apply in vernacular Khmer house also equipped with new technology that can control any electronic devices.
KH.5.	
Inventors	Dr. So Sokuntheary, Mr. Chuop Sopheak
Invention	The Classic Khmer House "Rongdeung"
Institution	Norton University
Abstract	The idea of making "The Classic Khmer House, Rongdeung" project was intended to lift up Khmer Vernacular house once again to all new generation of Cambodia citizens and help keeping Khmer cultural heritage also. The traditional Khmer house was constructed and designed by Khmer people since ancient time and passed down the structural method through generations. Obviously, our country grows toward a better stage of life living in the golden age of technology development and greater architecture buildings appear around every places. Therefore, we have inserted the Khmer Rongdeung house project accessible with technology and sustainable materials.application that provide the user (NU's staff) scanning with NFC to check working day attendance. As we observe that nowadays mobile application is very popular so that we can implement the attendance check on mobile application. NU NFC Smart Attendance is very powerful to check for staff attendance avoiding anonymous check in instead.
KH.6.	
Inventors	Mr. Sam Bandithviphou
Invention	NUNA Smart Attendance
Institution	Norton University

Abstract	Attendance system is a system that is used to track the attendance of a particular person and is applied in the industries, schools, universities or working places. The traditional way for taking attendance has drawback, which is the data of the attendance list cannot be reuse and tracking and tracing student's attendance is harder. The technology-based attendance system such as sensors and biometrics-based attendance system reduced human involvement and errors. Thus, in this paper, a NFC-based attendance system is presented. A comparative study between this both NFC and RFID is also discussed thoroughly, especially in terms of their architectures, functionality features, benefits and weakness. Overall, even both NFC and RFID attendance system increases the efficiency in recording attendance, NFC system is providing more conveniences and cheaper infrastructure in both operational and setup cost. NUNA Smart Attendance stands for" Norton University Near Field Communication Attendance" is an mobile application that provide the user (NU's staff) scanning with NFC to check working day attendance. As we observe that nowadays mobile application is very popular so that we can implement the attendance check on mobile application. NUNA Smart Attendance is very powerful to check for staff attendance avoiding anonymous check in instead.
KH.7.	
Inventors	Mr. Poch Kimlong, Mr. Chhoy Ra, Prof. Luy Mithona, Prof. Rachana Chhoeung, Prof. Suon Sivatha
Invention	NU Share Destination
Institution	Norton University
Abstract	NU Share Destination is a ride-hailing app that provides a fairer service to both drivers and riders. Using the "Share Destination" feature allows passengers to share the ride with other passengers who go in the same direction. This gives advantages of lowering the ride coast, reducing energy-wasting, pollution factors, and traffic jams. order to prevent them from risky and traffic accident.
KH.8.	
Inventors	Dr. So Sokuntheary, Mr. Chuop Sopheak
Invention	Develop Islam Mosque to attract tourist with new technology
Institution	Norton University
Abstract	Since Cham (Champa) fled their homeland to take refuge in neighboring country as well Cambodia, Cham people build mosque where communities pray for their god. The oldest Cham Mosque is located in Banteay Chas Village, Chumnic commune, Krouch Chhmar district, Tbong Khmum province where along the Mekong River. The architecture of this ancient mosque is an invaluable heritage of the Cham people and is a cultural property in Cambodia. According the interviews said that the chapel was built in 1902 for structure and roof, 1919 lay the ceiling and 1967 added roof decorative. In 1980, was expanded by connecting the four corridors allow more prayer to come and use this chapel. The total columns were 130.
KH.9.	
Inventors	Dr. So Sokuntheary, Mr. Chuop Sopheak
Invention	The Jayavarman Smart Station
Institution	Norton University

Abstract	Jayavavrman Smart Station is renovation of the lodge with the addition of technology to accommodate travelers, locals, scholars and local officials. We build a small building that allows people to rest and protect from the weather. We are equipped with information systems to inform passengers and provide power for charging and clean drinking water. the station put a system is for locating, identifying, and summarizing the history of ancient temples that have been discovered and setting up locations for tourist destinations. Developing a curriculum, the use of the environment to complement the urban environment.
KH.10.	
Inventors	Dr. So Sokuntheary, Mr. Chuop Sopheak
Invention	KHMER TRADITIONAL MONASTERY WITH QR INFORMATION SYSTEM
Institution	Norton University
Abstract	Monastery is an important architecture role of Cambodian's Buddhism. The main building in the pagoda which call Vihara, where erected the Buddha statue, is built in the center of the compound with a special decorative roof and opens in all four directions, opening wide to the east. It is an architecture providing of histories concerned with Buddha life in painting and a place for keeping the mind clean and keeping morals, especially on the full moon day monk gathering and pray with the Dharma of the Buddha or read Jataka. The purpose of the project is want to create a system which store all information in monastery of monastery by scanning QR and we want also applies all information of each building inside the historical monastery. We plan to put the QR next to building. So, when the tourist come and visit, they no need someone to tell the information but they just scan the QR and it appear all the information about the building.

Canada

CA.1.	
Inventors	Mohammadkhaled Feizi, Nezameddin Kharazmi, Farahnaz Farahmand Mohammadi, Zohreh Masserati Namini ,Maryam Abdollahpour
Invention	Write Right
Institution	WR Edukit Inc.
Abstract	Write Right is the completely innovative educational aid based on "Struggling Letters," introduced globally. It is in 2 forms physical package and tech-based Application. This tool aims at resolving the children's writing and reading problems. In this method, kids' mental and psychological states have been considered, and all learning styles are covered. This new approach is gathered in 4 packages and supports young learners learning the alphabet to make sentences. We have introduced the theory of Struggling Letters in the world. Write Right considered all learning styles, so English and non-English people can use it. All training processes are based on hands-on activities. Using different and childlike components causes engaging the child's motivation and excitement. Gaming and training are precisely the same. Due to the scientific process, long-term memory is the target, and young learners will get free of writing difficulties. We will make it based on our BP regarding the significant number of young learners in Canada and the US. Besides, Write Right has provided for non- English countries, so many young population will be our clients.
CA.2.	
Inventors	Ms. Nasaporn Thammachot

Invention	Decomposable planting pots from oil palm empty fruit bunch fiber and rubberwood sawdust
Institution	
Abstract	Decomposable planting pots from oil palm empty fruit bunches and rubberwood sawdust were made from a material that was 50-100 percent oil palm empty fruit bunch fiber by weight and 0-50 percent rubberwood sawdust by weight, with a binder of tapioca starch that was 1.25 times the amount of mixed material. Then, combine all ingredients. Finally, press all the combined ingredients through a hot press at a pressure of 12.41 MPa in a pot mold. Decomposable planting pots made from oil palm empty fruit bunch and rubberwood sawdust with pressure and fall resistance, good water absorption capacity, and decomposability were then created for use. The experiment of planting seedlings revealed that the pots could withstand the all the conditions for more than 3 months. Furthermore, the use of leftover materials from the oil palm and rubber wood processing industry for making more benefits can create a main or a supplementary occupation and generate income for people in the community, as well as help to promote the livelihood and economy of the community.
CA.3.	
Inventors	Doublereed Team
Invention	Computer Generated Graphic Design of the Woodwinds (musical instrument) using 3D Design Simulation Program
Institution	Doublereed Team
Abstract	The S/W program for manufacturing various types of woodwind instruments enables instrument designers to fully elaborate on specific designs by flexibly applying different types of design factors on both internal and external design of woodwinds while tracking to maximize its structural, sound efficiencies at the same time. The software offers a guaranteed designing effect for creating different types of HQ woodwinds.
CA.4.	
Inventors	SAMMY SUNGYEON KIM, DAN MOONSUK CHANG, WILL KYUNGMIN SONG, ALEX SUNWOO KIM, FRANK BOYONG YOO
Invention	SMART RACQUET
Institution	University of Waterloo Toronto Int'l Society of Innovation & Advanced Skills
Abstract	Tennis players are constantly looking for new ways to improve their physical performance level. The purpose of this invention is to help tennis players improve the way they swing racquet by allowing the racquet to capture ball impact & hit location using PC and PC and micro-controllers & LED sensor in setting.
CA.5.	
Inventors	Bob Huybrechts, RDT
Invention	Versacryl: Heat-Sensitive Moldable Multi-Purpose Denture Acrylic "BITEM (*Biocompatible Intraoral Thermo-Elastic Acrylic Material*)"
Institution	Innovation Initiative Co-operative Inc.

Abstract	Acrylic adjustable by heat from warm water, the biocompatible intraoral thermo-elastic acrylic material has received regulatory approval from Health Canada as well as FDA Approval and CE Mark in Europe. Adjustable by using warm water, it can be used in any part of a dental appliance for patients to adjust their own fit and comfort.
CA.6.	
Inventors	Hyun Ki Shim, Stephen Gopaul
Invention	FABRICATION OF ANODE MATERIALS FOR THE DESIGN OF LITHIUM ION BATTERIES
Institution	Nanotechnology Engineering – University of Waterloo
Abstract	Most Li^+ batteries use graphite anodes. Abundant, inexpensive, low voltage versus Li/Li^+. Useful for half-coin-cell experiments due to similar electrochemical reduction potential as Li/Li^+ (higher energy when full-cell is produced). More efficient than higher-capacity materials such as tin and silicon due to lower irreversible capacity.
CA.7.	
Inventors	TYLER HOJAE KIM, DAN MOONSUK CHANG, WILL KYUNGMIN SONG, VIO SUNGHO WON, CHRIS CHANGSEOP LEE
Invention	Physical Adhesive Patch for Wound Protection
Institution	University of Waterloo Toronto Int'l Society of Innovation & Advanced Skills
Abstract	A patch to cover and protect wounds from external environment employs a physical adhesion to stay on skin and maintain flexibility for optical comfort while maintaining appropriate durability and tension of skin to allow itself to heal without leaving scars as well as reducing pain caused during its application.

China

CN.1.	
Inventors	ZIHANG HE
Invention	Electric wire obstacle avoidance system for drones
Institution	Tianjin MacDuffie School internaional department

Abstract	My design is a device for drones to detect and avoid objects such as electric wires. UAVs are easy to collide with objects during flight. The existing obstacle avoidance system is mainly realized through image recognition, ultrasonic sensors, and lidar. These obstacle avoidance methods can be used to accurately and quickly identify large objects. However, when encountering a single wire, it is mostly unrecognizable due to the accuracy of the sensor. In view of the research on existing obstacle avoidance methods, I analyzed the characteristics of wires. The wire is a metal conductor, so we have thought of two solutions: aircraft radar and metal detector, both of which are enhanced by metal feedback through electromagnetic waves. From the perspective of drones, a single metal wire of about 10 meters can be quickly and accurately identified with radar. After querying the relevant radar parameters on the Internet, we chose a radar with a frequency of 10g. I made a power supply system and a signal output system with radar, and then installed it in the test drone by adjusting the angle and installation position. After the power-in test, the signal output system detected a 2cm diameter wire approaching the UAV at a distance of up to 12 meters. After many tests, the system we developed in the environment realizes the design requirements in the static experimental environment.
CN.2.	
Inventors	Wang Dehui, Wang Shizhi
Invention	Reflection type cooker
Institution	(1) No.1 Middle School in Dalian (2) No.16 Middle School in Dalian
Abstract	This design cooker has two concave reflector panels in size. After focal aim at the sun, the sun in the big board reflect focusing the focus for the first time, a concave mirror by small concave mirror plate (heart have glass convex mirror) the second focus reflects light pillars, through the middle of a big mirror plate, hollow funnel sunlight in geo-thermal dorsal surface (concave), heating to object. Benefits are: 1. The solar oven can do a lot of positive area, more get sunshine; 2. To desalination and heating with high heat.
CN.3.	
Inventors	Wang Jinghan, Li Tang
Invention	Light ejector demarcation ball type corner pile
Institution	(1) The High School Attached to Dalian University of Technology (2) Dalian Yuming Senior High School
Abstract	Driving in the night, the driver can't see the road sign because the design of the vehicle, risk of crooked on the side of the road, In a dark condition and easy to roll over and fall accident. The present invention is in use, the light irradiation on a poly astigmatism ball, light along the optical fiber in poly astigmatism ball out along the road, can bend of the road in the dark obvious demarcation, make the driver correspond processing condition.
CN.4.	
Inventors	Yin ZiyiYin Yan da
Invention	A kind of plastic net plastic composite panels

Institution	(1) Beijing University of Aeronautics and Astronautics (2) Shanghai University of Science and Technology
Abstract	This work is a kind of anti-corrosion performance is strong, its low weight, good rigidity, easy processing of plastic net plastic composite board. Is composed of two plate joint, one sheet for PVC board, another kind of plate for low pressure polyethylene board, PVC board stated and low pressure polyethylene plate joint surface position of the corrugated steel wire mesh, wire mesh stated part of embedded PVC plate, wire mesh to another part of embedded into the low pressure polyethylene plate.
CN.5.	
Inventors	Zhang Lilai
Invention	A New Type of Gas Detector
Institution	Dalian No.11 High School
Abstract	This invention by the battery voltage circuit, suction machine and starting circuit, combustible gas detection probe, etc. It has the characteristics of traditional gas alarm, can take the initiative to leak too.Detector using inhalation.Once the check to the gas leakage, it will sound and light alarm, voltmeter shows different voltage value at the same time shows that the extent of the leak.
CN.6.	
Inventors	Cai Tianhao
Invention	A simple battery quality detector
Institution	Dalian No.8 High School
Abstract	The simple battery quality detector determines the quality of the battery through converting the terminal voltage and electromotive force into digital signal by A/D and calculating the battery internal resistance. The battery's quality is directly indicated by the indicator lights, so that the person without related knowledge can easily judge the quality of the battery.
CN.7.	
Inventors	Han Jihong
Invention	Burglar Alarm
Institution	Dalian Yuming Senior High School
Abstract	The present invention by triaxial acceleration sensors, voltage comparator and ab two boxes, etc.A box placed inside the bag, check the move and send alarm information; b box is in the body, accept the signal and alarm.When the case being dragged, etc, a box of displacement and alarm signal is detected, the alarm information received b box, the speaker voice alarm .
CN.8.	
Inventors	Zhao xiao yang, Kong yizhe
Invention	An intellisense system for Car Numbers shown on High-speed rail station
Institution	Jiangsu province Jiangyin Huashi Experimental Middle School

Abstract	As to the difference of the high-speed rail-car's group numbers and their group forming methods, passengers who entered in may find out that the same waiting-line sign on the ground usually has different numbers of coming-cars, like the 4th Car, 13th Car or the 5th Car being sited at the same waiting line. The amazing sign may bring passengers into trouble, because usually a train may stay in the station for no more than 2 minutes. This intellisense system is a kind of LED lamp band inlayed at the waiting line. When the high-speed Train comes into the station, the system may activate the car number. The bright LED lamp will help passengers quickly recognize their car numbers without being delayed.
CN.9.	
Inventors	Tang Jing
Invention	Multi-Function Box For Reading
Institution	Jiangsu Province Jiangyin Xinqiao Middle School
Abstract	This is a curved pencil box, which can be clipped in any book. The pencil box has two parts. We can put pens in the long part. The short part is for rubbers and some other small things. There is a LED light at the edge of the long drawer. At the end of the LED light, there is a pull ring, which can be pulled out and fixed on the book. In this way, we can read books freely at night without disturbing others.
CN.10.	
Inventors	BAO YANG
Invention	Intelligent battery boxes
Institution	Jiangsu province Nanjing senior high school
Abstract	Designing principle: This device is divided into integral system and collecting system Integral system : Video is usually played on the screen. Click the tablet to log in social APP, entering the battery collection program. After putting into the battery, it will generate the corresponding points through the counter within the program. After you reach a certain point, a red pocket (or other similar reward) will be attained, which is to arouse people's involvement. Collecting system: Battery collection tube is divided into upper and lower parts, the upper one slanting downward. The counter counts when the battery rolls by setting current and controlling the battery entrance size. The battery bends into the lower one and the lower part is removable for workers' convenience in collecting the battery. Besides, it includes the design of button batteries passing through the narrow tube, providing easy rolling for it.
CN.11.	
Inventors	yinkangning
Invention	Door warning device
Institution	Jiangsu province Nanjing senior high school

Abstract	The design is intended for these cases: When people open the door of the car, they tend to forget to watch whether there are passers-by. Besides, pedestrians pay little attention to whether the door is about to open . These lead to such traffic accidents as pedestrians nearby are knocked down by the opening of the door. With this design , the sensors will be triggered and the red lights will be automatically turned on when passengers are about to open the door ,which will remind the passages to be cautious about the pedestrians outside the car. And the LED lamp in the viewfinder will be on to remind the pedestrians of the safety when there are pedestrians within a certain distance of the back of the car ,which will no doubt greatly reduce the occurrence of such kind of the traffic accidents.
CN.12.	
Inventors	ChenZhihan, ChenZhuangdi, FanYihan
Invention	Intelligent baby bed
Institution	Shanghai Xunyang middle school
Abstract	This smart baby crib can automatically play the music or the pre-recorded caring voice of the parents when the baby cries. It can comfort the baby immediately at the same time it also sends information to the parents by sound, light and text messages. Through the telemetering and remote control, this system meet the needs of the parents who want to look after the babies personally.
CN.13.	
Inventors	LI-Longqi, WANG-Haoxing
Invention	A safety helmet equipped with automatic alarm system
Institution	XUCHANG UNIVERSITY
Abstract	The invention can remind the workers of the labor work at the construction site to remove the hat and alarm, and prevent the falling objects from harming the workers, and play a positive role in strengthening the safety and civilization construction of the construction site.
CN.14.	
Inventors	GAO-Junzhao, YANG-Donghui
Invention	A monitoring and alarming device for deep foundation
Institution	XUCHANG UNIVERSITY
Abstract	Deformation monitoring and alarming system for deep foundation pit. The product can calculate the deformation amount of the foundation pit by the distance between the swinging sphere and the electronic original. It can be placed in the drilling hole at the edge of the foundation pit, the system will automatically alarm when the deformation exceeds 2mm. In addition monitoring time and alarm value can be adjusted.
CN.15.	
Inventors	Dai Dong-chen, Wang Xiao-xia, Liang Guoyong
Invention	Carbon-free Light

Institution	Tianjin Metallurgical vocation-technology Institute
Abstract	The carbon-free Light uses the electric energy produced by gravitational potential energy, which can make a LED lamp keep on lighting for 20 minutes.
CN.16.	
Inventors	WANG YI, LI SIJIA, REN YI
Invention	Traditional Chinese medicine nutrition hair cap
Institution	Tianjin Medical College
Abstract	We invented Chinese medicine hair hat, which combine traditional Chinese medicine with hairdressing. The principle is to combine the Chinese herbal layer and wetting nutrient solution, and heating, in order to achieve the role of deep repair
CN.17.	
Inventors	Yuewu ZHAO, Zhongxu FAN, Shuai LUO
Invention	ST3D10 second disk rotating series
Institution	Tianjin Modern Vocational Technology College
Abstract	Circular second disk area of structural design about ST3D10 second disk rotating series provi des more space to express words and ideas for designer.The first innovation design: school lo go is made second disk, it loads to strive for perfection.The second innovation design: the LO GO of The national vocational skills competition is made second disk, it shows competition s pirit that competition lights life and skill achieves dream.
CN.18.	
Inventors	Haisong Yin, Lubao Gao, Zizhao Wang
Invention	Spirit Of Red Wine
Institution	Tianjin Modern Vocational Technology College
Abstract	Spirit of red wine is an innovation with the function of anti-aging and antioxidant. This product adopts characteristic batch-type microwave-assisted extraction and the embedding technology, which provides fresh and complete nutrition of plants to improve immunity.
CN.19.	
Inventors	Cheng Qiqiang, Shen Shuai, Guo Linfeng
Invention	A kind of auto-cycle system for inter-supply Reclaimed Water in buildings
Institution	Tianjin vocational institute

Abstract	Maximum 4 lines (Font Calibri, Size 12), for printing on the handbook only. This system apply in buildings to collect upstairs waste water to clean and supply to downstairs for clean toilet automatically .this application does not impact upstairs drainage,and downstairs reclaimed water also can be supplied independently.
CN.20.	
Inventors	Chien Wei, Kang Tsai-Hua, Liang Shao-HuaZhou, Qiu-Hong, Liao Yu-Fang, Tsai Shang-Te, Fan Chwei-Jen, Chen Jia-Xin
Invention	Garbage Bag Sealing Device
Institution	Qinzhou University,NingDe Normal University, HungKuo Delin University of Technology
Abstract	The design provides a garbage bag sealing device, and the sealing unit is to seal a garbage bag. Therefore, the user can not touch the garbage bag directly by hand, and the garbage bag can be sealed in good condition, thereby effectively reducing the opening of the garbage bag by hand and reducing the infection of the pathogen.

Ecuador

EC.1.	
Inventors	Majid Khorami,Bowen, Zambrano Samuel Antonio, Solórzano Pihuave Pablo Eduardo
Invention	Design of a drone with an injector arm for injecting the material to repair and rehabilitation of concrete structures
Institution	ESCUELA SUPERIOR POLITÉCNICA DEL LITORAL (ESPOL)
Abstract	The present invention generally relates to the UAV (Unmanned Aerial Vehicle) that is capable of injecting repair material into/over a concrete structure. The invention aims to repair concrete structures that have cracks due to the strain of fluctuating loads that may be in places of very difficult access, such as dams, skyscrapers, and bridges, among others. Therefore, it has the potential to reduce repair costs, lower environmental impact due to the assembly of scaffolding, reduce the requirement of personnel specialized in high-altitude work levels and reduce occupational accidents. This drone has three main parts: structural, electrical and injection parts. The injection system consists of the positive displacement pump and the injector arm for expelling the cement material over the work area with13 [m/s] of the velocity. The pump consists of a reservoir, spindle, stator, bearings, clamps, cord packing, nozzle, motor, coupling between the spindle and the motor, battery and driver or motor controller. The drone can carry 7 litres of material for repairing the 5.6 m2 in 20 minutes. The structural system is made of standard carbon fiber of density 1 750 [kg/m3] obtaining a structural weight of 3,37 [kg]. The dimensions of the drone are: 742 x 1797 x 1906 [mm].
EC.2.	
Inventors	Majid Khorami, Solórzano Pihuave Pablo Eduardo, Bowen Zambrano Samuel Antonio

Invention	A portable hangar for drone maintenance and charging, as well as for monitoring the environmental conditions to estimate the best flight time
Institution	ESCUELA SUPERIOR POLITÉCNICA DEL LITORAL (ESPOL)
Abstract	The present invention generally relates to a potable flying station for UAV (Unmanned Aerial vehicles). The objective of the present invention is to provide a hangar place for the drone to optimize its flight distance and reduce the energy consumption of batteries. In addition, it provides a station for charging batteries. This station can monitor the inside and outside climate conditions to indicate the best time for the drone operation. This portable station consists of a base plate, column, stability cables and hangar cabin. The station's height can be variable by adding column segments with 1.5 m length. The columns were designed with a circular section with hexagonal holes to optimize the weight and provide better stress distributions. GFRP (Glass Fiber Reinforced Polymer) material was suggested for making the main components of the station.

Egypt

EG.1.	
Inventors	MS. HEBATALRAHMAN AHMED
Invention	SPHERICAL GREEN BUILDING
Institution	THE Egyptian Inventors Syndicate THE EGYPTIAN SOCIETY FOR WOMEN & YOUTH INVENTORS
Abstract	Design for building element in the form of incomplete sphere, the design save energy. It consists of multiple layers on moving streams equipped with sensors, the movement of the working layers were controlled automatically or manually according to climate changes in the surrounding atmosphere. The top and bottom of the layers are installed on several axes cantered together. The movements of insulated layers are done by sliding on the certain channels.

EG.2.	
Inventors	Ms. Maha Ibrahime El-Sayed Hassan
Invention	Earthquake Building Resistance by Rounded Base.
Institution	THE Egyptian Inventors Syndicate THE EGYPTIAN SOCIETY FOR WOMEN & YOUTH INVENTORS

Abstract	The invention idea is about a building resist the earthquake using it`s swinging hemispheric base Equilibrium by using the weights located down of it during the earthquake building shaking, that equilibrium occurs with the help of the hemispheric base which are fixed at the outer perimeter of the building swing damping.

Hong Kong

HK.1.	
Inventors	Jill Leung Chiu Yee
Invention	Blockchain-Based Carbon Footprint Monitoring, Reporting and Verification Tool
Institution	
Abstract	After the Paris agreement and COP26, leaders had agreed and set ambitious carbon neutrality targets, which require close monitoring, data disclosure, and review regularly. However, it is not an easy task for the industry as there are several challenges: poor data quality & management, different interpretations in carbon auditing guidelines, and a lack of resources for verification and validation. The team has developed a blockchain-based carbon footprint monitoring, reporting, and verification solution to manage, analyze and disclose carbon performance data. The fully digitalized solution helps to extract data from documents (e.g., bills) with intelligent OCR modules, it also helps to store the original document with extracted data and calculated results in the blockchain with unique data interfacing. The solution also works as a bridging program and fits the data into reporting templates that align with different disclosure frameworks like GRI, and ESG reporting. The result shows that the tool could work well and greatly enhance efficiency, accuracy, and reliability with a fully digitalized solution.

Iran

IR.1.	
Inventors	Milad Alasvand, Faezeh amirpoorifard, Aysan talebi, Meysam dimaz, Atefeh mahmoodikordi, Yasamin Zamani
Invention	Electrocardiographic monitoring gadget
Institution	TOUSAN

Abstract

An electrocardiogram, also called an ECG, is one of the most reliable tests used to diagnose heart disease by a doctor. To do this, 12 electrodes are attached to the arms, legs and chest. The electrodes are attached to a special monitor to record the result of the ECG. This is done only in the office and by the hospital by the doctor.
The ECG monitoring gadget is a portable device that a person can always carry with them or wear on their hands like a wristband. This device is designed to be very small in size and by placing two fingers on the screen of this gadget or by touching it to the wrist, the ECG information is sent to the smartphone via Bluetooth and is displayed on its application. Which can also be sent to its specialist doctor through the application. Also, this application can read the ECG analysis in the form of text or audio for the patient by monitoring the test result. Using this gadget, you can easily take an ECG and analyze it in any place. This gadget can act as an assistant cardiologist and can inform a person about heart health. Also, heart monitoring can be continuous, and when the heartbeat has a problem, an alert message will be sent along with the person's position to the number stored in the application.
The advantages of this gadget are as follows:
Heart rate measurement
Check for regular or irregular heartbeat
Diagnosis of heart failure and disorders
Diagnosis of heart muscle stiffness

IR.2.

Inventors

SOLMAZ CHERAEI, EHSAN MARZBAN SHIRKHARKOLAEI, VAHID FAGHIHI REZAEI, PARISA NAYERI, SAMI BEIRAMI

Invention

Gadget for correcting and improving hand movement in patients with usability for the blind

Institution

TOUSAN

Abstract

According to the latest statistics from the International Agency for Blindness, 43 million people worldwide live with blindness and 295 million with moderate to severe visual impairment. Most people with visual impairment and blindness are over 50 years old. However, vision loss can affect people of any age. As a result, according to the stated statistics, the necessity of this plan will be quite clear.
Here we are going to introduce a gadget that in addition to being used by blind people, we can also use it by people with disabilities.
This gadget is located on the patient's hand by using the neural network, and by having motion and neural sensors, it helps the patient to be able to move and ability in his hand organs in the long run, and to some extent move the hand. Strengthen. In such a way that without using a gadget, a person can move his hands and fingers and do daily tasks.

The gadget is connected to a smart application for practice and repetition that practices movements from the initial to the advanced stage with the patient and practices recovery operations as a home therapist.
In addition, the gadget uses two sensors to help blind and visually impaired people in daily activities.

These sensors include:
1-Ultrasonic sensors are a non-contact method for monitoring and measuring position and displacement. They emit sound waves for this purpose. Sound waves are reflected to the sensor, and based on the received signals, the ultrasonic sensor can make accurate measurements in detecting and measuring distances.

2- Using the touch sensor:
A fiber-optic sensor has been developed that consists of LEDs that, along with a stretchy skin, make it possible to detect deformations such as pressure, curvature, as well as stretching of the human hand.

IR.3.	
Inventors	Sajjad Khodayari, Roksana Poodat, Javad Ahmadi, Rahele Khosravi Neisiani
Invention	Pak breathing
Institution	Gachsaran Oil and Gas Exploitation Company, South Oilfields, Iran
Abstract	Due to the fact that most cities have a lot of pollution, including polluted air from incomplete fuel of cars or industrial centers. This causes irreversible complication over time, including respiratory problems and internal organs. we decided to design and invent a device that minimizes air pollution. In addition to removing dust, this device is able to remove chemical contaminants, etc. The purpose of inventing this air purifier is to enter the houses and office and control facilities of factories in accordance with the pollutants in the areas. For example, in the oil and gas exploration units of oil-rich areas, highly toxic and dangerous gases such as hydrogen sulfide and flare fuel, which are generally carcinogenic, are very common. With this invention, physical and chemical pollutants are removed and healthy air is created for breathing. By nanoscience and due to the numerous advantages of zinc oxide nanoparticles and iron oxide nanoparticles, the texture of this filter consists of zinc oxide nanoparticles and iron oxide nanoparticles.
IR.4.	
Inventors	Morteza Chamanara, Sima Chabi Vaisi Nezhad, Armin Ahanrobay, Amin Ahanrobay, Noushin Ahanrobay, Mahdieh Souri, Hamid Gharehbaghi Mohammad Reza Mohtarami
Invention	Special serum for washing diabetic wounds
Institution	TOUSAN
Abstract	Diabetes is considered to be the 5th most important disease in the world. Therefore, paying attention to this disease and its side effects is one of the important health issues. Diabetic ulcer is a problem that is very common among diabetic patients. These ulcers increase in cases that are not treated and, in many cases, lead to amputation. Washing diabetic wounds before any dressing can reduce microbial agents and pathogens and accelerate the healing process due to the hydration of the wound site. This serum with its special formulation can be effective in healing diabetic wounds. Diabetic ulcer is a problem that occurs in most people with diabetes. Special flavonoid compounds and wound healing compounds; It can clean the wound area before dressing and play a positive effect in the process of wound healing and rapid acceleration. This special serum with its effective and natural ingredients is used for initial washing and before dressing, which according to its constituent compounds can eliminate microbial strains and pathogens and help wound healing and prevent Infection of the wound and dressing.
IR.5.	
Inventors	Amir Mohammadzadeh, Aqdas Haddadi
Invention	Blood group testing machine with special strips
Institution	Iran, Tabriz University of Medical Sciences

Abstract	Nowadays, knowing the blood group is essential for different operations and blood injection; if a blood group is injected wrongly to a person, it will cause their death. There are different methods for the test such as: ABO kit method, automatic machine method and our automatic strip machine. After turning on the machine and attaching the strip on that, some drops of the person's blood is taken on the strip to be socked, and be sent to the inside the machine and at the same time, react with antigens and after that the sensor is activated and responds to the antigen and antibody's connection that with the blinking of the lights, ABO blood groups are indicated. This device doesn't need a lot of different solutions and blood and shows the result in 20 seconds.
IR.6.	
Inventors	Hamed Milani, Leila Monjazeb Marvdashti
Invention	New Generation Systems Based on Bio-GOLD Production Reactors: ✓ Space Telescope Golden Mirrors ✓ Diagnostic imaging and Treatment of Cancer Tumors ✓ Cerebrovascular Clips, Angioplasty Stent and Brain Memory Prostheses
Institution	International Milanix Company
Abstract	There are three new-generation reactors in this system. A nano biological reactor is the first part of the system, in which a new stabilization technique is applied to *Saccharomyces cerevisiae* cell wall, as well as to iron oxide nanoparticles and carbon nanotubes. Plastic waste is then converted into constructive monomers using this reactor. The carbon produced is used as one of the main biological factors in supplying energy and reproducing microorganisms in the second part. A fermentation reactor is designed that uses newly identified bacterial isolates of *Cupriavidus metallidurans strain H.Milani* to convert toxin gold solution into gold particles, which are inert and visible to the naked eye. The gold can then be separated. In the third section, we used gold in different cases according to the capabilities of using gold in the aerospace and medical industries. By using the biological gold, we made the first telescope gold mirrors. This is the first time in the world that biological gold has been used for this purpose. It has the following advantages: ➢ Less use of fossil fuels such as gasoline, diesel, electricity, and water. ➢ Reduce carbon dioxide and carbon monoxide emissions. ➢ The fastest method of producing gold. In the medical discussion, gold produced biologically was used to produce Cerebrovascular Clips, Angioplasty Stent and Brain Memory Prostheses and also medicine for Diagnostic imaging and Treatment of Cancer Tumors.
IR.7.	
Inventors	Ahmad Ebrahimi, Loghman Alimohammadian, Fatemeh Rostami, Hosein Davodian, Faezeh Mehdikhani, Masoumeh Mehdikhani
Invention	Photographic gesture aids in known individuals of the feet and hands
Institution	Mokhtareshoo Company

Abstract	Photographic gesture aids in known individuals of the feet and hands have a hip support and five bases. The bases are in the form of two fixed numbers and three movable ones, which hold the fixed bases of the weight of the tool and the person, and the movable bases have clamps and body parts in They are fixed, so the person is able to stand or not by placing his feet or hands in it and fixing them inside the clamps by placing his feet and hands in the desired position, Also, this design has the ability to fold and change the size of a bag for easy movement, so this device is very light and comfortable and has a very low cost, and the problem of photography and taking large photos of people with disabilities that It is very fragile and bitter psychologically.
IR.8.	
Inventors	Farshad Goharmanesh, Mostafa Badiehneshin
Invention	Under head suction ventilation system in dental units
Institution	Medical Physics and Engineering Department, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
Abstract	Human respiratory virus infections lead to a range of respiratory symptoms and disease severity that contribute to morbidity, mortality, and significant economic damage worldwide, as seen in the COVID-19 epidemic, which has led to the closure of dental offices worldwide. Belonging to diverse families, respiratory viruses differ in how easy they spread (transmissibility) and the mechanism (modes) of transmission. Transmissibility as estimated by the basic reproduction number (R_0) or secondary attack rate is heterogeneous for the same virus. Respiratory viruses can be transmitted via four major modes of transmission: direct (physical) contact, indirect contact (fomite), (large) droplets and (fine) aerosols. The presence of this wide range of viruses has created a risk and impact on the health and safety of dental offices. In the proposed design, using the air suction system installed under the patient's head, the patient's breathing air is transferred to the HEPA filtration system using a separate virtual and after filtering, clean air is transferred to the free space. The advantages of this system, unlike previous plans, are: 1) Compatibility with all dental units 2) Increased access and non-interference and inconvenience for dental surgeries. 3) The suction path of this system is from top to bottom and causes the polluted air to move away from the breathing area of the dentist and his assistant. 4) Lower production costs 5) Suitable for light and heavy tone viruses This system is compatible with the unit, applicable and installed on the population of millions of dental units without the need to replace any of the components of the unit.
IR.9.	
Inventors	Elham Seihei, Alireza Mollaei Barejahri, Ali Bakhshali Dehkordi, Mohammadreza Pourahmadi, Mohamad Sahebalam, Farideh Kamran
Invention	Orthosis with the ability to maintain and control the range of motion of the head, spine and shoulder joints; and electrical stimulation for muscle strengthening in cervical and shoulder
Institution	

Abstract

The protrusion of the jaw and tongue are the most common abnormal oral-motor patterns in infants and children. These patterns occur with the onset of movement in children and are followed by protruding extensor muscles. This problem is common in children with cerebral palsy, Down-syndrome, dysarthria and children with extensor muscle protrusions causes a lack of speech production, swallowing and eating dysfunction, drooling, and other disorders.
In order to use this device, the child should lean on it and maintain the device above their forehead and chin. It has two electrodes for electrical stimulation
which can help strengthen muscles through a specific functional faradic current. These electrodes are placed on the extensor muscles of the head and neck. This action will strengthen the muscles and improve the autonomic movements of the head and neck. Also, the vibrators are placed on the upper part of the shoulders and both sides of the neck. Additionally, the vibrators used in the device can generate heat**.**

This device can have many benefits for both the doctor and the patient, such as Preventing the extensor muscles from protruding, maintaining and controlling the range of motion of the head, spine, and shoulders are possible without the presence of a therapist and… This device can prevent the protrusion of the extensor muscles and maintain and control the motion range of the head, the spine, and the shoulder joints in children, and can put the mind of many parents at ease.

IR.10.

Inventors Nazanin Fatemeh Chandaz, Fatima Basivand, Reihaneh Chandar

Invention Shoe insole with ergonomic change capability in accordance with the arch of the foot and has a special application to check the number of steps and the amount of calories consumed

Institution

Abstract	Health is one of the most important aspects of human life that is affected by various factors. The foot, however, is one of the most active organs that play a fundamental role in the body. One of these factors that affect health by using inappropriate shoes. Moreover, shoes are an integral part of everyday style and accompany you in all sports and daily activities. Most individuals take 8,000 to 10,000 steps a day. So, it can be said that foot protection and how choose the right shoes will have a significant impact on the health of the body. Research shows that 9 out of 10 individuals have foot pain and problems and have experienced the effects of inappropriate shoes. Accordingly, the biggest cause of foot problems is the use of inappropriate shoes, which cause problems such as pain in the back, spine, and knees, as well as complications such as heel spurs, Erythromelalgia, and corns. To solve this problem, we have gone for the design of a special insole that is suitable for all individuals and ages, and the insole may be placed inside shoes. The insole has a special feature that is formed by an ergonomic change in proportion to the arch of the sole, which makes the person comfortable and prevents injury during long-term activities. This special insole is anti-odor and anti-perspiration, and also, with its special design with built-in sensors, it may control the temperature of the shoe and cause the foot to be warm in cold, and to be cool in hot weather. Moreover, the insole is equipped with a specific Application that calculates data on the number of steps and calories consumed per day. In this way, the sole of the shoe guarantees the health of the foot, which is considered important.

IR.11.	
Inventors	Amin Shabanpour Moghaddam, Amir Hosseini Iraj, Yaser Mirzaei, Ramin Talebian, Amir Mohammad Dehghani Farghani, Parvaneh Shahin far, Hasan Mehrabadi
Invention	Washing injuries device
Institution	
Abstract	Today, all around the world the wounds are washed by connecting Irrigator to Sodium Chloride-Irrigation by the hand pressure. There are some problems with this method. The flow rate and splash type according to the size of serum cannot be controlled. Moreover, the serum temperature cannot be controlled in city ambulances during cold seasons. Furthermore, there is difficulty with washing wounds of people with neck and spinal column trauma. The device is made of two powerful Peristaltic pumps which are capable of steady pumping fluid to the last drop. (Flow rate is controlled) According to the place and depth of wound and foreign particles the type of splash is changeable to three modes (Spray/Jet/Mild jet Serum temperature changes to the needed level by using a sensor, screen and heating elements. Nozzle head can be separated from the device and wash individually. Multi-mode light of the device is used for lighting wounds at night. Lithium batteries provide power bank in long operations. The unique design of the device leads to the user's convenience

IR.12.	
Inventors	Seyed Arash Dashti, Seyed Mohammad Mahdi Zare, Ahmadreza Kiadarbandsari, Mohammad Yousefi, Melika Shariati Nasab, Khashayar Ghahramani
Invention	Vertical axis wind micro turbine with adjustable rotor radius and hub height with eight flexible three-sided prismatic blades for power supply

Institution

Abstract

Vertical axis wind micro turbine with adjustable rotor radius and hub height with eight flexible three-sided prismatic blades for power supply is in the field of portable and home micro turbines.
Lack of access to electricity in the environment, poses some Major issues for charging associated electrical appliances.
Despite the presence of solar cells, the provision of electricity for high-consumption conditions, especially during the night and dark conditions is also essential. And the supply of electricity with minimum wind power in the environment and during the night in a portable way and in the form of Do-It-Yourself. This device has the ability to entrap any wind intensity.
The goals of this invention are supplying energy in daylight, night, and cloudy weather with minimum wind power and also its portability, and the ability to Do-It-Yourself.

IR.13.

Inventors

Hirad Mokhtari

Invention

Smart Clothing for Neurological Patients with the ability to control seizures, tremor and maintain balance, measure heart rate, respiration rate and electrical stimulation for strengthen muscles

Institution

Abstract

The nervous system is one of the most important parts of the body and any problem in this system can affect the functioning of the whole body. However, the nervous system is commanded by the brain, and any dysfunction of the brain affects other parts of the body and can affect performance and quality of life. Moreover, neurological disorders affect the brain and nervous system. Meanwhile, the most common neurological diseases include: Multiple sclerosis (MS), Parkinson's, Alzheimer's, and epilepsy, and their main symptoms are muscle paralysis, muscle weakness, loss of sensation, and seizures. The smartwatch is designed with biometric sensors that can measure heart rate and pulse, temperature, stress level, respiration rate, and heart rate, and data is transmitted via Bluetooth to a mobile application. The sensors utilized in this clothing to control unwanted movements and vibration in this group of patients are accelerometer and gyroscope sensors, which are applied to fully monitor movements and muscle activities. However, one of the main
difficulties of this group of patients are muscle weakness. The clothe has
electrodes that are placed on the muscles that are most involved and electrical stimulation is applied to relieve muscle weakness. In cases where the patient has muscle paralysis, the speed of recovery is continuously increased by applying electrical stimulation. To control the balance of this garment, it warns the person in case of signs of imbalance by analyzing the movement through built-in sensors and identifying the natural pattern of walking. Furthermore, some neurological patients suffer from seizures. To control seizures, this smart suit provides biometric sensors and permanently records body parameters; therefore, the treating physician can monitor seizures and the patient's condition through this program; In the event of a crisis, the doctor and nurse inform the patient through the application, which is likely to control the condition.

IR.14.	
Inventors	Narges Seihei, Majid Farhadi, Samira Seihei, Zahra Khakrangin, Sayna Mousaei, Maryam Nekoufar
Invention	Movable and control solar dustbin with leachate separation
Institution	
Abstract	Our invention is a bin with a lid that minimizes the volume of waste, removes leachate and removes unpleasant odors. In this device, every time the bin door is closed, the waste is compressed. This bucket has two tanks, the upper tank is for storing waste and the lower tank is for collecting leachate. The upper tank has a compactor (to minimize the volume of waste and take it out) that this tank is connected to four mechanical arms for remote unloading (without worker's intervention). The energy needed to compress the waste and remove it remotely is provided by the solar panel. Using a solar panel solves our need for electricity. Unpleasant odors are removed by activated charcoal placed in the upper tank. Leachate is drained from bottom of the tank by a toggle hose. Advantages of this invention are Energy saving, Separating the leachate and preventing it from being wasted, unloaded waste sanitation, Cost savings, Eliminate unpleasant odors, Environmentally friendly, Minimizing the volume of waste, Prevents the accumulation and proliferation of disease carriers, The advantage of our invention comparing with similar inventions is the use of clean renewable energy (solar) instead of electricity, In other similar inventions, leachate is evaporated with heat by an element that consumes both energy and removes leachate. If we collect leachate and use it. This trash can be used in apartments, schools, universities, streets as well as commercial, residential, and public places. Our invention is a safety waste bin performing the necessary force to compress the waste and remote drain the bin using solar plan-which is renewable and clean energy. We have made a simple of the waste bin which could be used in the many places and it is being registered in Iran.
IR.15.	
Inventors	AMIRREZA RADSHOULI
Invention	A device with the ability to speak for people without speech and physical disability
Institution	

Abstract The main way of communication for every person in society is speech and speaking. Humans need proper speech to express desires, communicate, and have an ideal life and job. Unfortunately, for some reason, such as neurological problems, developmental problems, brain injuries, and laryngeal cancer, some individuals can not speak correctly. However, to compensate for temporary and permanent injuries, movement limitations, and participatory limitations in individuals with severe impairments in speech, language, and comprehension production, we designed a device through which these individuals could easily express themselves. Up to now, no device has been designed for individuals who can not move their hands in addition to not having words, and this device has this capability. This communication device consists of four basic components of symbols, aids, strategies, and techniques. Moreover, by selecting the embedded items, the person can talk to others around the device (the selected sentence is read by the device). For individuals with physical and verbal disabilities - such as patients with physical and neuromuscular problems, neurological diseases, developmental disorders, laryngeal cancer, and psychiatric disorders, particularly autism spectrum disorders - the choice of concepts through a remote control placed on the forehead; and by moving the head in different directions, they point to the desired part of the screen, which has a special receiver for remote control and finally produces a sentence that is expressed by the device. The device is beneficial for patients who suffer from tongue-tied. Accordingly, the person may express their requests and conversations orally by the device. A speech therapist would show how it works out. This way, no one will suffer from uncommunicative difficulties.

IR.16.

Inventors MAHDIYEH RAZM POUR, ABDULLATEEF HAGHIGHAT, AYIN HAGHIGHAT

Invention Intelligent Interactive Speech Tool for People Affected by Autism

Institution

Abstract	Autism spectrum disorder (ASD) includes a wide range of behavioral and social characteristics. However, most of them are engaged in social and communication interaction problems, low attention and concentration, and most importantly, poor perception and speech, and sometimes they are speechless. With regard to the World Health Organization (WHO), the number of these people is highly increasing so that the Center for Disease Control in 2021 illustrated that the rate of ASD in the United States in 2018 was one in 44 children. This rate exhibits a significant increase in comparison with presented rates by Scientific American in 2016 (one child for every 68 children). However, the problems of this group are expected to increase due to long-term quarantines during the Corona epidemic and the impossibility of setting social interactions as well as watching cartoons and animations for a long time. Therefore, with the aim of assisting this group, one tool is designed for child to not only enjoy watching the cartoon, but also increase his attention to the content with the use of the Technique of receiving feedback existing in this tool. Then, the child is supposed to provide a verbal answer to this tool in order to watch the continuation of the cartoon. Having fulfilled this process after a period of time, this tool will indicate a significant impact on the child's attention and concentration, perception and speech. This tool was adopted for a number of children with the mentioned conditions and its effect was pretty observable particularly in the use of sentences and speech fluency. Additionally, besides children with ASD, this tool is able to be very effective and instrumental for a wide range of people with different kinds of speech and language disorders mentioned previously.
IR.17.	
Inventors	MEHRAN BAKHTIARI, Fardin kazemzadeh, Alisa Khodadadi Kohlan, Fariborz Aghaei Hashjin, Javad arabpour, Fatemeh davodabadi
Invention	Sterile sperm sample transfer box at 37 degrees
Institution	Hamedan University of medical Sciences. Pakshoo Industrial Group. Tehran. Department of Microbiology, Faculty of Advanced Science and Technology, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran. Department of Biology, Faculty of Basic Science, Payame Noor University, Tehran, Iran. Hamedan University of medical Sciences.

Abstract

The initial purpose of this invention was to design a carrier case for transferring sterile sperm samples at a temperature of 37 degrees which is equal to human body temperature, thus being suitable for long distances transfer of sperm samples from home to the laboratory with no damage to the specimen. But we perfected the design so that this case, which can be adjusted from -10 degrees Celsius to +60 degrees Celsius, in addition to being able to carry sperm samples, can be used to carry a wide variety of research samples from hospitals and treatment laboratories Including but not limited to sensitive pharmaceutical test samples, which sometimes
have to be placed in a dark environment at a certain temperature, or for sensitive molecular test samples such as bacterial, fungal, viral and parasitology specimens, all types of culture media as well as be used to transfer human body transplants parts with the desired temperature. UV light feature to sterilize the internal environment and be free of microorganisms after the transfer is done, once you take out the specimen you simply click a button on your smart phone and the lid automatically closes and the device goes through a sterilizing phase.to the mobile phone using an application that has been custom designed and can act as a controller for the temperature and the internal environment of the box as well as read accurate information on the environment such as CO2 and oxygen levels. The lid of this device has been designed with a digital lock so that in some special citations only verified personnel could access the samples. 3 powerful batteries imbedded inside the design that can work for up to 4 hours without connecting to any external power source, allow you to connect the device to the automotives cigarette lighter.

IR.18.

Inventors

MEHRAN BAKHTIARI, Sima hormozdiarycham, Sahba Khosousi sani, Mohammad Rayat, Ehsan Eshghinour, Mojtaba zargar

Invention

Laboratory diagnostic kit for cutaneous leishmaniasis with doorless microtubules

Institution

Hamadan University of Medical Sciences. Graduated from the University of Medical Sciences with a PhD in General Medicine. DDS, Post Graduate Student of Oral Medicine, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Department of Sports Science, Faculty of Humanities. Tabriz, NO 22. State Bank employee

Abstract

Laboratory diagnostic kit for cutaneous leishmaniasis is used molecularly for medical and parasitological tests, which is very fast, cost-effective. Cutaneous leishmaniasis (leishmaniasis) is considered as one of the health problems of countries around the world, including Iran, so that new cases are more than one and a half million people annually and about 350 million people are infected. And the genus is
Leishmania. Due to the time consuming and also dangerous other methods of identifying this parasite, we decided to invent this kit. Nowadays, molecular methods such as PCR are widely used to determine the small amount of parasites in chronic Leishmania wounds and to determine the species. Leishmania detection kit by PCR method is a product that consists of several separate solutions. It is detected by PCR method and using these materials Leishmania is a cheap, safe, fast and accurate method for detecting Leishmania according to the work plan. This kit, which are connected in tens, consists of 100 four-channel microtubes in each channel, which are marked in each channel with primer R and F, Mastermix, distilled water and with extraction vial (copolymer styrene-di vinyl benzene sulfone). Interconnected microtubes, each of which is pre-set with sterile distilled water and mastermix, will be identified by the standard Leishmania PCR method.

IR.19.	
Inventors	Hirad Mokhtari
Invention	A tool for electronic filing for patients in medical centers
Institution	
Abstract	One of the concerns in the medical system is always speeding up the activities, especially file writing and correct information recording, sometimes it has been observed that the information written in the files is illegible and causes irreparable errors. Therefore, providing a solution to eliminate these errors is very important. So we looked for a way to solve this problem. This plan is a digital electronic record keeping screen like a tablet that transmits information on hospital computers and has several important features, such as the most commonly used medical orders are written by default and do not need to be rewritten, the drugs are registered. and only need to select them, and the chart of changes in the patient's condition is recorded based on the report of the nurse and the doctor and is compared daily to determine the recovery process, on the other hand, by having a dedicated application that can be installed on the doctor's mobile phone The changes in the patient's vital signs are sent to the doctor after being recorded in the file by the nurse within the time period that is normal for each group of patients. Document writing This feature is also designed for the software that converts the doctor's voice commands into text and records them in the file so that the patient examination process can be done more accurately and quickly.
IR.20.	
Inventors	Mohammad Hossein zakariapour, Seyedeh Mahsa Pour Aghajan Hosseini, Hamed Zakerian
Invention	Design of prototype fog computing technology on the medical Internet of Things to extract ECG features

Institution	
Abstract	The Internet of Things offers a structured approach to improving health. One possible way to provide IoT-based health care services is to monitor human health in real time using biomarkers received from sensor nodes and sent to the gateway via wireless communication. The protocols then transfer real data to a remote cloud server for processing, visualization and identification in real time. In between, there are challenges such as real time and at all. that can be solved by providing solutions. In particular, we choose the electrocardiogram (ECG) feature extraction because it plays an important role in the diagnosis of many heart diseases. ECG signals in smart gates with extracted features such as heart rate are examined through a flexible pattern based on the light wavelet conversion mechanism. 1) Medical sensor: A combination of several touch or wearable sensors that are collected to collect medical data such as ECG, etc. in a good wireless module. Data transmission is transmitted from a sensor to the gateway via a special communication protocol such as ZigBee. 2) Gateway: connects the sensor node to a remote cloud server. 3) Back section: includes cloud server and backup services for data processing. 4) Hardware layer: A hardware layer acts as an accessory between an embedded operating system and physical components. 5) Embedded operating system: There are two types of operating system embedded in the smart port, one of which includes the router and the other type of sink nodes.
IR.21.	
Inventors	Sajedeh Khoshkam,Zahra Mirmoosavi, Roshan Sarshogh,Elina Zamani Alavijeh
Invention	Cacocherbal
Institution	ANIA association
Abstract	Oaks are the most important and most abundant group of plants in the Northern Hemisphere.The fruit of the oak tree, which is called Acorn, plays an important role in the nutrition of humans and animals and is very important in terms of nutritional value, which unfortunately, at present,due to the lack of sufficient information about its benefits and its taste, which is not liked by everyone, it has been removed from the cycle of food consumption, and we have tried to find its place in the food pyramid and consume it in different ways. As a result of this project, we can point out that this fruit is not wasted, help reduce the destruction of oak forests and create jobs
IR.22.	
Inventors	Hasti shahrivari, Viona ashrafi, Yeganeh hajiarab , Artemis banaeian, Elham ebrahimi
Invention	AT friend
Institution	

Abstract	Emotional deficiency or Alexithymia is a personality disorder that is known as an inability without clinical symptoms to identify and describe individual emotions and feelings, which includes about 10% of the population. With the advancement of technology that has increased isolation and desensitization among people, this disease has spread even more. This disorder causes the inability to understand the feelings of others, weakness in social communication, and the inability to recognize situations of danger and threat from another person. By creating a smartphone application and smart glasses with augmented reality capability, we were able to establish an effective connection between the emotions of the Alexithymic person and the society.
IR.23.	
Inventors	Nozha Mehni Esfandagheh, Hasti Jamali, Sayede Dorsa ghanei oskoei, Fatemeh Ahmadi Darani
Invention	Livestock nutrition and health monitoring gadget
Institution	
Abstract	Nowadays, livestock farms are looking for automation and precise control of their livestock breeding process in order to make the most of their livestock farming. One of the common problems in livestock farms is the lack of control over the amount of food and water consumed by individual livestock and the transmission of livestock diseases through shared food. It's also possible to mention the problem of diagnosing livestock diseases dynamically. For this reason, the researchers decided to design a gadget that can dynamically control the parameters of livestock nutrition and health. In this connection, a gadget was designed that is installed on the ear of the livestock. This gadget is equipped with an RFID in which livestock information is recorded. It's also equipped with a GPS system that can report the amount of livestock movement during the day to the automation system. To control the amount of food consumed by the livestock, the water and food bowl is equipped with an RFID Reader, and when the livestock approaches the water container and food container, a certain amount of food is given to the livestock according to the code and the food and water remaining in the livestock's container after use is removed from the container and stored in a separate tank and returned to the cycle after being disinfected. Also, a scale is placed next to the food container to measure the weight of the livestock. All systems and information are connected to a central computer, and all feeding information, the amount of water consumed, the weight and the amount of movement of the livestock are stored in that computer that the rancher or veterinarian can dynamically control the livestock's diet or health according to the recorded information.
IR.24.	
Inventors	Selina Shafiee, Fatemeh Aboutalebi, Mozhdeh Shahmoradi
Invention	A table for painting and playing on water with a multicolor-water pen (PADOW)
Institution	

Abstract

The development of motor skills and control of objects in kids and teenagers is under influence of genetics environment and doing homework. Basic motor skills are a sensitive period of children's motor development that forms the basis of all motor skills in the later stages of life.
Considering that skill is said to be an ability that has been acquired as a result of education, foundation also means basis or groundwork.
Therefore, all the specialized motor skills and sports skills that we acquire later are built on these skills or in other words basic motor skills are the fundamental tools that sports skills are implemented with a combination of these tools.
The lack of attractive and suitable traditional games has caused an increasing expansion of computer games among kids and teenagers.
Studies have shown that computer games have a negative relationship with the mental health of teenagers and a direct effect on the amount of aggressive behaviors, anxiety, depression, seclusion and isolation in teenagers who play these games.
Therefore, it is necessary to produce works in the field of physical gaming to reduce the problems considered at the level of kids and teenagers.

In this design, drawing of hand painting and the creation of special effects to the drawn shapes in the water bed causes the acquisition of motor skills and control of objects with the help of special effects. Creating an attractive atmosphere with increasing pleasure, setting up and dominant feeling in this game will have an impacting role in the direction of the growth and development of motor skills and control of objects in kids and teenagers.

IR.25.

Inventors Dina Ahmadi, Melina Nouri Lenjan Nookabadi, Negar Nazemi, Farnaz Yaseliani, Maryam Khamesipour, Atefeh Rafati

Invention AMP HAIR BRUSH) amplifier hair brush)

Institution

Abstract

A high percentage of the world's population has problems and diseases related to hair, such as hair loss, frizz, thin hair, etc. Some care about these problems and take steps to solve them. However, it is difficult and expensive to carry out successive treatment steps, and it is impossible and exhausting to do all the treatment steps.

solution:

Brush design and construction prevent the flow of static electricity with standard materials, thus preventing frizz. By using two tanks that are placed behind the brush, the material reaches the head in two ways.

The first method requires strengthening materials for the hair shaft. The material is sprayed on the hair shaft by the nozzles at the bottom of the brush.

In the second method, the suitable solution for hair roots reaches the roots through the rollers in the bristle's head.

IR.26.

Inventors	Niloofar Jabbari
Invention	The automatic ergonomic cool-preserving tourniquet
Institution	ANIA association
Abstract	Tourniquets are often used to stop arterial bleeding and severe tissue destruction in accidents. They are used as the final method to stop bleeding, due to reduction or stop in blood circulation in the injured organ which causes cyanosis, coagulative necrosis and finally leads to the organ paralysis or failure and provokes the Embolism or Edema. Regarding this, activities like cooling the organ, during the time of decrease in circulation in the injured organ, causes reduction in metabolism demand and avoids dangers like cyanosis, coagulative necrosis and organ failure. The automatic ergonomic cool-preserving tourniquet is a device used to stop bleeding by its organ cooling character to avoid tissues and nerves damages, in addition, to stop bleeding by reducing the temperature of the injured organ, it minimizes dangers caused by acute limb ischemia and Anoxia. As long as the bleeding control is very essential in the first minutes, this device contains a belt which is automatically fastened around the injured area without any paramedics' help and in the shortest time, it will result in an intended pressure on the main arteries and then the cooling system will be activated to avoid tissue destruction while the GPS will be turned on and the warning will be simultaneously sent to the S.O.S center.

IR.27.

Inventors	Ghazal Rahimi, Nastaran Momeni, Rozana falahati, Seyedeh Niloufar Ghaziasgar
Invention	Multi directional shoes equipped to viberator with speaker (MetaShoes)
Institution	

Abstract	Today the world is seeking advancement to balance innovation for development and create new and practical tools. In order to evoke emotions in VR (virtual Reality) there is a schema that is purposefully focused on this limited space; simply put, it seeks to eliminate its defects. Creativity serves to express an idea while innovation seeks to solve an issue. In a nutshell, one of the domain schemas is introducing the VR treadmill that would be able to keep your slippery shoes and belts in its own place. It won't be so practical due to its heaviness, having trouble in movement, high prices, and also taking up so much space. Investigators are intending to give a more economical plan to solve an issue which does not contain treadmill problems for the purpose of transferring the reality sensation clearer and vividly, making the users feel they are immersed in their surroundings. This innovation is a kind of shoes that be replaced by treadmill, containing Omni wheels (spins) twisting in any direction. A kind of speaker is designed to simulation/emulate the sounds, spring and damper and a vibrator to transfer the better feeling to everyone to be more applicable. The application of this creative idea is more than a game which is exploiting the benefit for body builders and athletes. To sum up, it is considered to be used in a variety of VR environments, Metaverse, and holographic.

IR.28.	
Inventors	Hajar Sadeghi, Alireza Salmani, Mostafa Fakhar, Yazdan Shabani, Erfan Yavari, Alireza Ghaber
Invention	Multifunctional Device (Oxygen Therapy, Cryotherapy, Heat Therapy, Ozone therapy and Electro stimulation) With the ability to measurement of Temperature, PH and Topical moisture of the wound and remote control
Institution	University of Social Welfare and Rehabilitation Sciences
Abstract	The wound is defined as a lesion and failure on the surface of the skin caused by physical or thermal injuries. The wounds require medical treatment. Human wound healing occurs with a completely complex mechanism. Currently, various methods and treatments are used to heal the wound. Have their own benefits and disadvantages. one of the important challenges that has always been the cure of a variety of wounds is the time consuming process of wound healing and counteracting various bacterial infections. achieving goals such as speed in the process of wound healing, preventing infiltration of bacteria and pathogens, preventing subsequent complications and problems such as scarring, is one of the most basic needs of patients exposure various wounds. Unfortunately, the number of patients with diabetes is rapidly increasing worldwide, and a large percentage of this population is expected to have diabetic ulcers. a large percentage of this population is expected to have diabetic ulcers. Diabetes wound is a common problem that is solved by many health care workers around the world. This invention has capabilities such as cryotherapy, thermotherapy, ozone therapy, Oxygen therapy and electrical stimulation as well as temperature monitor, pH, humidity and blood flow to the wound. Shows information and data on the screen. The therapist can use any system options to appropriate the patient's wound status. Wound specialists can carry this Device as a bag with themselves and provide the client with good quality care and treatment and to treat a variety of wounds including diabetic foot ulcers, pressure ulcers, arterial and venous ulcers. Because the economic, social and public health of these wounds is very important.

IR.29.	
Inventors	Kian Keshtkar
Invention	Pediatric wristband with the ability to measure heart rate, blood oxygen saturation (SO2), body temperature, respiration rate and sleep quality analyzer

Institution	
Abstract	One of the concerns of parents about their children is always the lack of information about their physical condition and location. Although it is not possible to protect a child from all accidents and diseases, certain precautions can be taken to reduce the risk of dangerous diseases or accidents. Moreover, the situation of children in each country provides a comprehensive assessment of the current state of child survival and health care for mothers, children, and infants. These issues are at the heart of human progress and can be utilized as a scale to measure the level of development and prosperity of each country as well as evidence to indicate the priorities and values in each society. Consequently, given the importance of children's health, we decided to provide information about health issues such as fever, blood oxygen saturation, heart rate, respiration rate, and sleep quality which are controlled by a wristband that benefits from sensors, and then signals the data through an application to parents. This wristband is made from an anti-allergic structure that is placed on the wrist and index finger. Given that knowing the amount of oxygen saturation in the blood and fever is very important, particularly for individuals with underlying diseases; therefore, its accurate measurement is of special importance. Therefore, with this wristband, the child regularly controls these conditions and informs the parents through the application if the changes are more than the allowable limit. For all the mentioned conditions and applications of this wristband, normal values have been designed based on international standards in the Application, and if the amount of changes is more than normal, it will inform the parents with an alarm through the application.
IR.30.	
Inventors	Zahra Noorbakhsh, Sara Raad
Invention	A dedicated platform for communicating between business owners and customers using Metaverse technology

Institution	Esfand
Abstract	It has been eight years since we started working in the field of producing clothes, bags, shoes, gold, and jewelry. It has always been one of our primary concerns to procure our products with good quality raw materials without intermediaries at the best price; as a result of this, we have had to travel to cities and countries near and far to procure each item (which has been a challenging task to accomplish). The risks of travel, high costs, and in the last two years, the spread of covid-19 made this route more complicated; the other issue in this matter was; that if we did not want to take the risk of travel, we should have ordered without knowing the place that was introduced to us, and when we got the raw materials, it was not what we asked for. No one would have answered us. In some cases, later, we realized that there was a place with a better price or a better material. Finding the right craftsman to do some exquisite work has also been complicated, so we founded an idea that makes this challenging path very easy. We designed a platform where all those with raw materials, producers, and artisans of handicrafts can register worldwide. Suppose the raw material sellers of their raw materials and the artisans of their profession establish a virtual tour in the metaverse space. In that case, all producers can easily see and communicate with the desired seller, craftsman, and their chosen material. The good thing about this is that the two parties can easily find each other wherever they are in the world without having to endure the pain and risk of travel. The next advantage is that sellers without mediators and brokers can attract the best buyers worldwide, and artisans can easily present their work. This whole risky and high-margin process takes place with just one platform and one trip in the virtual world. The platform's space is such that upon entering into it, the steps are as follows: 1. Choose your language. 2. Enter the contact number and the country's international code, email, website, or address on virtual networks. 3. Specify your line of work and in which branch of the industry this activity of yours falls. 4. Specify whether you are a manufacturer, brand owner, or miscellaneous 5. Enter the type of your profession completely 6. You will be taken to your page, where you can enter your portfolio and provide links to Metaverse tours. In addition, this platform's attractive section invites manufacturers, wholesalers, sellers, and brand owners to join the sustainable fashion campaign and recycle outdated products, trends, fashion, and seasons. Recycling and remanufacturing, this section guides them in the registration and delivery process to the relevant companies; people in return for this service will include valuable discounts for repurchases from raw material suppliers or manufacturers.

IR.31.	
Inventors	Sahar Eshaqpour, Arina Hedayati, Amirhossein Ghazanfari, Amirmohammad Ghazanfari, Mohammad Javad Sharifi
Invention	Cancer Cells Mapper (Cancer Treatment)

Institution	Shahid Ahmad Hojjati Research Institute
Abstract	At first, this plan moves towards the cancerous tissue or cell with the help of the pathfinder placed on the surface of the carbon fiber and using the map created from the molecular vector image that is used to identify and differentiate the cancerous tissue from other tissues. and identifies it. In the continuation of this plan, with the ability to carry the drug and identify the target by the path or placed in the carbon nanotube and the path to the location of the drug on the surface of the target (cancerous) tissue, it causes intercellular cancer cells and treatment. cause cancer It is clear and significant: · high drug absorption and high efficacy · low-cost treatment compared to current methods · Short duration of treatment · Reduction of side effects or elimination of side effects after adjacent treatment · Response to all types of cancer · Very low error percentage · an alternative for tissue, cell or tumor detection devices such as MRI, CT scan, sonography, etc. · Easy treatment compared to existing methods such as chemotherapy, etc. In general, it can be said that this project identifies and differentiates cancerous tissue in the early stages with the help of the pathfinder on the surface of nano carbon gas, and then destroys it without harming the tissues and organs of the body, and then proceeds to immunization. The environment and the body do this immunization depends on the drug that is loaded on the surface of the carbon nanotube and helps the immunity of the environment when it leaves the body after the transmission of the disease.

IR.32.	
Inventors	Amirhossein Payandeh , Saman Keyvannia , Amin Faraji, Ali Shirmohammadi, Ali Ahmadi, Zohreh Sarrafizadeh Forootan
Invention	Magic Carpet (Drones as Virtual Tourists)

Institution	University of Tehran
Abstract	Coronavirus stopped tourism activities for a while, but we must note that Coronavirus is not the only obstacle and limitation of travel! Restrictions such as access to tourist destinations, time, cost, health, etc., can always exist in the way of tourists; in the meantime, virtual tourism can be presented as the best complement to traditional tourism. Using drones in the virtual tourism industry with applications such as online and offline filming of natural, historical, and recreational places and presenting these videos with a combination of environmental effects, including cold, heat, wind, and the specific scent of each environment and also, using the 8D sound technique in a platform can be presented as one of the new options to overcome the limitations of traditional tourism. And by involving different human senses, reduce the distance between reality and the virtual world as much as possible. Virtual tourism is a new model whose purpose is to reduce limitations by simulating the maximum of real recreational places in the virtual space by involving the maximum of different human senses in addition to the sense of sight, including the importance of touch, smell, and multidimensional hearing. In this operational research, presenting a new conceptual model in the approach of virtual tourism with the title "Dynamic Virtual Tourism," the introduction and application of new technologies such as drones are discussed to provide an utterly live way to visit tourist places that can sometimes be very difficult and expensive to access. In a practical example in Ebrahim Khan Castle of Najafabad, Isfahan, a model drone (MAVIC PRO) was used to fly in the target location. Its video was sent online to local stations with the help of a direct broadcast link on the Internet. In a realistic scenario, live images were made available to the virtual tourist hundreds of kilometres away from the target location with the help of virtual reality cameras. In this method, the bird, by settling in one of the five local stations around the castle, flew between the stations intelligently and without human intervention, and the tourist, who was far from The Castle, could only speed on the path between the stations. Move and control “the virtual eye.” The world will be filled with drones instead of crowds of people on the ground. People will use virtual reality to travel with drones and around the world while sitting in the comfort of their homes. The world is no longer afraid of viral infections because virtual tourism is predicted to become more popular thanks to innovative developments in drones and UAVs. The world will be completely available virtually in real-time. Most people are accustomed to using Google Maps, pre-recorded images, and videos to navigate their environment. The 360-degree views these video programs provide are stunning compared to decades ago and provide a higher level of immersion for the user than ever before. In addition, the addition of narrative tours in which explanations are given about the place of visit (by the speaker) along with animation and background music with 8-D sounding technique and special environmental effects for each environment can be a more realistic and enjoyable experience for the virtual tour.

IR.33.	
Inventors	Saman Keyvannia, Amirhossein Payandeh, Mohammad Mirehei , Sayed Mohammad Ali Najafi, Mostafa Raftari, Mahboubeh Javadikia
Invention	Time Travel through Metaverse Tourism

Institution	University of Tehran
Abstract	Time travel has been a long-standing dream of humanity. People's desire to experience being in the past has caused this topic to be the subject of many sciences' fiction stories since the 19th century. They have always tried to fulfill this wish by relying on the laws of physics (theories such as the time paradox in special relativity and the time paradox of gravity in general relativity), but the scientific facilities and infrastructure have been unsuccessful in this field until now. Considering the limitations of the possibilities and physical laws of the real world, perhaps this wish can be achieved through Metaverse Tourism because the metaverse is a world made of data. In other words, the use of various sources from the past and the use of multiple sciences such as history, archeology, anthropology, astronomy, etc., to reconstruct history in different dimensions in the created world of the metaverse, the possibility of traveling to past events, the places of those events, and coexistence with it makes people realize in previous contexts and times. In this way, people can experience life in destroyed places and cities, the first human or extinct animal species, and areas that cannot be visited due to political reasons, radioactive pollution, sinking underwater, etc. On the other hand, we know that neither historical reading sources nor watching historical films and documentaries will be as effective as the human's face-to-face encounter with the history of the world in his understanding of the world process and, as a result, the advancement of science and knowledge. In addition to being a unique trip, such an event also has an educational aspect. In other words, the experience of being in the past is very practical for a better understanding of the history of the world we live in, the changes it has undergone, and even predicting the future of the world or planning for the future of humanity based on the deep understanding of time travel. The cultural value of immersive experiences of historical events exceeds the insights gained through an in-person trip to the remains and landmarks. What makes it different from watching a YouTube video is that you will feel that you are actually in the scenarios, which allows you to experience a series of emotions.
IR.34.	
Inventors	Mohammad Barati, Mohammad Amin Alavian, Mehrshad Nemati, Sayed Arian Ayat, Ali Imanian
Invention	The Seemon Open-Source Ultrasound Imaging Dev-kit
Institution	Seemon Tech
Abstract	This project is born from a fork the echOpen project (which aims at providing a low cost, open-source ultrasound tool for doctors), with a specific target of providing a technological kit to allow scientists, academics, hackers, makers or OSH fans to hack their way to ultrasound imaging.
IR.35.	
Inventors	Karin Ghasemi
Invention	Microchip Technology
Institution	Osveh High School
Abstract	A microchip (also called a chip, a computer chip, an integrated circuit or IC) is a set of electronic circuits on a small flat piece of silicon. On the chip, transistors act as miniature electrical switches that can turn a current on or off
IR.36.	

Inventors	Parham Mansouri , Ghazal Rafiei, Tina Javadi, Faraz Yaseliani
Invention	Useful alzheimer App for Seniors
Institution	
Abstract	Disease manifestation appearance in late - onset Alzheimer patients is in their mid - 60's and in early - onset patients is between their 30's - 60's . It causes memory deterioration , destroys thinking skills and gradually the patient will be unable to carry out even the simplest tasks . considering this , it's necessary to slow down the disease process. All we wanted to achieve was to project out an application which analyzes the current state's data and plans a personalized progress, it also helps to do tasks easier by reminding what is written in the app by patient. Doing specific exercises, having better sleep routine and diet by this application are other benefits.

Indonesia

ID.1.	
Inventors	Hanifah Rusydah, Ahmad Chandra Jaya, Fadilla Zahra Nasution, Ni Kadek Suwardani, Bunga Yustira Dongoran, Endang
Invention	Use of Rubber Seeds-Based Vealen Oil (*Hevea brasiliensis*) and Sunflower Seed Extract (*Heliantus annuus L.*) as Ingredients for Cooking Oil
Institution	Universitas Negeri Medan
Abstract	The rubber plant (*Hevea brasiliensis*) comes from the Amazon river basin, South America, precisely in Brazil. Rubber plants are one of the natural vegetable resources that are spread almost throughout Indonesia and began to be developed in 1876. Parts of the rubber plant include roots, stems, leaves, flowers, fruits, and seeds. In fact, many people do not know the benefit of rubber seeds and are considered to have no economic value. From several sources who have conducted research, rubber seeds have a high vegetable oil content, which is around 45,6%. This high oil content can be processed into cooking oil that has a selling value. In addition, pe 100 grams of rubber seeds contain 15,9% carbohydrates; 27% protein; fat 32,3%, ash 3,96%. In addition, the mineral content one gram of rubber seed flesh contains 0,85 mg Ca; 0,01 Fe and 9,29 mg Mg, 17,58% crude fiber and 2707.53 Kcal/kg metabolic energy which can supply the nutritional needs of consumers. Thus, it can be concluded that the seeds of the rubber plant can be processed into cooking oil.

ID.2.	
Inventors	Zaenab Amatillah Rodhiyya, Hurin Nabila, Sarah Nabilla Diwanti
Invention	Guidebook of Social Presence Implementation to Support Blended Learning Process
Institution	Ahmad Dahlan University

Abstract The Covid-19 pandemic has an impact on all sectors of human life, including education aspect. In Indonesia, online learning policy is implemented as an effort to reduce virus transmission. However, the change in learning model from face-to-face learning to online learning causes learning loss problems. This resulted in students not being actively involved in the learning process, learning motivation decreased, and students did not understand the material presented. Social presence is an aspect that needs to be applied in learning process to improve interaction between teachers and students so that learning runs more optimally. Social presence focuses on teacher's abilities and skills in building pleasant atmosphere and presenting himself during the teaching and learning process. However, in Indonesia there are not many teachers who have an understanding of social presence. The authors use literature review method, Research and Development with a 4D model (Define, Design, Development, and Dissemination) and SWOT analysis. This paper aims to carry out social presence concept into a guidebook for teachers that can provide knowledge and steps to apply social presence in blended learning model. It also provides direction in the form of aspects teachers need to pay attention to, including the role of teacher during social presence implementation in learning process and learning media recommendation. By implementing social presence in learning process, indirectly, teachers can improve student learning outcomes because student learning motivation can increase with high intensity of interactions between teachers and students as well as interactions between students and other students.

Japan

JP.1.

Inventors Itonaga Shigenori, Oonishi Hisatsune

Invention Able to disengage the phone from the chest support of both hands

Institution CAT Family kabushikigaisha

Abstract Mobile phones are already inseparable communication tools in people's lives, and they are widely used in navigation and intercom. Generally, they need to be held by hand. It is difficult to use without hands, and people sometimes need to operate with both hands in life and work. The invention can stand the mobile phone in front of the eyes, and can work normally when the mobile phone is separated from both hands. The invention uses two rubber bands to fix the opened mobile phone holder on the chest, and then the mobile phone is mounted on the mobile phone holder to work. Even when a person is running, the bicycle does not shake when it is shaken, and it can be folded into when not in use. The palm is large to fit in a bag or pocket.

JP.2.

Inventors Yukishita Mitsugoro, Tsugahara Asato, Sakaizawa Iwakichi

Invention Efficient clothes dryer using multi-point balanced heat exchange principle

Institution KOCPC kabushikigaisha

Abstract	Clothes dryers are now entering the home more and more. Its principle is to use electric heating elements to make wet pants close to 100 ° C. Evaporate the water into water vapor and discharge it outside the machine. Such a large amount of heat is lost as the hot gas is discharged. The invention adopts the principle of multi-point balanced heat exchange, which can use the thermal energy in the discharged hot waste moisture to heat the fresh cold and dry air that has just entered the electric dryer, and turn it into a hot and dry gas at 60 ° C to 80 ° C, which is equivalent to discharging The thermal energy in the exhaust gas is recovered, and it is sufficient to use the electric heater to heat only the original 20-30% of the thermal energy, which is an efficient energy-saving electric heating equipment.
JP.3.	
Inventors	Kakehi Kensuke, Hishikawa Koyou, Oshaka Toyomitsu
Invention	Electric fan capable of making the fan blow out cold and warm air
Institution	Hinata OYA kabushikigaisha
Abstract	Electric fan is the main tool for people to cool down in summer. It is used to generate airflow and use convection to evaporate human sweat to cool down, but it will not reduce the temperature of the air. Air conditioner because its evaporator will absorb heat, so the wind blows out It will be lower than the surrounding temperature, and it will really achieve the cooling effect. The invention is a ring-shaped perforated plate capable of lowering and raising the temperature. As long as it is installed on the fan blades of the fan, the wind blown out by the electric fan will be blown out by two kinds of wind. Hot air is emitted to the surrounding area, which can continuously blow cold air to the human body.
JP.4.	
Inventors	Eko Reon, Takasugi Aoshi
Invention	High-efficiency heat pump capable of warming medium temperature to boiling
Institution	Fujihira kabushikigaisha
Abstract	Huge geothermal resources. It has a temperature of more than 200 degrees in the underground rocks that are several kilometers deep. As long as the air is sucked into the ground, nearly two hundred degrees of hot air will blow out. Water vapour spurted. The present invention is a device specifically for generating electricity from these hot gases.
JP.5.	
Inventors	Itonaga Shigenori, Shigemoto Ayahiko, Masubuchi Tomoyori
Invention	Hummingbird transmitting wirelessly
Institution	CAT Family kabushikigaisha
Abstract	This is a toy that embodies the principle of wireless transmission of electrical energy. When the turntable is rotated by a motor, the bird model on the other end is shaken by the vibration of the steel wire as the bird flies. The present invention has two aspects: 1. A wireless energy transmission type, which is a connected coil, which can absorb electromagnetic wave energy and rectify it into a direct current to rotate the motor after being rectified by a diode. 2. Change to head-mounted style. If you use rubber bands to put it on children's heads, it will make hummingbirds or butterflies fly around their heads, which is more interesting.
JP.6.	

Inventors	Itonaga Shigenori, Oonishi Hisatsune
Invention	Indoor plant multi-convex reflector
Institution	CAT Family kabushikigaisha
Abstract	Nowadays, indoor and balcony planting of ornamental and edible plants is becoming more and more popular. One of the major contradictions is the lack of light, especially hi-yang plants. The present invention is a movable, adjustable angle screen-type multi-convex reflector It can reflect sunlight to plants to increase its illuminance, and can also be used to improve indoor lighting.
JP.7.	
Inventors	Kakehi Kensuke, Hishikawa Koyou, Oshaka Toyomitsu, Ii Ritsuki
Invention	Portable solar hot water tank
Institution	Hinata OYA kabushikigaisha
Abstract	It is said that solar water heaters are installed on the roof to introduce hot water pipes into the house. The disadvantage is that it requires professional installation and maintenance, and the heat loss is large. The invention is a bag type solar water heater. After purchase, it only needs to be filled with cold water and placed in the sun for half an hour to release hot water at about 70 ° C. Since it does not need to be installed and maintained, it can be put in the trunk of a car. It can be carried with one person, especially in the field. Because a soft plastic tube is used as the heat absorption tube, the welding seam can be omitted, and the production cost is greatly reduced.
JP.8.	
Inventors	Ichiji Sachie, Daiei Atsuji, Nishu Fuuto
Invention	Rainwater cooling collection device for shed
Institution	Pazayaori kabushikigaisha
Abstract	For construction projects with a long construction period, short-term residential shacks or houses built with concrete are generally built. On a hot summer day, the sun's radiant energy penetrates into the house through the roof, resulting in a higher temperature in the house, which requires a corresponding cooling device. The rainwater cooling and collecting device of the shed is used to solve the high temperature inside the house, reduce the temperature of the shed, and enable the workers to work and live in a better environment. It includes water storage tank, water storage tank, filter screen, solenoid valve and control box. A filter screen is fixed in the water storage tank for filtering impurities in rainwater. The rainwater is collected in a storage tank after filtering. The solenoid valve is arranged on the side of the water storage tank, and a control box is also provided; a liquid level sensor is arranged on the inner surface of the water storage tank. When the liquid level in the water storage tank is lower than the height of the liquid level sensor, the sensor sends a signal to control the solenoid valve to open, so that the rainwater collected in the water storage tank enters the water storage tank. When the liquid level rises to the height of the liquid level sensor, the solenoid valve is closed to stop the water supply, and intelligent water replenishment in the water storage tank is realized. To ensure that the roof always has water to cool down. At the same time, it is also equipped with a remote control solenoid valve switch, which can realize manual water replenishment or water discharge.
JP.9.	

Inventors	Sasa Kensuke, Hishikawa Koyou, Oshaka Toyomitsu
Invention	Reclining chair that reduces mortality in crashes
Institution	Hinata Fuku kabushikigaisha
Abstract	Source topics: With the widespread use of automobiles, the incidence of traffic accidents remains high, and accidents in vehicles account for a large proportion, with a higher proportion of head-to-brain deaths, so how to reduce brain damage during impacts is particularly important. Second, the principle: 1. When a person is standing or sitting, the square cross-sectional area is very large. Once lying back, the front cross-sectional area will be reduced several times, and the probability of impact resistance and foreign objects hitting the mind will be reduced by dozens of times. The key to solving the above problems is to be able to lie back quickly when an accident occurs. 2. Inertia method: (1) If the upper part of the back of the chair in the car is connected to the bracket only with pins, it is normally used. (2) Once the car is braked by the impact, the seat and the person will move forward quickly due to inertia. As the pin pulls the chair, the chair and the person will swing their feet upwards and lie flat, with their heads facing backwards, will To reduce the probability of head injury. as shown in picture 2. 3. Leverage method: When the car bumps, the front bumper first collides with foreign objects. At this time, there is a huge force to move work in the opposite direction of the car, so that the safety frame is moved backward. The principle of the shaft and lever is to move the seat forward.
JP.10.	
Inventors	Itonaga Shigenori, Oonishi Hisatsune, Masubuchi Tomoyori
Invention	Yin Yang Cup design
Institution	CAT Family kabushikigaisha
Abstract	This is a kind of beverage that can heat and cool at the same time and even freeze. This improves the quality and fun of the diet. It uses the characteristics of the semiconductor refrigeration sheet to transfer the thermal energy from one side to the other after the power is applied, so that one container is heated and the other container is cooled.

South Korea

KR.1.	
Inventors	Cho, Dae Hyun
Invention	Ventilated Breast Pad for Women Having Breast Eczema
Institution	Ajou University
Abstract	Creating a breathable vent on the center console chest pad so that air is circulating. This gives alleviate the suffering of women who suffer from skin diseases, and to ensure that occupies the moisture will prevent dermatitis worse.

KR.2.	
Inventors	Lee, Myeong Geun
Invention	Development of New Satellite System Using Drones
Institution	Sejong High School
Abstract	Study how to solve the problem through the drone of the current satellites, drones is how to use the HEX format used kopteo six motor to Flying over the place, as drones satellites.

KR.3.	
Inventors	Um, Ki Hwan
Invention	Air filter Mask
Institution	Kongju National University
Abstract	This mask was made was able to be easily removable filters for filter cleaning and replacement, by applying a spatial filter technology to enable sufficient supply of oxygen and airflow. This mask will solve the inconvenience of existing masks,

Macao

MO.1.	
Inventors	Pou-Cheng WONG, Chi-Kit WONG, Hei-Lok FENG, Wai-Ian LEONG, Ka-U HUANG
Invention	A Rotor Fault Detection System Based on Nonlinear and Dynamic Response
Institution	Lou Hau High School, Macao, China

Abstract	Electric motors are essential to modern-day life, safe operation of the electric motor is therefore vital to their operators. Studies on the fault of the electric motor, diagnosis accurately, and maintenance of all kinds of faults have high practical values, especially with the proliferation of electric vehicles and wind power. The winding rotor, in particular, is the core component of the motor, and its short-circuit fault is one of the primary modes of failure that seriously affects the performance of the motor. More importantly, the safety of the users is the biggest concern. Therefore, this research aims to develop a comprehensive electromagnetic induction-based inspection system that accurately diagnoses electric rotor faults and quality in production and maintenance environments. Accurate diagnosis of motor rotor faults and suppression of noise/interference will be achieved to the greatest extent in this research. The developed system begins with the excitation of the rotor using a timevary magnetic field, which generates an electromagnetic response when there is rotor failure or quality issue. And in turn, the response is converted into an acoustic signal that would be processed for fault detection, as evidenced by the four key outcomes listed below, (1) Electromagnetic generator is constructed to excite the inter-turn of the rotor windings. (2) Electromagnetic probe amplifies the winding inter-turn fault by mechanical vibration. (3) The acoustic level sensor collects the probe's rotor fault vibration signal. (4) EEMD method is used as auxiliary analysis in conjunction with a DSP chip to improve the qualify of the fault signals extraction.

MO.2.

Inventors	Sio Kei Chon
Invention	An Interaction Method about Controlling the Wheelchair by Gaze Tracking
Institution	Pui Ching Middle School Macau
Abstract	Wheelchairs have always been an important means of transportation for the physically challenged. According to the World Health Organization statistics, about 78 million of the population need to use wheelchairs. This invention was conducted on some severely paralyzed wheelchair users, some of whom can only manipulate their fingers and eyes, which may include patients with ALS (amyotrophic lateral sclerosis), acute Spinal cord injury patients, etc. This invention hopes to create a wheelchair for these patients that they can use so that they can achieve freedom.

MO.3.

Inventors	Kong Ut Chio, MengIp Liu, Huang Tong Seng, KengHang Tang, Wong Tan I
Invention	Research Based on the Impact of Formaldehyde on Home Furnishings
Institution	Macau Pui Ching Middle School
Abstract	As one of the most commonly used industrial chemicals, formaldehyde is an important material for many indoor wood products, buildings, and furniture. However, formaldehyde is damaging to the human body. It damages the human body's nervous system, and even increases the risk of getting cancer. Therefore, we decided to build a model to test the formaldehyde content with different environmental factors and use the best solution to maintain it at a safe level.

MO.4.

Inventors	He In Lam, Zeng Yizi, Yang Jingchun, Cai Shunying
Invention	Portable Intelligent Temperature Control Protective Clothing
Institution	Houkong Middle School
Abstract	

MO.5.	
Inventors	Kwan Tin Weng, Lei Wai In,Ho Ka Chai, Lei Chon Hin, Lam Hoi Tou, Zeng Ho Wun, Lei Hou Long
Invention	An Augmented Reality Education System Based on Establishing the Development of Spatial Cognition Using the Cartesian Coordinate System and Geometric Transformation
Institution	Yuet Wah College, Macau
Abstract	According to Carpenter & Moser, most college students fail to learn coordinates. Based on the Constructivism Learning Theory and the features of AR technology – loosening venues restrictions and higher motivations, we created an AR education system for the Cartesian coordinates and geometric transformation. The instructions are as follows. 1. Coordinates and points: Set a point as the origin of the coordinate system, then reach the given target point shown on the panel at the top right corner. 2. Graph sketching: The user will notice the equation of the curve on the top-right panel. Then, calculate and plot each point on the coordinate plane. After locating 5 cursors, the user starts to "draw" the curve by moving along the correct pathway. 3. Geometric Transformation: Having observed the structure of parabola drawn in second section, the user needs to find out the corresponding coordinates for the reflection, and consider his feet as a pencil, to complete the reflection. This project is to help students overcome the difficulties in learning mathematics. With the assistance of AR technology, students can experience different learning processes, so as to construct new knowledge.

Malaysia

MY.1.	
Inventors	Najidah Humairah Mohd Najmuddin, Najihah Humairah Mohd Najmuddin, Mohd Najmuilmi Hakim Mohd Najmuddin, Nur Hakeema Yusran
Invention	A novel Bio based Cat Litter (CATLIT)

Institution	Sena Primary School, Kangar, Perlis, Malaysia
Abstract	Bio -CATLIT is an alternative solution for pet parents who are looking for planet-, pet-, and people-friendly cat litters. It's made from recycle substances and natural ingredients, therefore there's no concern about open mining or silica dust health hazard risk rising from the conventional clay and silica based litters,
MY.2.	
Inventors	Dato' Mohd Khairey Bin Saudi
Invention	Niecoziro
Institution	DMK Herbs Sdn Bhd
Abstract	NIECOZIRO is a stop smoking aid in Tablet Form. Its contain Organic and Natural materials such as mint leaves as an addiction suppressant has been traditional yet illusive concoction in rural Malaysia. Successfully quitting smoking can help you feel great & feel healthy all the time.
MY.3.	
Inventors	Hirwan Jasbir Jaafar, Siti Norrafidah Md Zin, Zul Azhar Zahid Jamal, Kamarudin Hussin, Abdul Hafiz Karim, Mauwal Mohamed, Mohammad Jabbar Tariq Alizul Pakar, Nurhuda Yahya, Sharifah Sabrina Syed Mustafa, Hasnah Harun, Jasmi Ezmeer Jamal
Invention	MODULE PERLIS
Institution	Institute of Strategic Research Unit, Leadership & Community , Univerasity Of Malaysia Perlis
Abstract	This module is designed to attract and help students about innovation itself. This module apply theoretical & practical methods to give an exposure of what its innovation about. This module also require to produce a product and then spread it in front of all students an teachers.
MY.4.	
Inventors	NUR ADLIN BINTI SAAD, NUR FAZLINA BINTI MD RADZI, QISTINA AULIEYA BINTI NASRI, NURUL DAHIYAH SYAMIMI BINTI NOORDEN, MUHAMMAD AFIINY BIN ZULKAFLI, RIDZUAN BIN HASHIM
Invention	POMELO FOAM PLATE (Safe Disposable Food Container)
Institution	KUBANG PASU SCIENCE SCHOOL, KEDAH MALAYSIA.
Abstract	Pomelo foam plate can reduce environmental pollution and safe for human. With this,it is clear that our product *POMELO FOAM PLATE* is able to overcome the risk of Polystyrene consumption.This will also increase the environmental conservation besides improving safety of all people.
MY.5.	

Inventors	MUHAMMAD AFIINY BIN ZULKAFLI, MUHAMMAD SYAKIRIN BIN AHMAD SABRI, NUR ADLIN BINTI SAAD, NUR FAZLINA BINTI MD RADZI, NURUL DAHIYAH SYAMIMI BINTI NOORDEN, VIKNESWARAN A/L CHANDRAN
Invention	"Newton's Road"
Institution	KUBANG PASU SCIENCE SCHOOL, KEDAH MALAYSIA.
Abstract	"Newton's Road", an idea of implementing piezoelectricity on the road system. With this, we can generate electricity everytime a vehicle passes by. The electricity produced will be channelled to the power storage to be used when it is needed, or even during night times.
MY.6.	
Inventors	SALLEH ISMAIL, NOOR AZIZAH MAT HASSAN, SURAYA SHABINGIN, NORZAINA ZAINALABIDIN, DAHLIZA KAMAT, MOHD SHAHRIL MOHD SALLEH,AHMAD IKHWAN MOHD AZALI, MUHANMMAD SYAFIQ MAJID,NUR HANNAH ANWAR, NURUL HUSNA ALI, MUHAMMAD AZHAD MOHD ZAID, MUHAMMAD IHSAN FATHI ABD RAHMAN
Invention	CACO TILES
Institution	SBP INTEGRASI GOMBAK
Abstract	CaCOtiles is defined as a tile made from reusable materials which are egg shells.Throughout the experiments we tested on these CaCOtiles, we found that these egg shell tiles are water resistant, have strength up to 4.67Kn, pH 7, natural and can withstand high temperature. Furthermore, it is also a stable and an un-complex process, just by collecting egg shells, completing it with the help of polyester and MEKP and there you have your very own homemade egg shell tiles.
MY.7.	
Inventors	LISNEZA BINTI ROSELI, NUR AZLINA BINTI MOHAMAD, MUHAMMAD NA'IM BIN MOHD HANIF, DAMIA ZULAIKHA BINTI MD ZARIN, MOHAMED IKHWAN ZARIF BIN WARDI, EDI ALIF ABSYAR BIN EDI HARYADIE
Invention	Anti-Gout Standardized Extract from *Baeckea Frustescens*
Institution	Sekolah Menengah Sains Hulu Selangor
Abstract	Phytochemical work-up on *Baeckea frustescens* (BF) have successfully isolated active compound that showed potential anti-gout properties by inhibiting xanthine oxidase enzyme activity where involved in the formation of uric acid that contributes to gout effect and develop anti-gout properties.
MY.8.	
Inventors	LISNEZA BINTI ROSELI, NUR AZLINA BINTI MOHAMAD, MUHAMMAD NA'IM BIN MOHD HANIF, NUREEN DAMIYA BT MOHD KHUZAIRI, MOHAMED IKHWAN ZARIF BIN WARDI, EDI ALIF ABSYAR BIN EDI HARYADIE
Invention	Biodegradable Nursery Poly Bag Made Of Ecology Waste
Institution	Sekolah Menengah Sains Hulu Selangor

Abstract	Biodegradable poly bag is a green alternative nursery polybag used for the farmer to plant plantlet. Biodegradable polybag can be broke down by microorganisms into water, carbon dioxide and some bio-material. The main substance for making the poly bag is egg shell, sugarcane bagasse and starch.
MY.9.	
Inventors	ILHAM FAHIM BIN ZULHAZMI, MOHAMAD IKRAM BIN ABBAS, MUHAMMAD HAIQAL BIN NOOR AZLEEN
Invention	Improvise F1 Car Rear Wing Design
Institution	Sekolah Menengah Sains Hulu Selangor
Abstract	The real F1 car has a big rear wing which works as a stand wing. It functions well but it gives too much air resistant. So, we improvised the rear wing of our car model inspired by an aeroplane's design by using the wing concept of a plane. This makes it faster and less turbulence created on the back.
MY.10.	
Inventors	Haikal Bin Azhar, Muhammad Akif B. Jamal
Invention	Hydro Cutter
Institution	SMK Dato' Sheikh Ahmad
Abstract	Scissors are considered as a dangerous item especially for primary school student. So our students came out with this idea the " Hydro Cutter" so that student will not endangered themselves anymore. he benefits of using Hydro Cutter are it is hassle free, because just small amount of energy required to use it.
MY.11.	
Inventors	Divendran a/l Chandran, Nicholas Ryan Surin, Sharwen a/l Santhirasegaran, Amirul Amnan b Md Ismail, Shatishwaran a/l Nageraja
Invention	Cryogenic Charger
Institution	Sekolah Menengah Kebangsaan Ibrahim, Kedah, Malaysia
Abstract	It is a device which cools your device even while it is charging. This special feature prevents your device battery from expanding whenever it is overcharged. Best of all it can be used with any type of phone.
MY.12.	
Inventors	Nik Amira Batrisyia Hazlan, Nur Amirah Sofea Saiful Anuar, Afiqah Farhani Ahmad Fuad
Invention	Cullex Repello
Institution	Kolej Tunku Kurshiah

Abstract	Cullex Repello, a pot that is capable of repelling mosquitoes. The demand on mosquito repellents has undoubtedly increased in conjunction to the Zika Virus and dengue fever issues. We proposed to come out with an eco-friendly mosquito repellant pot. Basically, we have added the aeroponic structure to our project. There are two components to this project; the base pot and the main pots. The base pot is attached to rubber tubes which will spray out an extract to the main pots (coir). The extract consists of citronella extract which are natural resources that are perfect for repelling mosquitoes. Compared to other types of mosquito repellents that have been commercialized, this project has lots of advantages. Other mosquito repellents are not as eco-friendly as ours. By means, this pot is important in saving the environment. Not only that but our Cullex Repello saves cost as well. With that, we are certain that this pot will make a change in the world.

MY.13.

Inventors	Mohamad Nor Amirul Bin Abdul Wahab, Nur Akilah Bt Mohd Yusoff, Nur Nadia Nasuha Binti Hishamuddin, Nor Faziatul Nadia Bt A.Rahim, Norrisalha Binti Mohamad Tahir
Invention	The Miracle of Alocasia Denudata
Institution	Kolej MARA Kulim
Abstract	Nowadays, we are exposed to injury especially minor injury and it is queit difficult to get doctor's inspection for those who are far from the hospital. People especially the children are the category who usually exposed to minor injury. Sometimes, minor injury can lead to infection if it is not treated carefully. In other scenario, some patient has a trauma of hospitals and doctors and they intend to treat the injury on their own rather than seeing the doctors. The research before had produced a product on how to cure the wound without stop bleeding and vice versa. Therefore our product, Rapid Cure Wound Mist can stop bleeding immediately after spray, giving cooling effect, cure the wound within 2 days and have good fragrance. An addition, this product also can help to reduce joint paint and headache/migraine. Alocasia denudata is the main ingredient for this mist which its latex can stop bleeding and cure wound rapidly without dark mark

MY.14.

Inventors	NUR ALLIA BINTI ASRI
Invention	SOLVEMANDA
Institution	KOLEJ MARA KULIM
Abstract	Consumption of paint solvents such as thinner to remove paint serve a severe impact to mankind if it is consumed continuously. *Allamanda Cathartica* sp. has the ability to remove paint. Compounds in the flowers was extracted using methanol. The mixture is filtered and distilled at temperature of 40ºC. The product undergone Thin Layer Chromatography (TLC) and Gas chromatography–mass spectrometry (GC-MS) to test the compound in the product and then tested on a painted surface. TLC test showed the compound is very polar. GC-MS highest graph which is 21.09 and 16.74 showed the abundant compound in the product containing 91% of cyclohexasiloxane dodecamethyl and 93% cycloheptasiloxane tetradecamethyl respectively. Based on the data obtained, it's proven that compound in *Allamanda Cathartica* sp. can remove paint. We hope, this product will give benefits to the upcoming generations.

MY.15.

Inventors	Muhammad Ali Zulhazim Bin Rosli
Invention	Natural Algicide To Combat Eutropication Of Water Bodies
Institution	Kolej Mara Kulim, Malaysia
Abstract	The evaluation of the algicide activity involved the clove, cinnamon and tea. The clove gave the highest algicide activity followed by cinnamon and tea. Besides, these natural algicides did not produce signifant changes in the pH and water turbidity.

MY.16.

Inventors	NURSYAZALISA LISA BINTI MOHD FAISAL, FATIN NAJIHAH BINTI EZAMIN, ZARAWAHIDA BINTI ZAKARIA, ABUZAR A.Z BIN AHMAD
Invention	BIOLOGICAL MOSQUITO CONTROLLER (BiMoC)
Institution	SK PUTRAJAYA PRESINT 11(1)
Abstract	The idea of creation of Biological Mosquito Controller (BiMoC) is produced when we found the rate of dengue fever in Putrajaya, Malaysia on the rise. As a result of discussions with members of the group, we agreed to create a product innovation to overcome the problems caused by mosquitoes and decreasing the problem of dengue fever. An aquarium that was previously only used as home decorations inspired to become an innovation to control mosquito breeding around your home. BiMoC is an innovation that has two functions, to control the breeding of mosquitoes in the larvae stage of biological control and serves as home furnishings (aquarium). Biological control agents used in this innovation is Guppy fish. Innovation is able to prevent mosquitoes from reproducing and increasing population. An adult female mosquitoes will find a watery and dark areas for mosquito breeding and also only have a lifespan of 30 to 90 days. This innovation is designed to provide a breeding ground for mosquitoes that provide a dark and watery for mosquitoes to breed or lay eggs. The mosquito eggs then will hatch into larvae. The larvae then moving and entering into the fish area and will be eaten by Guppy fish. This mosquito is not going to have a new generation and its population will decrease. BiMoC is a unique creation because it is simple, easy, effective and beautiful and has two functions at the same time.

MY.17.

Inventors	ZUL ASNAWI ZAIMAN, RAHMAD ZADA AHMAD KHAN, IZZ MUHAMMAD AL-ANWAR AWAK, KASDI KAMIN
Invention	GREEN PLASTER
Institution	SM SAINS LAHAD DATU

Abstract Wound healing is a process where our body is trying to protect ourselves by instructing platelets and certain growth factors to the area of incident. A complete wound healing process would take approximately two weeks until up to months depending on the area affected. Because of its slow tissue repairing nature, even after using wound plaster as extra reinforcement, it is wise to come up with a method on how we can improve and increase the rate of healing process. That is why an invention called Green Plaster is invented to overcome those problems arose from wound healing process. Green Plaster is naturally made from herbs such as Snake Grass Plant, *Pandanus* leaves, Lemongrass and Mint leaves. An additional *Gamat* extract is also used to increase the rate of wound healing. The purpose of Green Plaster invention is three-fold. First, it can act as first line of defense replacing the function of skin epidermis layer after being breached by a cut or bruise. Secondly it has herbs and *Gamat* extract that has proven to show some anti-bacterial, anti-cancerous, anti-inflammatory and help to boost body immune system. As a result, a faster and effective wound healing process is achieved. Finally, since it is made 100% from natural elements, it is biodegradable and environmentally safe. Further research is needed to investigate whether this product can be commercialized not only for domestic usage but for surgical purposes as well.

Moldova

MD.1.

Inventors Arîcu Aculina, Mangalagiu Ionel, Ciocârlan Alexandru, Lungu Lidia, Zbancioc Gheorgiță, Vornicu Nicoleta

Invention 1,12-Bis-p-tolyl-piridazonil-drim-5(6),8(9)-diene-7-one
with antifungal and antibacterial properties

Institution Academy of Sciences of Moldova Institute of Chemistry

Abstract The invention concerns to the field of chemistry, namely 11,12-bis-p-tolyl-piridazonil-drim-5(6),8(9)-diene-7-one, a new compound with hybrid terpenic andazaheterocyclic skeleton, that can be used as antifungaland antibacterial agent.
According to the invention, 11,12-Bis-p-tolyl-piridazonil-drim-5(6),8(9)-diene-7-one exhibits excellentantibacterial and antifungal properties at minimuminhibitory concentration (MIC) values ranging from 0,005 µg / mL and 0.032 µg / mL. The scientific idea of the presentinvention consist in utilization of natural terpenoids for preparation of chiral polyfunctional "hybrid" derivatives possessing useful properties and in such a way for new rational drug design applications.

Poland

PL.1.

Inventors The Center of Hearing and Speech LLC, prof. Piotr H. Skarżyński

Invention SPPS-S (System of Polymodal Sensory Perception Stimulator by Skarzynski method

Institution The Center of Hearing and Speech MEDINCUS

Abstract	The Polymodal Sensory Perception Stimulator (SPPS) by the Skarzynski's method is a new method of support for patients, that can be used in different groups of disorders that result from auditory processing disorder. SPPS therapy is conducted using an innovative device used for the multiple sense therapy on many different sensory levels at one time. Different human senses and their integration and coordination are involved. The novelty of implemented solutions has created the possibility of simultaneous stimulation of many different functions. SPPS, in its miniature form, incorporates dozen of novel technical solutions. It is small, handy and therefore comfortable in use. A multimedia panel attached to the device is a significant innovative element. It adds exercises involving many human sense. In order to reach its therapeutic results SPPS does not require connection to other big and expensive devices often located in specially dedicated rooms. It results in significantly lower cost of exploitation of therapeutic devices and better training accessibility.

PL.2.

Inventors	Consortium. Leader: The Institute of Physiology and Pathology of Hearing
Invention	Sense Examination Capsule
Institution	The Institute of Physiology and Pathology of Hearing
Abstract	Sense Examination Capsule is the set of new tools in the form of multifunctional diagnostic device which, for the first time in the world, will enable simultaneous diagnostics of almost all sensory organs (of hearing, speech, vision, balance, smell, and taste). The Capsule is mobility modular construction that can be repeatedly assemble and install. It is equipped with self-service system with interactive software, supporting an extensive battery of screening tests. In the Capsule patients will be able to screen their hearing threshold, vision acuity, smell and taste capability, vestibular functions, speech ability and central auditory processing functions. Thanks to automated, sophisticated algorithms tests results are available in real time as well as on dedicated patient portal. Sense Examination Capsule provides easier access to track and control people health and is an answer to growing health prevention needs

Saudi Arabia

SA.1.

Inventors	Omar Othman O. Alandejani
Invention	MKTNLEAN Application
Institution	Highly Innovative Unique Foundation (HIUF)

Abstract	MKTMLEAN Application is an inventive platform for creative solutions and a unique way to communicate with other people your way of solving problems and implement Continuous Improvement. It is designed to be the platform for headhunting talented people in term of KAIZEN and LEAN and to identify the real outcomes of the great programs of improvement by numbers and figures. The Application can give a generous reward in the shape of points and it is for that expressing the real meaning of Leadership where motive can bring the best outcomes from others. MKTMLEAN App. Has many ways to reduce cost, time efforts and mistakes and therefore it is very helpful to fulfill all needs of different people and organizations to improve Quality and reduce cost. The program is meant to be an open platform in a shape of a social media were people can join each other to learn and get to know each other based of their interest of solving problems and continuous improvement.
SA.2.	
Inventors	Prof. Dr. Nermeen Abdel Rahman Abdel Basset & Fatimah Ahmed Saeed Alshamrani
Invention	Hajj Smart Bag
Institution	Highly Innovative Unique Foundation (HIUF)
Abstract	The study was aims at designing smart bag that comply with the functional requirements of pilgrims using ergonomic aspects, for each of the (ease of use, safety, functionality, aesthetics). The study adopted the mixed method approach. The research sample consisted of (301), of the pilgrims of the Holy House of God. The study showed that ergonomic standards should be applied in smart design. The smart bag included several elements, such as (locating the bag, combating theft cases, and the ability to charge smart devices through it .and contains RFID technology to identify the user.
SA.3.	
Inventors	Marwah Mansour Aljulayyil
Invention	STACKING
Institution	Highly Innovative Unique Foundation (HIUF)
Abstract	The fear of speaking has always been what motivates me the most to resist and make a greater effort, I discovered that there is only one way to deal with fear is to go out and frighten yourself.

Singapore

SG.1.	
Inventors	Joleen Seto, TAN Wei Kok
Invention	See Google Drive
Institution	Les Robotique
Abstract	Green Estate Micro-management System (GEMS) changes user behavior through developing awareness of green habits. GEMS monitors energy usage from the fuse box and send it to the cloud for analysis. To communicate with the users, an AI personal assistant is connected to messenger and help users reduce their green footprint.

Taiwan

TW.1.	
Inventors	GUAN TING LIU, YANG LUNG SHIH, JOU-WEN- LU, YANG CHEN SHIH, CHUNG YI-CHEN
Invention	Drip Sensor
Institution	National Taipei University of Technology, Taipei Tech and Chinese Culture University
Abstract	This creation system provides an instillation sensor, which is mainly used when the patient is hanging instillation, and is used for the auxiliary point. A detector is installed on the drip bottle, and the detector is electrically connected to a sounding device; when the drip in the auxiliary drip bottle is about to be used up, the detector detects the lower liquid level in the auxiliary drip bottle and immediately informs The buzzer on the sounding device emits a warning sound to inform the medical staff to replace the drip bottle in time
TW.2.	
Inventors	Yang Chen Shih, Guan Ting LIU, YANG LUNG SHIH, Chung Yi- Chen, Jou-Wen- Lu
Invention	Structural improvement of catapult glider with lights
Institution	National Taipei University of Technology, Taipei Tech and Chinese Culture University
Abstract	This creation system provides a structural improvement of a catapult glider with lights, the main features of which are: a luminous body is respectively installed on the two wings to provide light for the glider; the front end of the fuselage is provided with a plurality of hook grooves for elastic body selection Hook · to control the height and distance of the glider flying; the fixed rod can adjust the two wings into a 90-degree parallel expansion shape or a 45-degree angle in the ejection state.
TW.3.	
Inventors	Chung Yi- Chen, Jou-Wen- Lu, Yang Chen Shih, Guan Ting Liu, Yang Lung Shih
Invention	Structure improvement of massage hammer with sound
Institution	National Taipei University of Technology, Taipei Tech and Chinese Culture University
Abstract	This creation provides an improved massage hammer with sound, which is a massager composed of a rod body, a circuit board, a sound generator and a battery cover; Board and sounder are installed in. Batteries can be installed in the inner compartment of the handle; when the user holds the handle of the stick by hand, When the hammer hits the body, the elastic element on the circuit board is in electrical contact with the conductive ring, which makes the sound generator emit sound.

TW.4.	
Inventors	Jou-Wen- Lu , Yang Chen Shih, Guan Ting Liu, Chung Yi- Chen, Yang Lung Shih
Invention	The structure improvement of the flashlight of the charging stand
Institution	National Taipei University of Technology, Taipei Tech and Chinese Culture University
Abstract	This creation system provides a structural improvement of a catapult glider with lights, the main features of which are: a luminous body is respectively installed on the two wings to provide light for the glider; the front end of the fuselage is provided with a plurality of hook grooves for elastic body selection Hook · to control the height and distance of the glider flying; the fixed rod can adjust the two wings into a 90-degree parallel expansion shape or a 45-degree angle in the ejection state.

TW.5.	
Inventors	Chung Yi- Chen, Yang Chen Shih, Jou-Wen- Lu,Guan Ting LIU, YANG LUNG SHIH
Invention	Toothbrush Dryer
Institution	National Taipei University of Technology, Taipei Tech and Chinese Culture University
Abstract	The present invention provides a toothbrush drying device, which includes a box body, a base and a drying component, wherein the base is placed under the box body, the drying component is installed inside the base, and the inner edge of the upper cover of the two casings of the box body is provided with at least A brush handle slot, the brush handle slot can be embedded in the handle of the toothbrush, and the bristles at the other end of the toothbrush are placed on the base. When the drying component is plugged in, its electric heating tube can dry the bristles of the toothbrush to prevent bacteria. Breeder.

Thailand

TH.1.	
Inventors	Professor Dr. Jintavee Khlaisang (Ed.D), Col. Associate Professor Sompob Poopitaya, Lt. Col. Thanakrit Vichasilp, Maj. Piyachat Chansela
Invention	ProgressME: Chatbot & IOT Device-based Upskilling Package for Medical Students to Level Up their Professional Competencies 24/7
Institution	Chulalongkorn University Phramongkutklao Hospital Phramongkutklao College of Medicine

Abstract	ProgressME is a chatbot & IOT device-based upskilling package that uniquely coach and level up professional knowledge and skills of individual medical students. It is available for medical students around the clock, so that they can continuously improve themselves at their own comforting pace. By checking, matching, learning, and skills practicing their professional competencies, medical students will continuously enhance their competencies via 4-step K-E-S-E Model, focusing on Knowledge practice, self-Evaluation (automated by a chatbot), Skills practice (via IOT devices), and Evaluation (by expert doctors). With its benefits, ProgressME has been considered a new way to upskill medical students and high school students who wish to pursue this profession. ProgressME could be further applied across all medical specialties and any related fields.

TH.2.	
Inventors	SUPAKORN BOONYUEN, Tossapon Phromsatit, Premjit Arpornmaeklong, Yuki Shirosaki and Thapong Teerawatananond
Invention	Gold(III) porphyrin complexes and their derivative in breast cancer cells
Institution	Thammasat University
Abstract	Gold(III) [Au(III)] complexes exhibit potential anticancer activities. A series of Au(III) porphyrin complexes containing different meso-substituent groups (phenyl, methoxyphenyl, butyloxyphenyl, octyloxyphenyl, and decyloxyphenyl) was synthesized. The synthesized compounds were characterized using mass spectrometry, infrared spectroscopy, UV-visible and fluorescence spectroscopy, and electron paramagnetic resonance spectroscopy. Moreover, the in vitro cytotoxicity of these Au(III) porphyrin complexes was investigated using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide surrogate viability assay on an MCF7 human breast cancer cell line. The Au(III) complexes with 5,10,15,20-tetraphenylporphyrin (AuTPP) and 5,10,15,20-tetrakis(4-methyloxyphenyl)porphyrin (AuTOMPP) demonstrated high anticancer activity with IC50 values against MCF7 cells at 4.30 and 25.35 μM, respectively. The toxicity of the Au(III) porphyrin complexes against the LLC-MK2 rhesus monkey kidney epithelial cell line, a representative normal cell line, was investigated. All the tested Au(III) porphyrin complexes were non-cytotoxic in LLC-MK2 cells. For AuTPP, more than 80% LLC-MK2 cell viability was observed at concentrations lower than 5 μM.

TH.3.	
Inventors	Supakorn Boonyuen, Yodchai Tangjaideborisut, Worrapath Jarukijpansi
Invention	Feora H1
Institution	Thammasat University

Abstract	Diabetic is a one of four major types of NCD (cardiovascular disease, diabetes, cancer and chronic respiratory diseases) and Covid-19 pandemic era, challenges of routine diabetes care. That cause the increasing of intercurrent illnesses, which are including nerve damage (neuropathy), heart attack/ stroke, increasing bacterial and fungal infections. To prevent diabetes, we need to maintain your blood sugar, blood pressure and blood fats and HbA 1c within the normal range, stop smoking, choosing healthier food choices, more physical activity and good sleep. FEORA H1 has active ingredients of cell matrix quercetin and stemcell booster complex, cell matrix citrus bioflavonoid, cell matrix melatonin booster complex, cell matrix chromium and ginseng complex. This formula provides a small amount dose but can heal cells. Because the smart delivery system to target cell that makes the substance direct to target receptor and it resulting to low toxicity and not remain in your body. The results show, the health results represent with in 45 – 60 days reduce blood sugar and lower glucose attached to your hemoglobin HbA1C. Thus it reduces the chance of diabetes, effectively.
TH.4.	
Inventors	Asst.Prof.Thongtep Sirisoda and Ms.Rawinan Loymek
Invention	Textile Bamboo Wall
Institution	Rajamangala University of Technology Thanyaburi, Thailand
Abstract	As a result of the problem, bamboo waste is left behind. It is used as a way to produce veneer from bamboo waste and apply the lam pan ban Kho mat pattern. The inventors then made surfaces from bamboo waste and recognized the importance of growing farmers' incomes and more marketing channels by bringing knowledge about bamboo.
TH.5.	
Inventors	Ms. Kunlapat Kanjanaparangkul, Ms. Autchara Makchareon, Mr. Phumin Atsawawiboonphan, Ms. Kantinan Chuearod, Dr. Prachoom Khamput
Invention	The Audio Description (AD) Production for a Historical Tourism Documentaries Television Program for Children and Youth.
Institution	Rajamangala University of Technology Thanyaburi
Abstract	People can watch television programs by using their eyes to see the picture and their ears to listen to the sound. It makes them to feel enjoyed when they watch and listens television. While the blind will only use their ears to listen to the sound of a television program. When a television program has no dialogue or narration, they can cause a lack of continuity in the imagination. They feel wonder how what is being presented on the television screen is a picture of the event going on. For this reason, television have producing things that help the blind to receive more information from the television is audio description or AD. The Objective of video production with audio description are: 1. To study what factors are important in the production of audio descriptions. 2. To study the methods of audio in relation to the images presented. Production of multimedia media in the form of a historical travel documentary television program for children and youth who are blind. To gain knowledge of historical information and stimulate interest in tourism in their own country. The producers have studied the production of television audio description for historical travel documentary television program for get a work that both children and youth with normal vision and blind can watch at the same time. The result is blind children and youth learn history along the way of tourism and stimulate interest in tourism. In addition, audio description made them feel equal to everyone.
TH.6.	

Inventors	Dr.Prachoom Khamput, Dr.Tawich Klathae, Asst.Prof.Dr.Kiatsuda Somna
Invention	Hexapod: Coast-friendly wave-decelerated blocks using shells as aggregates
Institution	Rajamangala University of Technology Thanyaburi
Abstract	Hexapod: Coast-friendly wave-decelerated using shells as aggregates is a wave retardant block using the concept of environmental friendliness (1) the production process using waste shells as aggregates in concrete instead of stone and using the marine waste bamboo reinforced instead of rebar. (2) The block design as three-dimensional block in the shape of a six-legged cross which could be stacked on top of each other and are easy moveable. There are gaps between the blocks where small aquatic animals could live and behind the block laying line can collect sediment which could increase the coastal areas for communities
TH.7.	
Inventors	Dr.Prachoom Khamput, Assoc.Prof.Dr.Kanthana Ditkaew, Asst.Prof.Dr.Kiatsuda Somna, Ms.Kunlapat Kanjanaparangkul, Asst.Prof.Dr.Rattapon Somna, Asst.Prof.Nichapha Minaboon
Invention	Mask Ceiling : The ceiling uses a mask as reinforcement material
Institution	Rajamangala University of Technology Thanyaburi
Abstract	The ceiling produced from masks as reinforcement material by using unused masks without pass of the qualification check (QC) with large quantity in the factory which must be disposed, was performed to reduce the suitable size for aggregate. In the mixing of gypsum and water as a binder, it is poured into the form, left it to harden into ceiling panels. The ceiling has strength passed TIS standards and can be used without paper sheet covering the surface. The company can encourage the community to produce and sell this item by themselves to increase the value of masks in line with the circular economy.
TH.8.	
Inventors	Asst. Prof.Nichapha Minaboon, Dr.Prachoom Khamput, Asst. Prof.Suthon Rungruang, Asst. Prof.Supatida Abdullakasim, Asst.Prof.Dr.Kiatsuda Somna
Invention	An innovative orchids growing materials from the cassava processing wastes
Institution	Rajamangala University of Technology Rattanakosin
Abstract	This research represents the development of an innovative orchid growing materials using the cassava processing wastes instead of traditional coconut husks. The cassava processing wastes as cassava peels and cassava pomace are used as substitution of dust stone in which will be mixed with cement and water at the appropriate ratio and then molded into a block. The material is produced in a short and simple way. The objective is to convert the cassava wastes to secondary beneficiary products as a substitution of coconut husks on orchid plant growing and it can also be a solution for the shortage of coconut husks in the future.
TH.9.	
Inventors	Thaninkit Prasitdumrong, Pran Udomsawaengsup, Sirarin Prasitdumrong, Pavida Thiamchivasin, Jeerasak Jitrotjanarak
Invention	CASE air purifier
Institution	Chulalongkorn University Demonstration Elementary School

Abstract	CASE air purifier is a ceiling type germicidal air purifier using the combination of HEPA filter to filter particles; for examples, PM 2.5 and germicidal UVC lamp to kill bacteria and viruses. The machine will provide clean air and reduce the risk of the air-borne infection; for instance,COVID-19. Due to its compact and luxury design, it can be not only an air purifier for personal home, commercial and industrial used but also a decorative item.
TH.10.	
Inventors	Preme Chaikamnerd, Panyapond Keratisuthisathorn, Thitiworada Kumpu na Ayudhya, Nadao Chaiyasit, Chanisara Tharnatham
Invention	SteriLock
Institution	Chulalongkorn University Demonstration Elementary School
Abstract	In the new normal during COVID–19 pandemic, more people use online shopping channels instead of going out. Then there comes one of the big delivery problem! Many people have their parcels delivered at office or wherever they are during the day because they are afraid of many problems like Cash-on-Delivery scam, wrong deliveries, or even unexpected illegal items. Some starts to worry about the virus coming with the parcels. So we want to solve the problem and make everyone happy with the innovation that we create "SteriLock". Just with this box everyone can be sure deliveries are safe from the virus with our four features. Secure DigiLock Contactless : SteriLock has Digital lock system using QR code. System will alert to owner's mobile application to unlock the box, then riders or postman can open the box to deliver the parcel. Sterilize UV-care clean : Activate the sterilization of parcels with UV-C radiation, type Ozone free germicidal lamp (wavelength 254 nm). UV-C can kill virus and bacteria 99.99% within 15 minutes. When UV-C is active, SteriLock cannot be opened. Safety DigiFace CCTV : Increase safety by recording the face of riders or postman using mini CCTV. You can verify the identity of the delivery company by asking for official identification from the person making the delivery and show in front of CCTV at the box. Solar Power : Using Solar cell panels to provide electric power to the box. Helping you save money while helping our world save energy. All features are connected to SteriLock application. User can check realtime status via app. Benefits & Impact Safe : Safe from germs, bacteria, virus with UV-C disinfection that is environmentally friendly. Fast : Fast sterilization time with UV-C technology, takes only 15 minutes per 1 sterilization cycle Simplicity: Easy to use, uncomplicated with easy-to-access technology for all ages. Durable : Low maintenance thanks to its simple construction and UV-C lamps last thousands of hours or more. Protect yourself and your loved ones to stay healthy during Covid-19 Pandemic.
TH.11.	
Inventors	Phuvipat Atibaed

Invention	Fridge Buddy
Institution	Chulalongkorn University Demonstration Secondary School
Abstract	"Fridge Buddy" is an inventory system that handles food storage in a house up to a community. It gets the most out of food we bought and minimizes the food waste that costs money, time, and ecosystem. Food waste is one of the global problems which most countries have been faced with. About 2.5 thousand tons of food waste are dumped into landfills each year producing methane that causes global warming. Surprisingly, this amount of food waste can feed 3 times more of all the world hunger. Fridge Buddy tracks the food with an RFID system. RFID tags are attached to the food which represent individual food such as pork, beef, tomatoes, and apple. RFID reader is attached on the lid of a fridge receiving and sending data to the cloud via wireless internet connection. Once the tag touches the reader, food data carried on the tag is updated to the database in the cloud with the time stamping. Users can check the data in their inventory through the Fridge Buddy mobile application which shows food details, expiration date, input date and quantity. Also, users are reminded when the expiring dates nearly come. Moreover, food in the inventories can be shared between users to maximize the benefit of the food. We found that the RFID method is desirable for food tracking which is not interfered with by temperature, ice, or container as an imaging method. Users can handle their food storage 90% more efficiently and save the cost almost 40% on food monthly. Surprisingly, food sharing features builds-up community relationships which is not usual in urban living. Fridge Buddy can reduce the food waste from the fundamental scale which potentially affects the bigger scale soon. The sharing food community will unlock the limitation of household consumption that causes most of the waste. Moreover, it connects neighboring people that helps the community be more healthy and more sustainable.
TH.12.	
Inventors	Ms. Wanmeesuk Porthongkham
Invention	Antibacterial copolymer film model *Pectobacterium carotovorum subsp. carotovorum* in Brassica juncea(L.) Czern by adding essential oil of Curcuma longa.
Institution	Princess Chulabhorn Science High School Nakhon Si Thammarat
Abstract	This study was done to study the preparation of copolymer bioplastic film from Polylactic acid and Polybutylene succinate with essential oil of Curcuma longa for antibacterial *Pectobacterium carotovorum subsp. carotovorum* in Brassica juncea(L.) Czern is a model for the development and application of agriculture to mulch the growing area and can continue to be used until harvesting, exporting, and selling to the market. Preparation of copolymer by Graft Polymerization and Solvent Casting techniques were studied to increase the compatibility of the copolymer. Lead to study the antibacterial ability by considering the inhibition area and curcumin that can inhibit and resist *Pectobacterium carotovorum subsp. Carotovorum* in essential oils by testing with the boric solution. Finally, it shows the inhibition radius around the film. It can be concluded that the film was mixed with essential oils able to inhibit and resist *Pectobacterium carotovorum subsp. Carotovorum*
TH.13.	
Inventors	Mr.Saroot Areerattanawetch, Mr.Chittapan Phahongsa, Mr.Kanchai Khumdee, Mrs.Natpassorn Laonet, Mrs.Kawao Phromchat
Invention	Online Learning assistant with artificial intelligent
Institution	Princess Chulabhorn Science high school Phitsanulok

Abstract Studying and developing an online learning by creating an artificial intelligence system can help supervise online teaching to monitor learners' behavior from turning on-off camera, doing activities during class are carried out through the camera attached to the device students use to study. To alleviate the burden of teachers in online teaching, it was found that the developed system was able to detect colors by separating the color between the google background and the background color when the camera is on with a color accuracy detection of 97 percent, and the result of detecting faces within a distance of 0 – 70 centimeters from the camera, it has an average accuracy detection of 84.5%. The movement of the face has an average accuracy detection of 84.2%, which is accurate and precise in the distance and direction of facial movement in various ways. This study found that if person is close to the camera and has a facial movement direction match with the camera, the system will be able to detect faces more accurately and precisely than those whose faces are further away from the camera and whose facial movement direction is not in line with the camera. Therefore, the developed system will be able to inform the teachers about the behavior of the learners if they are still on or leave from the camera. The system can also compare images over time to determine if they are duplicates or not to distinguish between the actual opening of the camera and taking the still image to replace the actual opening of the camera. As for the data management systems by editing the data on google sheet, it can make the detection result data value from the system to be displayed as the desired data and the developed system can access to online learning and automatic detection and save the data on Google sheet every 1 minute.

TH.14.

Inventors Miss Nawapan Duangsri, Miss Nawawan Duangsri, Miss Sininat Sangkrajang, Mrs. Natpassorn Laonet, Mrs. Piyamas Charoenchai

Invention First-Stage-Wound Dressing Nanopad from Electrospun Fibers from *Pedilanthus tithymaloides* (L.) Poit Crude Extract

Institution Princess Chulabhorn Science High School Phitsanulok

Abstract Pedilanthus tithymaloides (L.) Poit (Jew bush) is a medicinal plant with hemostatic properties. But in Thailand, we make only limited use of this plant and very few studies were conducted. Therefore, we did a study to promote the use of *Pedilanthus tithymaloides* (L.) Poit. We extracted *Pedilanthus tithymaloides* (L.) Poit's stalks with ethanol and employed the crude extract to develop into a first-stage-wound dressing nanopad by electrospinning technique. The results showed that when extracted with 95% ethanol, *Pedilanthus tithymaloides* (L.) Poit gave the yield of 1.21 ± 0.17%. The phytochemical test showed flavonoids, coumarins, saponins, tannins, terpenoids, steroids and cardiac glycosides, but no alkaloids, anthaquinones and phlobatannins. The functional group examination by FT-IR spectroscopy technique revealed the aforementioned functional groups in the crude extract. Flavonoids and tannins are important substances in precipitating proteins. Thus, they can help stop bleeding. Crude extract from *Pedilanthus tithymaloides* (L.) Poit can inhibit *Staphylococcus aureus* infection, the mean inhibition zone was 13.66 ± 4.05 mm, with a minimum concentration of 25 mg/ml. The crude extracts at the concentration of 1 - 4 times the MIC were examined for protein precipitation by absorbance measurement at the wavelength of 595 nm. We found that all concentrations were able to precipitate out proteins but the inhibition of *Staphylococcus aureus* started at 2 times the MIC value. The crude extract at 2 times the MIC and the polymer composite in different ratios were combined to form wound-dressing nanopads by electrospinning technique using a synthesis electric potential of 17 kV with a solution flow rate of 0.06 ml/hr. The results showed that mixtures in all ratios could be formed into pads. The developed nanopads were flexible and tear-resistant and their surface was smooth. However, the performance test could not be done due to time limit. Our future work is observing the texture characteristics, estimating the size of fibers by a scanning electron microscope, examining the inhibition ability against *Staphylococcus aureus* and the standard protein precipitation of nanopads.
Keywords: *Pedilanthus tithymaloides* (L.) Poit Phytochemical Electrospinning Techniques Nanopad

TH.15.	
Inventors	Miss Jeerapat Phupaga, Miss Pornpawee Phakhathiphakorn, Miss Pusita Baipaisan, Mrs. Natpassorn Laonet
Invention	Anthocyanin Encapsulation for Healthy Jelly Production
Institution	Princess Chulabhorn Science High School Phitsanulok

Abstract An active ingredient in mulberry is anthocyanin, which is an antioxidant to strengthen the immune system and reduce the risk of diseases. Although mulberry contains a large amount of anthocyanin, mulberry itself has a short shelf life, i.e. it spoils quickly, and anthocyanins are sensitive to light, pH, and moisture causing them to decompose easily. To solve the problem, the authors applied encapsulation technology using reverse spherification technique to retain anthocyanin in the form of gel. This can be utilized in the production of healthy jelly. The study of optimum conditions for anthocyanin extraction indicated that crude extraction from 24-hour water-soaked mulberries gave 4.71 ± 0.53 percent yield of dry weight, which was higher than those from ethanol extraction of all concentrations and all infusion periods. The extract had the maximum UV absorption value equal to 515 nm. The determination of the total amount of anthocyanin was done by pH-dfferential method revealing 14,103.79 mg/L. The functional group analysis was performed with FT-IR spectroscopy technique. It was found that the chemical composition of the anthocyanin extracted corresponded to the standard anthocyanin. The investigation on the extract's antioxidant capacity by DPPH radical scavenging assay showed that mulberry extract with IC50 value equal to 0.866 mg/ml was better able to trap free radicals than the standard BHT. The results of the encapsulation of mulberry extract by reverse spherification technique suggested that the optimal polymer consisted of 10 % gelatin : 1% Xanthan gum : 5% Maltodextrin in the ratio of 60 : 30 : 10 with pH 3.31± 0.1. The encapsules was soaked in 1.0% calcium lactate for 5 minutes. It was revealed that anthocyanin content in a 1g capsule was 303.549 mg/L. The capsule had a diameter of 2.110 ± 0.02 mm, but could swell in the first 30 minutes. The anthocyanin retention efficiency was 96%. The 2-level ratios between konjac powder and carrageenan were 50:50 and 60:40 and the amounts of konjac powder mixed with carrageenan in 3 levels were 2.0%, 2.5% and 3.0%. The results demonstrated that konjac powder and carrageenan in the ratio of 50:50 and at 2.5% had the best sensory preferences for 30 people. The encapsules had a pressure value of 0.85 N, sweetness of 9.42±1.36 degree Brix, moisture content of 73.97±1.240 % and pH at 2.90 ± 0.01. The total dietary fiber content (% by dry weight) was 3.85. ± 0.25 and the total microbial content—the amount of yeast and mold— did not exceed the specified standards.
Keywords: Encapsulation technique, Anthocyanin, Antioxidant, Healthy jelly

TH.16.

Inventors Siriya Mektavepong, Wallapha Phatrabuddhikul, Khunthong Klaythong and Voranut Thongpool

Invention Study and Development of UV-protection and Heat-production Roof from N-GQDs for Rubber Drying Chamber

Institution Princess Chulabhorn Science High School Pathum Thani

Abstract Thailand has been the top exporter of rubber in the world since the 1990s. The Thai government, therefore, made the policy objective to increase the incomes of small landholders, and processing latex into rubber sheets is one of the methods used to achieve the goal. The process can be divided into two methods, which are fumigation and heat from solar radiation. However, the fumigation method is expensive and produces pollution. Meanwhile, solar incubation can form sticky and dark rubber sheets due to UV radiation, which makes the rubber price fall. So, our group decided to invent a solution which is low cost and environmentally friendly. We developed a UV-protection roof using Nitrogen-doped Graphene Quantum Dots (N-GQDs). We synthesized N-GQDs using hydrothermal (T2 and T4) and solvothermal (TS4, TS6, and TS8) methods. It was found that all variables absorbed light in the UV range, especially T4. T4 had the greatest Fluorescent Intensity (FL) value, and T2 and T4 emitted blue light. However, the conditions synthesized by the solvothermal method showed fluorescent properties in the red light range. In these conditions, TS6 had the highest FL value. Next, we chose T4 and TS6 to form a roof and tested its properties by the ASTM D882 method, and both showed similar characteristics. After installing the roof on the chamber, the temperature inside was higher than outside. The average temperature was 43°C, which is the temperature for drying rubber sheets. Due to the roof's capability to absorb UV radiation and heat the chamber, our N-GQDs roof has a great ability to produce higher quality rubber sheets.

TH.17.

Inventors Supatsara Tupmanee, Worakanya Sinphichit and Khunthong Klaythong

Invention A novel form of Sponge Rubber with Tamarind Seed Pulp for Dye and Lead Adsorption in Wastewater from Monk's Robe Dyeing

Institution Princess Chulabhorn Science High School Pathum Thani

Abstract Textile dyeing is an important business that can generate income in communities. However, it also causes environmental problems. Textile dyeing usually uses synthetic dyes from the reactive group, which are highly durable and contain lead compounds, which makes them difficult to treat. Therefore, we combined sponge rubber with tamarind seed pulp to solve this problem, because sponge rubber and tamarind seed pulp are porous materials, thus making them suitable for adsorbing dyes and lead. We began by studying the appropriate amount of tamarind seed pulp, the factors affecting adsorption, and quality of wastewater after adsorption, followed by kinetics and isotherm studies. The results showed that the highest adsorption capacity was achieved with 9 phr of tamarind seed pulp, a wastewater pH value of 5, and a concentration of 400 mg of dye per Liter. The contact time varied with adsorption capacity and the adsorption began to reach a balanced point at 48 hours. In addition, the wastewater after adsorption has an ADMI color, and the lead concentration passes the global effluent guidelines, so it can be released into water sources. Finally, according to the kinetics and isotherm studies, the results were in accordance with the pseudo-second order kinetic model and the Langmuir isotherm, based on the coefficient of determination with the closest value to 1. This indicates that this adsorption mechanism is formed by chemical forces and has single layer adsorption. Our sponge rubber is a low cost and environmentally friendly adsorbent for adsorbing dye and lead in wastewater from the community.

TH.18.

Inventors Yanakawii Medhisuwakul, Wongsapat Tepchaiworakumhang and Khunthong Klaythong

Invention Sponge Rubbrick

Institution Princess Chulabhorn Science High School Pathumthani

Abstract Sleep is a basic human need. It is also the best way to relax. Not getting enough rest can result in both physical and mental disorders. The key factors affecting sleep are the environment, including light and noise. Therefore, a good bedroom should have less noise and an optimal temperature. from noise and temperature problems therefore began to use insulators Used in building walls and often choose to use fiberglass insulation. But this type of insulation has its drawbacks when human meet fiberglass it will cause irritation and affect the respiratory system. From the reasons mentioned above the organizers want to develop Sponge Rubbrick from Dirt and sponge rubber with corncob and black rice husk ash as addition for develop as insulation and sound absorption material for bedroom. First, we form the Sponge Rubbrink from sponge rubber with dirt in amount of 0, 10, 20, 30, 40 and 50 phr in size 12.0×6.5×3.0 cm3 then we observe and found that D30 have optimal air bubble distribution. Second, we form the Sponge Rubbrink from sponge rubber with dirt in amount of 0, 10, 20, 30, 40 and 50 phr in size 11×11×0.3 cm3 then we test tensile strength, breaking length and young's modulus, we found that D30 have best tensile strength, best breaking length and optimal young's modulus. Third, we develop D30 by add corncob and black rice husk ash in portion 20 : 0, 15 : 5, 10 : 10, 5 : 15 and 0 : 20 phr in size 11.0×11.0×5.0 cm3 then we observe and found that D30C20BR0 can not forming because structure in sponge rubber does not form enough. Fourth, we use Sponge Rubbrick from third step to test insulation and sound absorption properties then we found that D30C10BR10 have best insulation and sound absorption properties.

TH.19.

Inventors	Phuwavej Sakpirom, Pruekpipat Choorat and Khunthong Klaythong
Invention	Development of joint support equipment reduces the pressure on the median nerves while cutting rubber added with padding from extractor Sweet Wormwood leaves (Artemisia absinthia St.-Lag). and Betel leaves (Piper betle) for the rubber tapper
Institution	Princess Chulabhorn Science High Schools Pathum Thani
Abstract	Carpal Tunnel Syndrome is one of the most common diseases in rubber tappers. The cause of disease is by the rubber tapping process of rubber tapper who has severe spasticity around the wrist that results in compression of nerves around the wrist. until the subsequent abnormalities. If not treated promptly, the wrist will become inoperable. and eventually undergone surgery. The researchers, therefore, developed padding from extracted Sweet Wormwood leaves (Artemisia absinthia St.-Lag). and Betel leaves (Piper betle) to help relieve pain, numbness, and inflammation from carpal tunnel syndrome. Experimental results to test the properties of sweet wormwood leaves and betel leaves from cytotoxicity test on macrophage cells. The second ratio (80:20) of seven at a concentration of 0.001 mg/ml was found to have the lowest cytotoxicity with a 162.05% of cell survival. Next, in cytotoxicity test on fibroblast cells. Was found the 2nd (80:20) of the 7 ratios at a concentration of 10 mg/ml had the lowest cytotoxicity with a percentage of cell survival 144.32%. The next test is antioxidant was found the SC_{50} in the fifth ratio (35:65) was 0.53, which was the lowest. Mean using a concentration of 0.53, the extract had 50% antioxidant capacity. After testing properties, was molded into patches. Analysis of extract results was found the concentration was suitable for Sweet Wormwood leaves and betel leaves extract alone were 0.01 and 0.07 mg/ml, respectively. Therefore, a ratio 5 (35:65) was chosen at a concentration of 0.001 mg/ml to form with gelatin to carboxymethylcellulose at a ratio of 9:1, which can be spun by electrospinning machines. From all experiments, can be concluded patches with extract of sweet wormwood leaves and betel leaves in the fifth ratio at a concentration of 0.001 mg/ml have low cytotoxicity and high antioxidant activity which effectively alleviates the symptoms of arthritis.
TH.20.	
Inventors	Sirawich Songsiri, Sarankorn Pongatsawachai, Wattana Rummaed, Jatupon Opapaiboon and Charoenporn Chokboriban
Invention	Study and development of nanofiber air filter efficiency from PET (Polyethylene Terephthalate) waste plastic formed by electrospinning process.
Institution	Princess Chulabhorn Science High School Pathumthani

Abstract	Thailand has been facing the problem of PM2.5 dust continually increasing since the year 2011 until the present. This is caused by many reasons that cause the amount of dust to exceed the standard value. And having dust that exceeds the standard is still a cause of disease for humans. Combined with the problem of plastic waste that is increasing every year because of the increasing human population. The authors therefore were interested in the study of air filters molded from waste PET (Polyethylene Terephthalate) plastic by Electrospinning process. which divided the experimental set into 3 sets as follows: 1) Determine the concentrations of different PET solutions: 12 %wt, 14 %wt, 16 %wt, 18 %wt and 20 %wt, 2) Determine the differential flow rates of PET solutions: 3 ml/ hr, 5 ml/hr and 7 ml/hr and 3) Determine the different forming potentials: 15 kV, 20 kV and 25 kV. After finishing the air filter forming, the fiber morphology is studied by scanning with a Scanning Electron Microscope or SEM to study the fiber diameter and characteristics. Therefore, the filter was tested by testing with cigarette smoke. Then it can be analyzed through IR (Infrared Spectroscopy) process, which will analyze whether the air filter is capable of filtering air or not. Absorb means the filter can absorb C-N bonds and in the 2800 - 3000 cm^{-1} wavelength absorption occurs. This means that the filter can absorb N-H bonds. Both C-N and N-H bonds are composed of nicotine. It can be said that PET air filters can filter cigarette smoke. From the results of the experiment, it was found that PET plastic waste air filters are capable of filtering air because nicotine was found on the air filters after a cigarette smoke filter test. and the best concentration is 14 %wt, the best solution flow rate is 3 ml/hr and the best forming potential is 15 kV. When the concentration of the solution, the flow rate of the solution and the electric potential used for forming is less as a result, the fiber diameter tends to decrease. As a result, the gap between the fibers is reduced accordingly. and make the air filter have better efficiency.
TH.21.	
Inventors	Miss Napaphorn Wannachai, Miss Thanaphorn Saikamtung, Miss Napatsara Piwsawad, Mr. Kanapat Rabeabwan, Mr. Arongkod kruajan, Mr. Tanapol Rimpho, Miss Narinthon Sriprasit, Miss Jidapa Limmanee, Mr. Surachet Sumasa, Miss Nicharee Piwjan, Miss Krongkwan Koeichaiyaphum
Invention	Nukul Handmade
Institution	Loeianukulwittaya School
Abstract	Nukul Handmade is an activity for students at Loei Anukul Wittaya School. Our students produce handmade products using old plastic bottles and waste materials. This collection is called Thai Loei. We use the famous Loei Phi Ta Khon festival as a model for this collection. The highlight of our products is that we use recycled materials. They are lightweight, durable, strong, and can be sold as souvenirs to tourists online and in walking street markets.
TH.22.	
Inventors	Miss Chattrapond Sertsri, Miss Natnicha Rattana , Miss Supannika Pimsen, Miss Sudarat Kantee, Mrs. Jutatip Malaon, Miss Nidjawan Pimkheeree, Mr. Surasuk Boontima
Invention	The Developed of Low Allergenic Protein Natural Rubber Latex Gloves
Institution	Loeianukulwittaya School

Abstract	Developed natural rubber latex gloves that can be used in a wide variety of applications such as medical field or use in the household to protect hands from touching things or used to prevent medical infections. Two types small particle (particle size less than 80 mesh) as fillers in natural rubber latex gloves, which are carboxymethyl cellulose (CMC) was prepared from water hyacinth, rice husk ash silica (RHA) were prepared from waste of the agricultural industrials. The manufacturing process of natural rubber latex gloves uses a dipping technique. Glass hand mold was dipped into the $Ca(NO_3)_2$ coagulant, then dipped into the natural rubber latex compounds with added two types as fillers at different content and proper ratio, withdrawn hand mold slowly, then dried at room temperature and casted it off the hand mold. Allergenic rubber protein content was analysis by Modified Lowry method (ASTM D 5712-99). Mechanical properties (tensile strength, elongation at break, modulus and energy at brake) were determined by using Instron Universal tensile machine according to ASTM D412 method. Based on the results, filler can be reducing allergenic rubber protein in the concentrate latex, which decreased allergenic rubber protein to an undetectable amount. The product shown high mechanical property, good tensile strength 39.6±2.4 MPa, highest elongation at break 878%±16, modulus (M100, M300 and M500) 0.93, 2.04 and 7.12 MPa, respectively. Eenergy at brake wer found to be 59±4.6 MJ/m^3. It was also show good tear strength, without water leakage and good contact angle. This process provides a high cost of final products. Therefore, using of low cost filler from natural resource is one alternative to reduce cost natural latex gloves products and environmentally friendly.
TH.23.	
Inventors	Mr.Kriangkrai Punkunta, Mr.Promrob Khamtan, Mr.Phuwanudit Korluang
Invention	Mini AVR
Institution	Provincial Electricity Authority
Abstract	MINI AVR is an innovation for solving the problem of automatic voltage regulator transformer control system. It is working as the stabilizer but can adjust the voltage wider than stabilizer that is sold in the general to supply the automatic voltage regulator transformer control circuit receive normal voltage. Even in the case of critical voltage, the automatic voltage regulator transformer control can operate continuously. The device has a standby mode function if it is in the case of normal voltage to extend the service lifetime, easy to use, safe and can be further developed.
TH.24.	
Inventors	MR.CHAO IMKHONG, MR. KRITSANAPHONG TONGJAM, MR. SIRICHAI KHIEWSAWAI, MR. PANUPONG KUNWONG
Invention	DNP3.0 Protocol Line Monitor and Test Set
Institution	Provincial Electricity Authority

Abstract	"DNP3.0 Protocol Line Monitor and Test Set",A palm-sized protocol analyzer developed device, real time data communication monitoring and linked to mobile application for user interfacing. PEA's SCADA (Supervisory Control and Data Acquisition) system implemented for power dispatching. It's a large among of RTU (Remote Terminal Unit) Devices which communicate to SCADA center via DNP3.0 Protocol. As the system maintenance engineers, DNP3.0 protocol analyzing tool are needed for resolving problem that crash the system. Mostly Protocol Analyzer software and tool are costly and complicate for using, thus this "DNP3.0 Protocol Line Monitor and Test Set" is developed to eliminate those complications, just simply connect the device between FRTU (Feeder Remote Control Unit) and MARS Radio. The device will able to analyze data, and send all essential information via Wi-Fi to mobile device. Furthermore, the device also able to simulate itself for acting as either FRTU or SCADA. "DNP3.0 Protocol Line Monitor and Test Set" saving pricey protocol analyzer tools, combine functions of testing tools into one device, make it portable, wireless, and simply to use.
TH.25.	
Inventors	Mr. WUTTICHAI DETHTARADON, Mr. KASIDECH DITHPAKDIDECH, Mr. NARONGSAK JUABJANGE, Mr. ATICHART THONGDEE, Mr. CHUTIPON SRITHAPTHIM, Mr. JEERASAK KAEWPENG
Invention	Cable Pusher with Auto Lubricant
Institution	Provincial Electricity Authority
Abstract	Cable Pusher with Auto Lubricant is innovation to assist in feeding underground cables with automatic lubricant. This tool is used by feeding the cable and applying lubricant to the cable while pulling the cable through the Duct Bank, reducing cable tension and controlling the amount of lubricant to get the cable. Good quality products have a long service life. can work quickly as well as increasing the safety of the operators more.
TH.26.	
Inventors	Miss Chayanisa Patanasirimongkol, Mr. Sirawit Assawapongkasem, Miss Pitchayapa Nindupkaew, Master Napakkorn Rojweera
Invention	Med@Home
Institution	Thailand Inventors Club by N Connect

Abstract

"Med@Home" is an innovation that is developed to improve conventional medicine cabinets for ordinary households to become smart medication cabinet.

Med@Home is designed to assist you to organize drug storage, know your medicine stock and expiration date. Drugs information is stored in the database of the system. System will determine the medicine you should take from the input symptoms and calculate the right dosage for each family members. Application can send alert for you to take medicine on time while also allows guardian to check medication status of members.

Four main features of Med@Home
1. Smart System
With the smart storage function, all necessary pharmaceuticals will be stored in an orderly manner, with up to 39 drug classification compartments to identify and categorize drugs systematically, as well as connecting detailed drug information in the application. The system also allows you to monitor the status of your medicine supply on a regular basis
2. Symptom Calculator
Take your medicine with confidence, based on the symptom input, application will map with database and determine the medicine you should take. System will inform the directions of use and calculate the right dosage for that member.
3. Remind Me
The problem of forgetting to take medicine will no longer be a problem. With a pill reminder service, system will alert you to take the medicine on time.
4. Your Guardian
System allows you to check the medication status of members in the house. The guardian will be notified if members of the family forget to take medicine.

“Med@Home” will help set a new standard for the Home Medicine Industry, making it easier and safer for people in the house to obtain and use generic home remedies.

Solve all problems with medicine storage in the home with a smart
system that ensures that every family's medicine cabinet is always ready for use. Rest assured that your loved ones are safe from taking the wrong medication. It is vital to have it in every family, at every age, and in any home. With Med@Home we can take care of everyone in the family anywhere anytime.

TH.27.

Inventors Master Kaweewat Santivorapong, Miss Pranrak Baikloy, Miss Bharawee Nhongharnpitak, Master Bhuricha Nhongharnpitak, Master Yanawatana Krisdathanont

Invention FunPlosion – Smart Bathroom in the New Normal !

Institution Thailand Inventors Club by N Connect

Abstract

FunPlosion is your Smart Bathroom in the New Normal lifestyle that is full with FUNction and refills everyone with freshness explosion to make every shower refreshing for everyone.
We created 5 Key Innovation features:

1. Fresh Set Water : Preheating your shower makes you get the right temperature will save water while waiting.
2. Fresh scent will refresh your bathroom. It can be used separately. This is very helpful for cover the bad smell after using toilet.
3. Free Light is used to lift up your mood. Right mood helps people relax in shower.
4. Fun Audio makes you relax. You can even practice singing your best songs for Got Talent!
5. Fun Screen that connected to your phone can build good habits; e.g. use 2-min clip to make kids brush teeth longer. We also add UV sterilizer toothbrush holder as Support Feature in the new normal.

FunPlosion helps building good habits and personal hygiene for kids. While for adults, it can dissolve all stress naturally and effortlessly. Moreover, it can monitor the usage of water in the application. Most important, FunPlosion can save water while the world are in need to use more water by monitoring its usage and introduce good habits in the family. Save water by preheating to the right temperature before using. With your profile setting in FunPlosion mobile application, your bathroom will be ready in just one click.

FunPlosion is already in Patent Pending. Prototype machine is successfully built and tested. Installation is easy, just plug in and connect to wifi. More support features are already in developing process to uplift the cleanliness and safety level; e.g. UV sterilizer towels machine, and SOS.

Tunisia

TN.1.

Inventors Iman EL NOURI

Invention SKY CLEANER

Institution Pioneer High School of Gabes

Abstract

Sky Cleaner is a solution to all environment issues, it is composed of a flying system connected to an ATGS (Adsorbing Toxic Gases System). It can eliminate air pollution in the atmosphere and reaches the stratosphere layer to adsorb the greenhouse gases there and protect the ozone layer.

United Arab Emirates

AE.1.

Inventors Khaled Abdul Hamid Elnems

Invention	Safety electronic protection glasses
Institution	UAE Science Club
Abstract	It is a **Safety electronic protection glasses** (for protection the eyes) only when worn it in the face will be order another device by connected wirelessly to powered the (**dangerous consequences**) like (cutter and trimmer trees devices or a welder or holder devices) to protect the worker **The Advantages :** only by worn this **Safety electronic protection glasses** can protection the eyes from (**dangerous consequences**) like (cutter and trimmer trees device or welder or holder device) to protect the worker otherwise this **Dangerous Device** it will not working

United State America

US.1.	
Inventors	Young Suk Woo and Chang Deuk Woo
Invention	SELF-GENERATING DEVICE AND MECHANICAL SYSTEM USING THE SAME
Institution	
Abstract	A self-generating device equipped in a mechanical system including a power generating part, an operating part, and a main shaft, the self-generating device comprising: the main shaft rotating according to a rotational force powered by the power generating part and transferring the rotational force to the operating part, wherein the operating part performs mechanical motion using the transferred rotational force; a rotor assembly combined with the main shaft and rotating along with the main shaft according to the rotational force, and a stator assembly surrounding the rotor assembly and staying stationary relative to the rotation of the rotor assembly, wherein magnetic field around the rotor assembly and the stator assembly changes according to the rotation of the main shaft, and the self-generating device generates induced electricity.

US.2.	
Inventors	ALMIR Jakedolf
Invention	SPIRAL FOR MARES
Institution	
Abstract	The spiral for mare is copper plated V-shaped tension spring, which is inserted into the uterus of the mare. After insertion into the uterus, the spiral returns into its original form. The advantage of invention is that it is very successful in treating inflammation of the uterus without the use of products for rinsing and disinfection, antibiotics and other medicines that have a range of additional adverse side effects, and are not as effective as spiral. Treatment of inflammation of the uterus of mares.

US.3.	
Inventors	IVAN Kirk, Romn Kirk, TOMISLAV Tyre
Invention	ROTO RASP

Institution	
Abstract	This innovative Croatian product for cutting soft materials such as wood, plastic, rubber etc. by removing particles is used with hand rotation angle grinders. The disc used with an angle grinder enables you to cut soft materials such as wood, plastics, rubber etc. in a simple way by removing particles. Its construction makes it possible to remove a larger volume, compared to other rotation discs or sandpaper. Its simple installation and use do not require special skills or knowledge. Advantages «ROTATION DISC» is made of steel tin, it is between 0.7 mm thick and has been thermo-chemically processed. The blades on the working surface of the disc remove the particles and cut. A hole for letting out the removed particles is placed below each line of blades, which prevents the filling of the disc's working area and enables a continuous cutting.
US.4.	
Inventors	Vector Dallas
Invention	MULTIFUNCTIONAL UTILITY ELECTRIC VEHICLE tom-tom
Institution	
Abstract	MULTIFUNCTIONAL UTILITY ELECTRIC VEHICLE tom-tom
US.5.	
Inventors	ANITA BUSIC
Invention	BodyRecog – The Body Shape Tracking Ap
Institution	

Abstract BodyRecog – The Body Shape Tracking App – is a digital health solution for monitoring personal health, national health and global health in real-time. BodyRecog is a platform connecting patients/clients with biomedical/fitness experts, but also with health insurance companies, pharma, institutes for public healthand academia.

Advantages:

BodyRecog is innovative four times over as it,

1. First, significantly shortens the time for human body measurement from 45 min to 2 min, and does it much cheaper as well, reducing the price from $7-8 k for a classical anthropometric instrument set, to $1 k for hardware.

BodyRecog enables health-conscious individuals to monitor themselves, see how their body changes as a result of diet, exercise, therapy or medication, or any combination of the four. Basically, they can see how much fat they have lost, or how much muscle they have gained, in cm/inch and where exactly on the body.

2. Second, BodyRecog performs health risk assessment for cardiovascular diseases, diabetes and cancer based on a person's digitally obtained body type and body shape.
3. Third, it provides the user with interesting explanations and personal health recommendations.
4. Fourth, it enables the professional (doctor, trainer, nutritionist, scientist, etc.) to directly and remotely monitor the end-user (patient, trainee, client, subject, etc.)

Intended use:

The first module, FITNESS module finds its application in the world of fitness, sport, wellness and health. It is especially noteworthy that BodyRecog may help people with cardiovascular diseases (world's leading mortality cause) caused by excessive body fat, as a tool for monitoring their progress, maintaining their motivation, receiving feedback and support while they follow a prescribed exercise and nutrition program that may well save their very lives. Without such a system, there is 50% drop-out rate! BodyRecog promotes healthy lifestyle changes, detects personalized health risks, helps users stay highly motivated, offers feedback and support, plus enables additional feedback & support from friends, trainer and doctor.

Vietnam

VN.1.

Inventors Tran Nam Nhat Anh, Pham Minh Duc, Hoang Nguyen Giap, Hoang Gia Nam, Do Cong Vinh, Nguyen Gia Huy, Mai Trong Dung

Invention MAKING USE OF SPEED BRAKER TO GENERATE ELECTRICITY

Institution VNU Universiy of Science

Abstract Energy is the primary need for survival, especially for mankind. Everything that happens in the surrounding is the expression of flow of energy in one of the forms. But in this fast moving world, the population is increasing day by day and the conventional energy sources are lessening. The extensive usage of energy has resulted in an energy crisis over the last few years. The demand of electricity is increasing rapidly day by day but the production rate is not according to the need. Establishing new power plants to produce more electrical energy is not a solution to this problem as per economical point of view. The government and the electricity generating companies are suffering huge losses in electrical power production due to inefficient methodology and various other constraints, especially in thermal power plants. The existing huge gap between demand and production can be filled by producing electricity at individual level in order to meet various household needs. To generate electricity to satisfy daily or basic needs various sources can be used that are normally overlooked in daily life, one of these sources include mechanical pressure of vehicles on speed breakers.

While moving, the vehicles possess some kinetic energy and it is being wasted. This kinetic energy can be utilized to produce power by using a special arrangement called power hump. It is an Electro-Mechanical unit. It utilizes both mechanical technologies and electrical techniques for the power generation and its storage. Power hump is a dome-like device likely to be a speed breaker. Whenever the vehicle is allowed to pass over the dome it gets pressed downwards then the springs attached to the dome are compressed and the rack which is attached to the bottom of the dome moves downward in reciprocating motion. The energy generated using the speed breaker mechanism can be used to store in batteries and can be used apart for various purposes. The work basically aims to produce free electricity with no fuel cost, no pollution and with minimum requirement of space. By doing this, we can make use of the energy created by hundreds of millions of vehicles on the road.

VN.2.

Inventors Pham Quang Huy, Pham Xuan Ninh

Invention Develop a fermentation process for poly(3-hydroxybutyrate) (PHB) production using waste cooking oil as inexpensive carbon substrate

Institution 1. Pham Quang Huy, Ngo Quyen High School, Hai Phong city, Vietnam,

2. Pham Xuan Ninh, Tran Nguyen Han High School, Hai Phong city, Vietnam.

Abstract Poly(3-hydroxybutyrate) (PHB) belongs to the family of polyhydroxyalkanoate (PHA), biodegradable polymers that can be used to replace some petro-plastics in packaging and medicine. However, the potential applications of PHA are restricted by their production cost, particularly the cost of the carbon substrate used. In this study a fermentation process using waste cooking oil (WCO) as carbon substrate for the production of PHB with high yield by *Cupriavidus necator* H16 was developed. In fed-batch cultivation mode using minimum medium, a cell dry weight (
CDW) of 135.1 g/L, PHB content of 76.9 wt%, PHB productivity of 1.73 g/L/h, and PHB yield of 0.8 g/g were obtained from WCO. The PHB productivity and yield obtained in the current study from WCO are among the highest reported so far for PHA production using waste oil as sole carbon substrate, suggesting that WCO can be used as inexpensive carbon substrate for the production of PHA on an industrial scale. In addition, a method for recovery of PHB from bacterial cells was also developed. High PHB purity of 98% and PHB recovery yield of 92% were obtained after treatment of bacterial cells with 6% NaOCl (ratio of 1:1, v/v) at 30^{o}C for 1 h.

VN.3.

Inventors Nguyen Duc Bao Trung, Nguyen Quoc Manh, Ta Duc Anh.

Invention A system detecting and giving warning of unsafe conditions of vehicle drivers

Institution

1. Nguyen Duc Bao Trung, 11 Informatics class, High School for Gifted Students, HNUE, Hanoi, Vietnam
2. Nguyen Quoc Manh, 11 Literature class, High School for Gifted Students, HNUE, Hanoi, Vietnam
3. Ta Duc Anh, 11 Mathematics class, High School for Gifted Students, HNUE, Hanoi, Vietnam

Abstract It is essential to monitor unsafe conditions of vehicle drivers and provide proper warnings to reduce traffic accidents. This report presents a study for producing and testing a system that is able to detect unsafe conditions of drivers by monitoring drowsiness, drug use and unsafe health conditions and send warnings to the entire monitoring system as well as the person directly driving the vehicle. The system consists of three devices: a device for measuring - digitizing - transmitting information about the driver's health status (heart rate, blood pressure) to the workstation via SMS phone messages; the workstation receives information about the driver's health status and send to the server via the Internet; the server receives information about the health status of vehicle drivers then analyzes it and gives an alert if it detects a traffic unsafety; moreover, it also stores
health data continuously over time. The measuring - digitizing – transmitting device will automatically measure and digitize information about blood pressure and heart rate through reading signals from the display screen of
meters available on the market (the conversion of displayed information into digitized information is done by a smart electronic device that extracts the information from the signal path connecting the screen with the meter) hence, the information from the meter is read accurately from standard medical meters without any intervention or re-manufacturing the medical devices ensuring legality and cost reduction. The server device analyze the information based on the digitized databases received from each vehicle driver, according to each specific journey. Based on the digitized heart rate and blood pressure information obtained from the driver, there are three algorithms for detecting unsafe conditions of vehicle driver including: Algorithm for detecting drowsy driver (the heart rate is lower than threshold level); Algorithm for detecting driver using drugs; Algorithm for detecting driver under unsafe health conditions. The test results on real roads show that the system is capable of detecting driver's unsafe condition and give appropriate warnings.

VN.4.

Inventors Vu Quoc Viet, Le Thi Hai Binh, Quach Dai Duong

Invention Development and clinical application of preimplantation genetic diagnosis of beta-thalassemia combined with HLA matching

Institution

1. Vu Quoc Viet, 10 Biology specialized class, Tran Phu High School for the Gifted, Hai Phong city,
2. Le Thi Hai Binh, 10C1 class, Ngo Quyen High School, Hai Phong city,
3. Quach Dai Duong, 10C6 class, Ngo Quyen High School, Hai Phong city

Abstract

β-thalassemia is an autosomal recessive disease with the reduction or absence in the production of β-globin chain in the hemoglobin, which is caused by mutations in the *HBB* gene. In Vietnam, the number of β-thalassemia carriers range from 1.5 to 25.0%, which is much higher than WHO's data worldwide (1.5%). Preimplantation genetic diagnosis (PGD) combined with HLA-typing has emerged as a tool for couples to select unaffected embryos of an HLA tissue type identical to that of an existing affected child. At delivery, HSC from the newborn umbilical cord blood can be used to treat the affected sibling. Here we present the our results of preimplantation HLA-typing combination with PGD, a family in which both the parents are beta-thalassemia carriers carrying CD17 and CD41/42 mutations, and their first child is affected carrying both mutations. By using short tandem repeats (STR) markers we screened for and identified the mutated alleles in the embryos, hence, combining with the use of sequence specific oligonucleotide (SSO), we found two out of six embryos are transferable, with HLA compatibility and healthy (β^N/β^N) or asymptomatic carrier phenotype (β^0/β^N). One healthy phenotype embryos are selected to transfer for mother and resulted in pregnancy at 13 weeks. STR marker combined with HLA SSO methods has been shown to be a reliable strategy for preimplantation HLA matching.

The parents are both β-thalassemia carriers (heterozygotes – possessing one defective allele), with the wife carrying CD17 (c.32A>T) and the husband CD41/42 (c.126-129delTCTT), and their firstborn carries both mutations (Table 1).

Table 1. Genotype and Phenotype of the patients confirmed by Sanger sequencing.

	Genotype	Phenotype
Husband	$\beta^{CD41\text{-}42(\text{-}TCTT)}/\beta^N$	β^0/β^N
Wife	$\beta^{CD17(A\rightarrow T)}/\beta^N$	β^0/β^N
Child	$\beta^{CD41\text{-}42(\text{-}TCTT)}/\beta^{CD17(A\rightarrow T)}$	β^0/β^0

The STR haplotypes which were linked to the HBB normal and mutant alleles were inferred by investigating the family members (Figure 1). Four out of six embryos (HN1, HN2, HN3, HN6) received health alleles from the parents, and two were heterozygous for CD17(A→T) (HN5) and CD41/42(-TCTT) (HN4). As the two heterozygous embryos would express β^0/β^N phenotype, they are still transferable. Interestingly, in the embryo HN3, the marker HBB5138 did not show any signal, HBB5178 showed only one weak signal, possibly indicating a complete locus drop-out and an allelic drop-out during the WGA procedure of this embryo.

VN.5.

Inventors Do Duc Minh[1], Hoang Tran Linh Anh[2], Vu Nguyen An Viet[3], Nguyen Ha Diem Anh[4]

Invention	Fabrication and application of triboelectric nanogenerators
Institution	[1]Hanoi University of Science High School for Gifted Students, Hanoi, Vietnam [2]Singapore Chinese Girls' School, Singapore [3]High school for gifted students, Ho Chi Minh City Pedagogical University, Vietnam [4]Hanoi - Amsterdam High School for the Gifted
Abstract	The advance of integrated circuits in the last decade has ushered in the age of miniaturized electronics that are becoming more portable, wearable, stand-alone and even implantable than ever before. They then require power solutions that are sustainable, maintenance-free and even perpetual, making the use of conventional power supplies such as battery limited. With this regard, energy harvesting techniques that can capture and convert ambient energy have emerged as a supplementary and even an alternative power solution. In the last few decades, the boom in consumer electronics rapidly creates the need for a sustainable portable and wearable power source. There are too many low-power electronic devices that are introduced to enhance the quality of our life, such as sensors, communication devices, GPS devices, implantable, and health monitoring devices. All these electronic gadgets require electric power in the range of few microwatts to milliwatts. The solution to this problem addressed in 2006 with the invention of nanogenerators (NGs). The NGs with various classifications and effects such as piezoelectric nanogenerator (PNG), triboelectric nanogenerator (TENG), thermoelectric generator (TEG), and pyroelectric generator (PYG) had been introduced in the past decades for a variety of energy harvesting and self-powered applications. The TENG has a novel and unique mechanism by using the coupling between triboelectric effect and electrostatic induction. It features unparalleled advantages over other developed existing technologies, including high power density, light weight, small size, low cost, flexibility and even transparency. Since its first report, it has evolved very rapidly and attracted extensive research interests on a global scale. **The idea to making triboelectric nanogenerators.** One day these energy harvesters could be used to power your phone from the movement of your body, or used in implanted medical devices to eliminate the need for batteries and subsequent replacement. What uses can you think of for these devices?

VN.6.	
Inventors	Nguyen Hoang Dam Thuyen, Nguyen Hoang An, Ha Duy Linh, Do Cong Vinh, Pham Tuan Minh
Invention	FABRICATION OF Vanadium-doped TiO2 FOR POLLUTED WASTEWATER TREATMENT IN VAN PHUC SILK VILLAGE, HANOI, VIETNAM
Institution	Research Institute of Creative Education

Abstract	Van Phuc is a village located in Ha Dong district, 8 km south-west of Hanoi. It is a well-known place for toursists. Van Phuc is famous for traditional handmade silks. The silks were made by traditional tools and colored by natural dyes, which are friendly with the environment. Nowaday, people tend to use chemical dyes for silks. The remain dyes and wastewater are directly discharged into the ground and water outlet systems, causing water pollution. The slide shows the origin of pollution of water in Van Phuc village. There are 2 types of pollutants in wastewater here: remained dyes and the chemicals come from the dyeing process. In this report, we are trying to use Vanadium-doped TiO2 to degrade common dyes and chemicals in wastewater in Van Phuc. The selected dye used in the report is scarlet red, with the formula of C24H20N4O. A sample of wastewater in Van Phuc has been analyzed to detect the common chemicals in it. Phenol was chosen to be tested in this report because it has a stable structure and difficult to be degraded. The nanomaterial used in the report is Vanadium-doped Titan Dioxide. TiO2 is a semiconductor with the bandgap of 3.2 eV, which has a strong photocatalytic activity in the ultraviolet region. To improve the photocatalytic activity of TiO2 in visible region, Vanadium has been doped into the TiO2 to decrease the band-gap value, shifting the absorption edge to the longer wavelength and increase the absorbance in this region. With higher absorbance, the V-doped TiO2 will be more effective in the photodegradation of phenol and dyes. The fabrication process of V-doped TiO2 is shown on the slide. To confirm that the fabricated material is V-doped TiO2 with expected properties, we have performed various measurements. The scheme of photocatalytic testing is shown in the slide. The light source using in this experiment is an incandescent lamp. The SEM image show that the average grain size of the sample is in the range of 30 - 50 nm, confirmed that the nanomaterial has been successfully synthesized. The XRD pattern shows that all samples only contain TiO2 anatase phase. The effect of doping cannot be detected in the pattern. This result confirm that the fabricated material is TiO2. The absorbance spectra of the samples suggest that the doping of Vanadium increase the absorbance of samples in the visible range.
VN.7.	
Inventors	Research Institute of Creative Education
Invention	Tetraethylenepentamine-impregnated mesoporous silica as effective CO2 adsorbent
Institution	Research Institute of Creative Education
Abstract	A series of high capacity CO2 adsorbents were developed using silica supports impregnated with tetraethylenepentamine (TEPA), pentaethylenehexamine (PEHA), and triethylenetetramine (TETA). For confirming the amine loadings and examining the residual porosity of materials, the sorbents were characterized by nitrogen adsorption porosimetry, thermogravimetric analysis. The effects of TEPA loadings, silica supports, adsorption temperature on CO2 adsorption were investigated. The experimental results showed that the silica material with the largest pores, MSU-F, had the highest CO2 capacity after impregnation with 70wt% of TEPA. The mechanism study confirmed that CO2 was adsorbed onto the sorbent through the formation of carbamate species.
VN.8.	
Inventors	Research Institute of Creative Education
Invention	Designing a model of rotating solar panel system for water heating and electricity generating in remote households in Vietnam
Institution	Research Institute of Creative Education

Abstract	Hence, our group implements the "Designing a model of rotating solar panel system for water heating and electricity generating in remote households in Vietnam" project in order to provide a method which is fully automatic and optimal for solar energy use to help people living in lack-of-electricity areas in Vietnam.
VN.9.	
Inventors	Research Institute of Creative Education
Invention	Design of Distributed Academic-record System Based on Blockchain in Vietnamese Schools
Institution	Research Institute of Creative Education
Abstract	This research design blockchain-based distributed academic record system, which will keep the history of academic achievements ranging from basic education to lates education of the student. It also implements with the main function to record transactional achievement for each participant. This paper also describes the design of system architecture with blockchain, based on permissioned networks by adopting a voting-based Byzantine Fault Tolerant (BFT) algorithm so that the system can tolerate crash failures and Byzantine problems [4]. In this study also proposed smart-contracts, that are designed in accordance with the business logic of academic flow.
VN.10.	
Inventors	Research Institute of Creative Education
Invention	Synthesizing Vinblastine from endophytic fungus Chaetomium nigricolor isolated from Catharanthus roseus
Institution	Research Institute of Creative Education
Abstract	Vinblastine is a popular ingredient used in cancer chemotherapy. However, this compound can only be biosynthesized from Catharanthus roseus and its endophytic fungi, thus, the price for drugs containing it is costly. In this research, a new solution for synthesizing Vinblastine has been found, lowering the price of drugs containing it by 20%. This is the first publication about Vinblastine extracted from Chaetomium nigricolor and the optimal solvent system to extract it in high concentration from this fungus.

— Atlanta —

Atlanta is the capital and most populous city of the U.S. state of Georgia. With a population of 498,715 living within the city limits, it is the eighth-most populous city in the Southeast and 38th most populous city in the United States according to the 2020 U.S. census. It is the core of the much larger Atlanta metropolitan area, which is home to 6,144,050 people (2021 estimate), making it the eighth-largest metropolitan area in the United States. It is the seat of Fulton County, the most populous county in Georgia. Situated among the foothills of the Appalachian Mountains at an elevation of just over 1,000 feet (300 m) above sea level, it features unique topography that includes rolling hills, lush greenery, and the most dense urban tree coverage of any major city in the United States.

International Invention and Innovation Contest „PRIX EIFFEL" and International Economic Mission to France for a technology fair

Competition online + international economic mission to France for International Technology Fair Paris /France

The mission and contest is addressed to individual inventors and institutions from the field of science and SMEs.

International Economic Mission to France for technology Fair combined with the International Competition of Inventions "PRIX EIFFEL". Organizers are French Federation of Inventors, the French Association of Inventors Europe France Inventeurs and Haller Pro Invention Foundation. We heartily invite to participate in the economic mission.

IN THE MISSION PROGRAM:

- Promotion of inventions and innovations by participating in the **International Competition "PRIX EIFFEL" 2022**
- Participation in the technology fair as a visitor
- Visiting the Fair as VIP guests and participation in Fair conferences
- Ceremonial presentation of awards and medals to the winners of the **"PRIX EIFFEL" 2022** competition

INTERNATIONAL INVENTION COMPETITION „PRIX EIFFEL"

The patron of the competition is Gustave Eiffel, a brilliant innovator and constructor, a major figure of the industrialization age of Europe and rest of the world, an author of the tower which has become the icon of Paris and other innovational implementations created both in France and other countries.

AWARDS

All inventions submitted to the Prix Eiffel competition will be evaluated by a jury representing both science and industry. The awards include medals: platinium, gold, silver and bronze.

The honorary chairman of the jury is Philippe Couperie Eiffel, HonoraryPresident of the E.F.I. F.F.I. and a descendant of the patron of the Competition. Also, on the presidium are Gérard Roquillon, President of the Federation of French Inventors Associations, Patrick Herbault - President of Europe France Inventeurs and representing Poland prof. Krzysztof Biernat.

We gladly invite you to participate

HALLER PRO INVENTIO FOUNDATION

Obroki 133 street, 40-833 Katowice, Poland
Patrycja Wawro phone.: +48 690 096 224
p.wawro@haller.pl www.haller.pl

11th 2022

KOREA

WICO

WORLD INVENTION CREATIVITY OLYMPIC

Did you know this? Welcome to KOREA!

Application Period Until **July 04** (Mon) 2022

Exhibition & International Review **Aug 04** (Thur) ~ **06** (Sat) 2022

Award Ceremony **Aug 06** (Sat) 2022

2022, Korea will host the 11 th **World Invention Creativity Olympic** in Seoul, a beautiful city in South Korea.
Inventors, creators and companies from **25 countries** participate.

www.wicokorea.com | www.invent21.com

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PATENT NEWS LOHAS

2022年第10屆澳門國際創新發明展

The 10th Macao International Innovation and Invention Expo (MiiEX) 2022

澳門最具規模發明展

Macao's Largest Innovative Invention Expo

發明比賽，發明家交易、交流，免費知識產權講座

Invention Contests, Inventors exchange, Free IP seminar

2022.10.13 ~ 2022.10.15

10:00a.m. ~ 19:00p.m.

展會地點：澳門科學館

Venue：Macao Science Centre

指導單位 Guidance unit

中國發明協會 China Association of Inventions

主辦單位 Organizer

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

協辦單位 Co-organizers

世界發明智慧財產聯盟總會 World Invention Intellectual Property Associations

香港發明創新總會 Hong Kong Federation of Invention and Innovation

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AUGUST 27

INFORMATION AND REGISTRATION

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INTERNATIONAL FEDERATION OF INVENTORS' ASSOCIATIONS

WIIPA

I N O V A – BE THE ROLE MODEL – INTERNATIONAL INVENTION SHOW

MALL OSIJEK, Croatia, October 12-15, 2022.

www.inova-croatia.com

INOVA is a traditional national exhibition of inventions which since 1971 has been regularly displaying the best of the technical inventive work in Croatia. INOVA is encouraging and symbolizing the innovative spirit in Croatia.

Over the past 40 years of its existence INOVA has brought together, promoted and presented to the public thousands of domestic and foreign inventions.

INOVA is the world recognized premier inventors event in Croatia, supported by WIIPA /World Inventors and Intellectual Property Associations/.

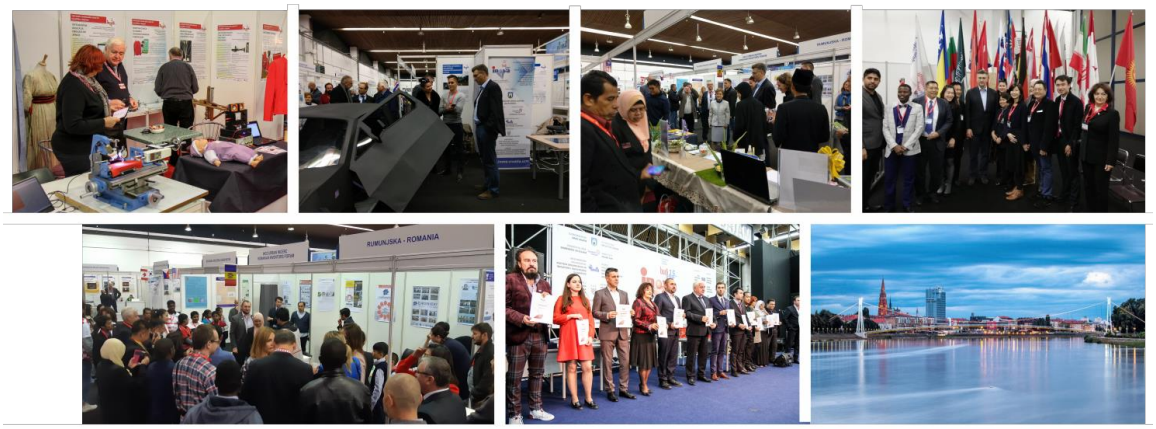
INOVA is growing continuously during last 10 years, with each year breaking the previous year's record for both the number of exhibits and collaborating countries worldwide. INOVA became the true global stage for merging worldwide creativity and innovation in Croatia.

At the same time, INOVA will often ample opportunities for domestic inventors and entrepreneurs to meet their foreign colleagues and for the sale of inventions at the Croatian and EU market.

A lot of entertainment features will include attractive prizing programs. Indeed, the organizers are preparing numerous medals which will be conferred on the basis of decisions by an international jury. Many international awards, Best Croatian and Best International Award are already announced ...

Inventors, innovators, scientists, students, professors, researchers, designers, entrepreneurs, young inventors and any one with spectacular ideas are eligible to apply to INOVA 2022 and participate in all event programs.

INOVA is also a Hybrid Exhibition, with the normal live show as an Exhibition of commercial innovations and the online part of the exhibition which is focused on business promotion through the innovation platform, the website www.inova-croatia.com, connected to the social platforms facebook, instagram and youtube. In addition, the presentation of the awarded innovations to the public, entrepreneurs and scientific institutions will be performed globally in a 6-month period (until April 10, 2023).



INOVA IS FORUM AND TRADE SHOW FOR:

- INVENTORS, ENTREPRENEURS, INTELLECTUAL PROPERTY OWNERS, COLLEGE AND UNIVERSITY GROUPS, RD INSTITUTES AND SCIENTISTS
- LONG TRADITION EXHIBITION ONE OF THE OLDEST WORLD'S INVENTION SHOWS
- TAKES PLACE
- A LOT OF VISITORS WILL SEE YOUR EXHIBITS AMONG INVENTORS FROM MORE THAN 20 COUNTRIES WORLDWIDE
- INOVA IS A GREAT OPPORTUNITY FOR THE SCIENTIST TO MEET, REASON FOR WHICH AN INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE AND ENGINEERING WILL BE ORGANIZED.

Croatian Inventors Network in cooperation with TERA-TEHNOPOLIS and a World Patron, WIIPA guarantee a massive business turnout, complete satisfaction, unforgettable Croatian days for all our distinguished and lovable participants.

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WIN A TOTAL GRANDPRIZE TENS OF MILLION RUPIAH

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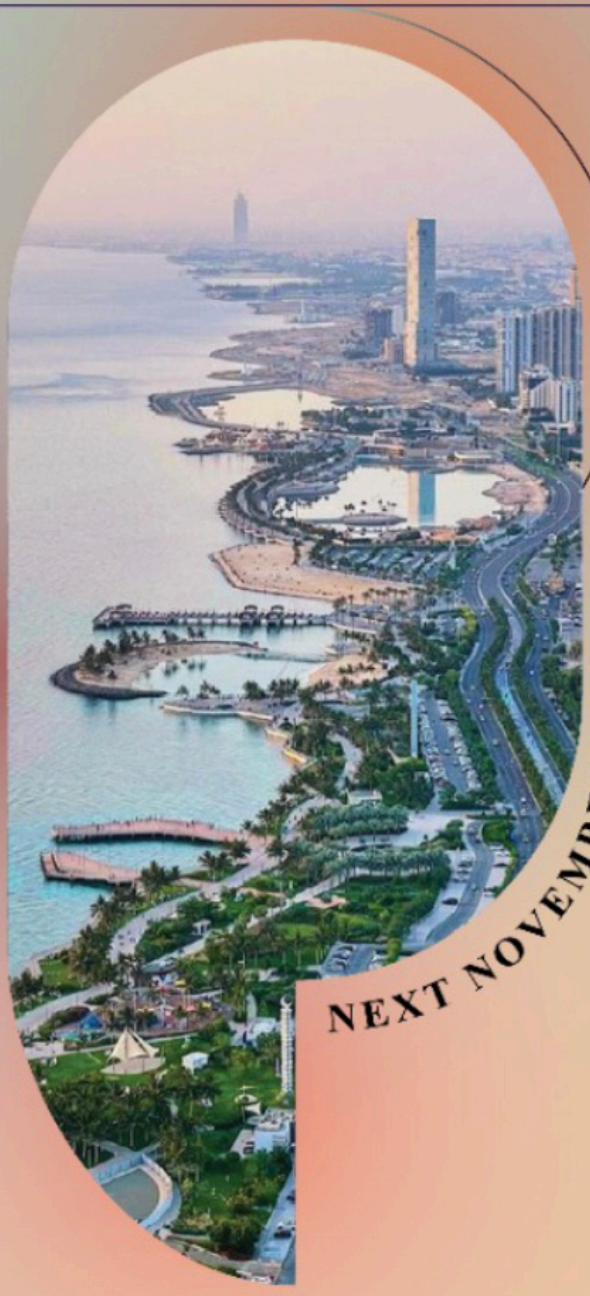

NEXT NOVEMBER

10 - 12 / 11 / 2022

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WIIPA

高雄國際發明暨設計展

KIDE

Kaohsiung International Invention&Design EXPO

DEC 01-03,2022

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Implementor	Taiwan Invention Products Promotion Association
Advisor	Kaohsiung City Government
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World Invention Intellectual Property Associations

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