

Cellular and Molecular Biology (CELL)

CELL 01 Cellular and Molecular Biology (CELL)

KSA , HASSAN ALI S ALSHAMMARI

Determining the Effect of the Novel Inhibitor C-11 on the Capacity of Mesenchymal Stem Cells to Differentiate into Adipocytes

According to 2014 WHO figures , more than 600 million adults were obese and approximately 2.8 million people die each year as a result of obesity, presenting health and financial burden. Human mesenchymal stem cells (hMSCs) are multipotent stem cells capable of differentiating into multiple cell types which make them an attractive candidate for regenerative medicine applications. Histone modification was reported to be involved in regulating MSC differentiation. The aim of this study is to investigate the effect of the novel compound C-11 HDACi on regulation of hMSCs differentiation into adipocytes at the cellular and molecular levels. Adipocytic differentiation was assessed using Oil Red O and Nile Red staining. Gene expression regulated during MSC differentiation was assessed using qRT-PCR. HDAC activity was measured using HDAC Glow assay and western blot. The data showed significant ($P \leq 0.001$) increase (~ 2.5 fold) in hMSCs differentiation into adipocytes when treated with C-11 and qRT-PCR demonstrated significant ($P \leq 0.001$) increase (~ 3 fold) in main adipocytic genes. Genome-wide microarray analysis revealed significant up-regulation of genes involved in adipocytic differentiation in cells treated with C-11. hMSCs treated with C-11 exhibited significant ($P \leq 0.001$) decrease (~ 10 fold) in HDAC activity and marked increase in acetylation, suggesting epigenetic modifications as potential mechanisms that promote adipogenesis. The data revealed a novel role for the C-11 HDACi in regulating and promoting adipocytic differentiation of hMSCs. Manipulating such pathways may have significant impact in regenerative medicine application and treatment of obesity.

Embedded Systems (EBED)

EBED 01 Embedded Systems (EBED)

JORDAN , MOHAMMAD MOATH (M.A) AL-GSAEMHE, REYAM MOATH (MOHAMMAD ALI) ALGSAEMHE

Intelligent Speed Monitor

That most of the accidents in the world due to the speed and to overcome that must specify a maximum speed of each street, depending on the region because each region must determine the speed based on the geographical nature and population congestion and so on ... This system is controlling the maximum speed to alert the driver and then record the violation of his right if he does not respond to the alert by sending information over the cellular network to your server. Steering concerned the registration of traffic violations. System is a device that is mounted inside the car and a bundle with the car's computer to check your private vehicle speed is linked to normalize with the phone through the device of the GSM and works by transmission frequencies (RF)) resulting from cards (RF TAG) planted in the streets of certain spaces is determined by the need and conditions . Each card (RF TAG) specified by a certain speed, so that the device in the car when the conduct of the vehicle or near the transition of these cards captures and translates frequencies depending on the program located in the device. For example, agriculture is scheduled on the card 80 in speed allows the street marching on the speed of a maximum of 80, and so on for the streets

and other areas. And this speed is programmable and translated as a voice of warning more than once and then offense if the driver exceeded the maximum permitted speed. When exceeding the speed of the vehicle to the specific lighting Green is the color of the vehicle and alert the driver is acoustically to exceed the limit to the speed of the vehicle for this region, and asked ease and speed this is called the first alarm sound the alarm. But the vehicle that exceeded the speed limit increase of 10 device will be running red light alarm clock and voice alarm (You've exceeded the maximum speed was recorded violation of your right.

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EBED 02 Embedded Systems (EBED)

JORDAN , NOOR MOHAMMAD ZAKI KHASAWNEH

Automatic lock system

Due to the increment in the incidence of car accidents that result from inattention during getting in and out the car , and the losses that result from them ;I decided to have a role in decreasing these losses by creating the "Automatic lock system". The principle of this system depends on calculating the distance between the parked car and the car that is coming from behind by an ultra-sound waves sensor that sends the waves backward ,after their reflection the velocity of the coming car and the time needed to reach the parked car are calculated. Then according to the time ,a decision will be made to allow or not allow getting out the car by giving an order to the centre lock to be locked for limited period of time which is enough for the coming car to pass the parked car.

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EBED 03 Embedded Systems (EBED)

JORDAN , ZAID(MOH'D SAMER) ZAID SHAMLI

The prevention of suffocation premises closed

The words of a device that measures the percentage of carbon monoxide on propane, butane propane shows the percentages to be present on the device screen and there are three colors of the lights on the device (green, orange, red) green indicates that the percentages are in the normal range, and orange, that there is an increase in the percentage of the sound at this stage, the device fired a warning to alert the person who shows the instructions on the screen to reduce the ratio, and red indicates that the ratio of the percentage was almost serious, In this stage is called the device alarm is the highest of the previous phase and gives the order to enter air fan to help in case of warning in response to the person, a person may connect your device with a computer and to learn about the rates of gases and guidance will increase in proportion, will develop instinct in after adding new feature is the ability of the device to contact civil defense in the case of the inability of the device to compensate for the lack of oxygen

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EBED 04 Embedded Systems (EBED)

PALASTINE , AKRAM O. J. SBAIH

Secretary Online

"Frequent problems in the process of scheduling appointments for individuals and institutions, the loss of time individuals in the custody of the various appointments and you may need to travel from one city to another and a lot of time and effort, and to amend these appointments, reminders, and search for the right institutions and choose the best ones and inquire and communicate with them. Lies the solution to this problem in the use of modern technology, and to abandon the old ways, and take advantage of the Internet to narrow the distance, and the preparation of artificial intelligence algorithms developed to provide optimal performance, and the use of accurate data and useful provided by multiple sensors which, specifically in the smart phone as widespread. And the introduction of solid ingredients to make it a complete system integrated and automatically. Featuring System (e-secretary (Secretary Online - inclusive for all previous operations, as it provides a lot of possibilities and options and tools within the user interface is clear and easy to use, compatible with a lot of smart devices in different sizes and qualities and regulations, stylish and boasts an array of movements and effects and fine details. The he has intelligence that can of appointments management of both parties -The user and Organization-giving priorities and postpone, modify, and delete appointments and reminders by the statement details and archiving. and depending on the rules of cloud data and information received from various sensors which are mutually together to achieve ideal performance. It is a component of the application to the user , simple and easy to use, and the application of the institution, designed as much information as high flexibility to introduce benefiting from large volumes of smart panels. It includes hardwares as well, it contains in microcontroller connected wirelessly with phones, and connected to an electric door and headset display screen appear as useful information; to complement Episode so smart integrated automatic search and selection of the institution, even out of it after the date and archiving easy, fast and free experience."

EBED 05 Embedded Systems (EBED)

PALASTINE , JEHAN E. J. AHMAD

Friendly Watch

"This device solves the sudden – high and low temperature in which child's heart beats . If it became up normal it leads to apoplexies , and if it lower than normal it leads to coma. The device gives mother sign (alert) about what happend to her child while he is sleeping . If something is happend to the child it will vibrates for the deaf parents to alert user about her child, In addition , this device helps the parents to follow their child regularly away from hospitals. This device works by putting temperature sensor under the child Apix , after measuring the temperatures the sensor temperature appears it on LCD screen. For the heart beats , parents should put the child index or middle fingure (For more accurate reading for the heart beats) , as we mentioned it measured the heart beats and show it on the LCD screen . For the deaf user, i put Bc547 transistor it works by a code . When the child cries , the microphone which is on the child watch analyses the child cry then send to by the RF (radio frequency) yo the deaf user watch by vibrations on the user rest. This device helps the mothers to solve the problems they faces."

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EBED 06 Embedded Systems (EBED)

PALASTINE , ROA A. A. RIMAWI

Driver's friend

"The main objective of the project is to design a device to alert the sleepy driver. . Focus will be on designing a system that allows accurate monitoring of the eye and determine the state of it (close or open). This project was developed by the theories of image processing. A camera was used to be directed towards the driver and the eyes are monitored so the status of the eye can be determined and thus sending a signal alerting the driver in case of sleepiness. The second part of this system is to measure overloading in vehicles which is another causes of traffic accidents ."

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EBED 07 Embedded Systems (EBED)

LEBANON , Salah Al Dine Fakhry

ZANGO

It's an app on iPhone ,and it have the same idea of whatsapp chatting messaging calling but it have allot differences like video call and a special thing about emojis, I collected all the emojis from all the applications and put them inside it and as we know there should be more privacy so before anyone text you, you should accept him so he can talk with you and in this way no one will disturb you, and we have a special thing also is that you can put all your information inside it such as gender , age , country so people can know you better.

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EBED 08 Embedded Systems (EBED)

EGYPT , Mohannad Ehab Hassan Baraka,

A novel approach for crying classification with artificial neural network and wireless body area network

"Crying is baby's only way of communicating their needs, thus it is hard to differentiate between their need for food, being distressed or being in pain. This research project is a novel scientific approach for baby care, by detecting and classifying baby's crying using feedforward Artificial Neural Network (ANN), to estimate crying reason. In addition, our system is trained to make an action upon the reason of crying (i.e. turn on a carton movie). We collected 140 sample (baby's crying) by digital recording system with 44100 Hz sampling rate, and 16 bit quantizer. Six features has been extracted, while we currently working on additional two (MFCCs and energy from wavelet transform). ANN trained by 90% training, 5% validation, and 5% testing. Currently, our classification reached 90% accuracy for detecting three reasons. Our hardware setup is ergonomically designed in two modules. First module is baby personal device (BPD) attached to each creedal including digital recorder and Bluetooth transmitter (IEEE 802.45.6 standards for body wireless area network BWAN), in addition to 9 inch LCD monitor. All BPDs are connected to central Nursery supervisory workstation (NSW); the second module, to analyze the signal and estimate the crying reason in addition to recommend the proper action for the babysitter. For small scale uses (home), our setup is integrated in one module, making the system affordable for nursery as well as home use. "

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Robotics and Intelligent Machines (ROBO)

ROBO 01 Robotics and Intelligent Machines (ROBO)

JORDAN , LU'LU' AYMAN MOHAMMAD BANAT

Eco-friendly vending machine against disposal effects

This machine is aimed to help the environment from the harm that is caused by solid waste ,we designed and built a snacks vending machine that works on inserting plastic bottles and aluminum cans instead of inserting any type of currency it works on convertible energy,The economic feasibility of the project comes from the new database that is installed on the device ; RLC sensor will record Every bottle or can enters the machine into data and sent them to a data base that is connected to the device To calculate prime time exchange between users and machine, these results will be shown to institutions that are interested in advertising ,the price of the Ads will cost more at the climax exchange,these Ads will be shown through the LCD screen on the machine with a high resolution .Also currently the machine is underdevelopment ; it will be provided with catalytic converter to convert CO to CO2 to reduce the harm , and to take advantage of it and use it as a source of energy. The device will be provided with a side tube so people can dispose the remaining of liquids like water, to filter it and use it in different fields such as agriculture. Last but not least connect the data base with a 3g modem and an online web server, the device has successfully connected different fields efficiently; robotic system, electronics, IT and business food and health and mechatronics.as a result the findings go with the hypothesis .

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ROBO 02 Robotics and Intelligent Machines (ROBO)

LEBANON , lyad Tout

Writing Automated Assistant (WAA

Mastery of a foreign language is not an easy process, especially with age. Currently, the most difficult part in a language is learning to write especially when talking about graphical languages such as Arabic, Chinese, Japanese, and so on. This difficulty becomes huge when dealing with Europeans or Americans (generally Latin based languages) when trying to learning oriental languages, especially the writing part. Traditional writing methods include dotted guides for writing needed letters. Here comes our solution as a Computer Guided Writing System. The idea of the device is to facilitate the writing process, which begins by drawing simple characters (each character separately), then move to "drawing" (writing) words.

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ROBO 03 Robotics and Intelligent Machines (ROBO)

MOROCCO , Kawtar EL ALAOUI, MERYEM BARIZ

Scarecrow moving by solar energy

Our innovation scarecrow moving birds solar-powered comes after our observations lack of movement with the traditional scarecrows commonly used in fields, which are usually in the form of cut-outs of straw or wood fixed does not issue any sound, so that the impact in the field of nuisance birds and intimidate limited and therefore does not distance it all fields and crops that the farmer laboring under for which it and spent a lot of his money. And because the birds attack the fields only during the day, we have thought of this innovation Scarecrow powered Solar and designed in the form of human being armchair outstretched revolves around the same momentum provided by a fan installed one arms run by an electric motor works during the day with electricity produced by PV panels installed directly over the head of the Scarecrow, and on the other arm was installed electronic device produced sounds intermittently suggest human presence. In addition to the removal of birds from the fields and the preservation of agricultural crops, it can exploit this innovative Scarecrow workers to the fields in charging batteries in their mobile phones the spot.

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ROBO 04 Robotics and Intelligent Machines (ROBO)

MOROCCO , OUSSAMA CHATRI

Solar-powered traffic lights

This project aims of the educational provision to a small device used in the sensitization shares the importance of preserving the environment through the use of clean energies in electricity production. As for the scientific and technical side provides a microcosm for power generation using photovoltaic cells to convert the potential energy in the sun's rays into electrical energy. It also aims to introduce a simplified vision of Morocco set the roof of the production of approximately 20% of the electrical energy from solar power, on the horizon of 2020.

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ROBO 05 Robotics and Intelligent Machines (ROBO)

MOROCCO , AICHA OUJIDI,KHAOULA YAGOUBI

Solar Power Fountain with solar tracker

Solar energy is among the clean energies that the scientific, technical and industrial entrepreneurial society seeks to develop by improving the cost-effectiveness of technological solutions used in its investment. Thus, in the context of raising the awareness of the educated about the challenges of sustainable development and the preservation of natural resources and the mitigation of environmental pollution,, a team of students members of the Scientific Club in secondary school Abdelkrim Al Khattabi of Nador city has achieved the preparation and completion of the project of a fountain installed in the central yard of the institution that employs the solar energy functioning. The aim of the project was to accomplish a microcosm of the solar-powered fountain motor that controls the solar cell panel, in accordance with the direction of the sun to get the most cost-effective possible turnover, the engine is controlled by software that gets the information according to a private geophysical data that fits the geographical location of the Fountain. The project's objectives: - Support the spirit of scientific research, innovation and creativity of the learner; - Introduce The learner to manual labor product training; - Recognition of how the equipment and the hardware of the learner is used - The application of security and safety conditions associated with the field of experimental work; - Recognition of the efforts done by the workers in scientific fields for community service efforts; - Training in teamwork, planning, implementation and exchange of scientific information; - Motivate learners to study science and specialization in this field ; - Sensitization role of renewable energies in the preservation of the environment.

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ROBO 06 Robotics and Intelligent Machines (ROBO)

MOROCCO , Hafsa MARCHICH,Oussama ROUTABI

Rotating light and bright taxi, auto energized

This project is a solution to the problem of linking light gyrator used, for example, on police cars or ambulances and panel taxi's lit at night, where they were installed conventional device compensation above the roof of the car and is connected by an electric car battery wire through the car window or through a hole performed in the roof, whether it is light dizziness or panel taxi lit, energy-independent device thanks to the exploitation of wind caused by the movement of the car. light gyrator and panel taxi illuminated at night and stainless shipping wind energy generated depends on the progress of the car, which gives him the energy out of the car battery dependence, for example. Technically, the device contains its own batteries charged with electricity produced by the generator is managed wind card resulting from the conduct of the movement of the car through the slot directed toward the wind turbine installed on the axis of the electric generator. Exploit the energy that is generated in the device driver during the course of the car during the day or night alike, and store the surplus in batteries to ensure the continued functioning of the device while the vehicle is stopped for traffic. This invention has been saved through his intellectual property registration at the Moroccan Industrial and Commercial Property office.

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ROBO 07 Robotics and Intelligent Machines (ROBO)

QATAR , Mohammed Taleb H M Al-Athba,Ahmed Mohammed A M Al-Katheeri,

Designing a robot and studying its effect in measuring the gases, water and heat percentages at caves

Designing a robot and studying its effect in measuring the gases, water and heat percentages at caves

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Mathematics (MATH)

MATH 01 Mathematics (MATH)

EGYPT , Amr Mostafa Omar,Fady Mostafa Omar

إيجاد مساحة ومحيط الدائرة بمعلومية اي وتر بها

"Research Introduction : In this research, a new law to finding the space of a circle by using any chord and this law is more general than its predecessor $A = \pi r^2$ This is because it deals with chords and Diameters in the circle The problem: Finding circle with unknown center and radius For example: 1-difficulty specifies center of planets orbiting 2-difficulty specifies orbits centers of electrons in atoms, 3-difficulty specifies some centers electronic parts (such as cylindrical capacitors) 4-difficulty specifies some centers laboratory tools (such as cylindrical tester included) 5-difficulty in some residential areas areas Specifies a circular shape Steps and procedures: after we study properties of the circle carefully we reached several supposes Preliminary suppose Through draw a square within a circle (circular Quad format) and use one of the ribs which is a chord in a circle to find space and circumference of a circle suppose (1): By knowing the length of any chord in the circle and the angle between the chord and the tangent suppose (2): It depends on a special chord in the circle (square this chord) = space of the circle directly without using a fixed rate such as (π) and we called this chord (golden chord) That is because of its strange properties from all chords in Circles suppose (3): Convert any chord in the circle to the golden chord, through the vertical distance between them and line segment between their ends Results Results of preliminary suppose: the idea is valid and can be circulated after the validated in many experiences but by using specific chord. The results of the suppose (1): the idea has proved its effectiveness and its accuracy after many trials, especially after using trigonometry to demonstrate this idea, The results of the suppose (2): all golden chord are drawn in all circles from fixed angel and we called this angel (Golden angel) The results of the suppose (3) we can find space of circles by knowing the length of any chords in the circles , its vertical distance from golden chord and line segment between their ends"

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Energy: Physical (EGPH)

EGPH 01 Energy: Physical (EGPH)

TUNIS , Haroun Chahed

Wave shock

Objectif : Ascertain what the wave angle (the angle that an object leaves while traveling the surface of the water) depend on and draw on general conclusions about the wave shock to eventually build the machine. Materials and methods: The idea of the experiment is simple; I pull the boat in constant velocity in the water (in my water tub) and when the boat's sail crosses the sensor, the speed measurer (borrowed from my school) shows the speed of the boat. Then it's possible to vary the speed, the volume and the depth and see how the wake angle varies. Discussion : I concluded the relation between the wake angle and the wave velocity in the water celerity and compared the phenomenon to wave shock in air. I also applied the results on real phenomena like the Tsunami and the Hydraulic Jump. On a second level, I understood that this phenomenon is a regular manifestation of I wave choc. Hence, planned a model of a machine that can determine the speed of the wave in the water, depending on the water flow and depth.

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EGPH 02 Energy: Physical (EGPH)

KUWAIT , ABDULLAH A S M ALRAYES,BADER N KH E ALMUZAYYEN

Solar energy saving

Sun the most important source of clean energy has many uses, whether on a small Kedzgen water levels in homes or lighting or water treatment or at a significant level Ktoled electricity, but how can we take advantage of this energy to generate electricity in the absence of the sun. The work of many researchers to create a highly efficient and low cost way to provide solar power to consumers in the absence of the sun, while the engineers working on the design of cheap solar panels and high efficiency to capture a greater amount of solar radiation, Thus, we find that storage is an urgent need to take advantage of solar energy surplus, and batteries at the present time is not completely useless, "We need ways to store large amounts of electrical power and is the only major obstacle to the development of solar energy around us. Scientists inspired by fuel cells, which usually provides fuel for the capsules and spacecraft based on interaction converts chemical energy contained in the small particles into electricity. Scientists industry thought FUEL CELL also works the opposite way and turning electricity into chemical elements, and therefore the battery can store solar energy and convert it to fuel organic simple. Batteries inorganic (ion - metal) has been around since 1980, that the old models is a tank filled with vanadium ions but it is not cheap. In this design has been to rely on the laws of chemistry in the processes of oxidation and reduction, using electric power generated from solar cells are the work of oxidation and reduction of water molecules H₂O and analyzed electrically to the main components of oxygen and hydrogen through interaction Thus we get the hydrogen gas and we store it during the presence of sunlight. In the absence of the sun's rays can reverse the process works previous to interact using fuel cell (hydrogen cell) which uses hydrogen gas to produce electrical energy While the sun is produced quantities of hydrogen gas by analyzing the water, and the experience of this design were produced amount of hydrogen while the sun is

enough to operate the fuel cell during the absence of the sun to 7 times the amount of time it has been done hydrogen production.

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EGPH 03 Energy: Physical (EGPH)

KUWAIT , TALAL H S SH M ALSHEHAB

The possibility of generating energy from the temperature difference between the hot air and cold water

In Kuwait there is a shortage of energy in the summer where the temperature is very high around 50 degrees siliceous It is known that the average temperature in the Gulf waters about 28 degrees Slise this difference in temperature can be exploited to generate power and this kind of power is characterized as a renewable and clean and environment-friendly

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EGPH 04 Energy: Physical (EGPH)

OMAN , ahmed ali ahmed alsalmi, sultan khalifa ahmed albalushi

Hydropower generator

Problem: The holes in the old and new paved streets that would subject vehicles to accidents and breakdowns. Research Question: How can we rehabilitate the holes in the new and old streets to avoid accidents and breakdowns as soon as possible? Project Objectives: * Providing solutions to the problem of holes in streets * Serve the society to find a safe way to avoid accidents resulting from street holes and vehicle breakdowns. Idea: Introduction of a system to fix street holes to avoid accidents and breakdowns. Research Assumption: If there is a system that fixes street holes, there shall not be accidents and breakdowns. Operation Idea * The most important part of the project is the sensor. It is places in the street repair vehicle. It is called ultrasonic. It changes the ultrasonic waves into electrical signs of vice versa. The operation of the sensor resembles that of radars of sonars used in probing the depth of seawaters. The sensor transmits ultrasonic waves and then analyses the wave echo to determine the depth. * Echo analysis is done in a piece connected to the sensor called (Arduino Uno), which is a small control panel programmed by using specific symbols and then connected to the electrical source through a USB port or battery. * Through the programmed symbols, the device receives interaction orders with the sensor. It then calculates the depth and the required asphalt quantity. Wires and an electrical board connect these two pieces. * The truck shall pass over the roads targeted while the sensor is in operation mode. If the truck moves over a hole that is more than 10 cm in depth, the sensor issues signals to the control panel that then calculates the required quantity of asphalt for the hole. In addition, the green lamp near the driver lights so that the driver can know the location of the hole. Then the driver places the truck over the hole so that the dispenser of asphalt is directly on the hole. The driver shall then issue an order to the control panel to operate the asphalt pump. The asphalt pump shall pump the asphalt into the hole in the required quantity and then compacting starts by a hydraulic compacter that comes out of the truck. Finally, air shall be directed to the place to dry the asphalt and remove the surplus installations.

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EGPH 05 Energy: Physical (EGPH)

UAE , Noora Hamad Sultan Almarri

Thermoelectric Smart Buildings

A model of a house highly constructed and developed, which will have an air conditioner and electric lights powered by Thermoelectric Energy. Thermoelectric Energy is the result of the difference between the cold temperature inside the house and the hot temperature outside the house. The difference in temperatures creates electricity that provides alternative solutions for a world that mostly relies on electricity. However, based on the Thermoelectric Effect, thermoelectricity can provide power in houses all around the country.

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EGPH 06 Energy: Physical (EGPH)

QATAR , Ahmed Hamed R A Alshammari, Khaled Yousef Aloun

The impact of self-movement and self-cleaning on the efficiency of solar cells

The impact of self-movement and self-cleaning on the efficiency of solar cells

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Energy: Chemical (EGCH)

EGCH 01 Energy: Chemical (EGCH)

JORDAN , MOMEN(MOH'D SAMER) ZAID SHAMLI

Recycling oil used to fuel material

The idea was to transform oil used in cooking and natural fuel is not the effects of the contaminated environment and a source of cheap energy adopt the idea on the compilation of used oils and then prepare homemade methanol during the process of pickling of remnants of fruit and vegetables, then work on conversion to fuel oil through a number of operations adopted on domestic vinegar, caustic soda, oh around US oil from an article is not useful after use to fuel and I am now working on the design of a device that all necessary steps to prepare homemade Fuel Safely

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EGCH 02 Energy: Chemical (EGCH)

KUWAIT , ABDULLAH A E A ALASHWAK

Improving the efficiency of solar cells

In this work, alkaline texturing of (100) crystalline Si and multicrystalline Si wafers in diluted KOH solution leading to pyramidal structures is studied as a function of the etching temperature. The surface morphology is investigated using Atomic Force Microscopy and Scanning Electron Microscopy and the surface reflectance is measured by spectrophotometry in the wavelength range 200-1200nm. It is found that etching in diluted 1% KOH solution leads to incomplete surface texturing when the etching temperature is equal to 70C. The optimum etching temperature is found to be in the range 80-85C which results in a minimum a uniform distribution over a wider wavelength range for samples that received a saw damage removal in 30% KOH solution prior to texturing . On the other hand, the optimum etching temperature shifts to the higher range 85-95C for multicrystalline silicon surface with a minimum reflectance of 4.6% with ARC. Keywords: Surface texturing , alkaline texturing , silicon solar cells , front surface reflectance , anti-reflection coating

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EGCH 03 Energy: Chemical (EGCH)

UAE , Latifa Hamdan Saeed Al Shams, Aysha Abdulla Saif Alneyadi

Banana Peel Biomass Briquettes

Banana peels are gathered and used as a raw materials which are compressed into biomass briquettes biofuels that are better alternatives to fossil fuels like coal and charcoal as they produce low net total greenhouse gas emissions. Biomass briquettes are a biofuel substitute to coal and charcoal. Briquettes are mostly used in the developing world, where cooking fuels are not as easily available. There has been a move to the use of briquettes in the developed world, where they are used to heat industrial boilers in order to produce electricity from steam. Biomass briquettes, mostly made of green waste and other organic materials, are commonly used for electricity generation, heat, and cooking fuel. In our project banana peel is used as a raw materials. The raw materials are gathered and compressed into briquette. These briquettes are very different from charcoal because they do

not have large concentrations of carbonaceous substances and added materials. Compared to fossil fuels, the briquettes produce low net total greenhouse gas emissions because the materials used are already a part of the carbon cycle.

Behavioral and Social Sciences (BEHA)

BEHA 01 Behavioral and Social Sciences (BEHA)

QATAR , Amna Mohammed F M Al-Mesallam,,

The encouragement of young entrepreneurs and their productivity through social media in Qatar.

The encouragement of young entrepreneurs and their productivity through social media in Qatar.

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BEHA 02 Behavioral and Social Sciences (BEHA)

LEBANON , Lara Hijazi, Mustapha El Jobeile

Shopping Freely

This project helps blind people buy what they need from the supermarket alone by using special equipped cart that can guide them through out the market. the cart will be equipped with 3 sensors that vibrate when an obstacle is very close . aA panel and a receuiver micro board will be placed on the cartto help the blind recognize the section they are at in the supermarket by receiving the signal emitted by the transmitter on a shelf in each section. Brail launguage is written beside the price of the products on the shelves.

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BEHA 03 Behavioral and Social Sciences (BEHA)

LEBANON , Ranim El Hariri,Haleemah Nassar,Sabeen Rek Elbakhour

“Eye Cane” or “Mobsira Cane”

Eye cane helps blind people cross the road easily and safely. It allows them to follow the red sign by producing vibrations.

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Physics and Astronomy (PHYS)

PHYS 01 Physics and Astronomy (PHYS)

TUNIS , Zeineb Horriche

Teapot Effect, windowsill drip kerf

The project emerged from the "teapot effect" where a fluid flows around the edge of a teapot and then flows along the subsequent surface. Carpenters have defeated this effect for windowsills by cutting a groove, known as a "kerf" underneath the edge of windowsills to prevent rain water from flowing back onto the building under the sill, and instead drop onto the ground. The purpose behind this research is to understand the physics rules behind this effect and find the dimensions of the kerf.

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PHYS 02 Physics and Astronomy (PHYS)

TUNIS , Sirine Gharbi, Jamila Nasri

Gauss rifle

We built and investigated the "Gauss Rifle" that consists of a sequence of magnets and steel balls placed on a rail system. Shortly after one ball is rolled forward at one end of the rail the ball at the other end shoots off with a large speed. We optimized our design to produce the greatest speed of the final ball for a rifle length of 1 meter.

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PHYS 03 Physics and Astronomy (PHYS)

UAE , AHOUD RASHED ALI AHMED ALYAMMAHI, SENDEYAH HASAN SAEED EKNAIBESH
ALYAAMMAHI, GHAREIBAH MOHAMED SAEED M. ALYAMMAHI

Your Secret Screen

The secret Screen is a normal computer but we remove a layer from it so it becomes invisible for the other people except the person who used it, he can see using a special glass. We can also return the computer visible again for the other by butting the layer again on the front of the screen.

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Chemistry (CHEM)

CHEM 01 Chemistry (CHEM)

KUWAIT , ESTABRAQ W A E S ALASKARI

Effect of temperature on vitamin c at fresh orange juice

The effect of temperature on vitamin c found in natural orange juice At the beginning of the experiment we take a sample of orange juice and put it in the refrigerator at a temperature of 5 ° Q Then start testing the amount of vitamin C in the juice at zero hour and after 3 hours and after 6 hours using material revealing turn of royal blue color to transparent at the disappearance of vitamin c of the solution color and then record the results in the table. In the second part of Altejrebhnicom raise the temperature development of a sample of orange juice and put in a water bath and keep the temperature at 60 ° Q put hot water to the aquarium glass and then begin to test the amount of vitamin C in the juice at zero hour and after 3 hours and after 6 hours using material revealing turn of royal blue color to a transparent color when the disappearance of vitamin c of the solution and then record the results in the table. In Aldzouaii of experience we upgraded more heat put a sample of orange juice and put in a water bath and keep the temperature at 80 ° Q put hot water to the aquarium glass and then begin to test the amount of vitamin C in the juice at zero hour and after 3 hours and after 6 hours Using material revealing turn of royal blue color to a transparent color when the disappearance of vitamin c of the solution and then record the results in the table and draw a graphic relationship during Wen graph analysis we reach a conclusion.

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CHEM 02 Chemistry (CHEM)

UAE , Abdul Aziz Tareq Alzarooni

Functionalized Magnetic Nanoparticles for the Treatment of Waste Water

Most of the industrial waste water media are polluted with soluble heavy metal ions. These ions are usually difficult to remove because of their high solubility. Unless removed, heavy metal ions pollution makes it impossible to recycle industrial waste water to be used in non-drinking applications such as plant irrigation. Environmental researchers have explored many approaches to tackle this problem using various approaches. Among these approaches, adsorption of these ions onto the surface of suitable adsorbents seems to be the most relevant and nearly efficient approach. However, removal of the adsorbent after the purification process is another challenge that faces environmental researchers. In the current proposal, nanoparticle)

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Biochemistry (BCHM)

BCHM 01 Biochemistry (BCHM)

QATAR , Mohammed Abdulla M S Al-Mannai,Abdulah Ahmed Alsolaiman,

The production of toothpaste from the Crimean leaf extract and its effectiveness on Fusobacterium that causes gingivitis

The production of toothpaste from the Crimean leaf extract and its effectiveness on Fusobacterium that causes gingivitis

Environmental Engineering (ENEV)

ENEV 01 Environmental Engineering (ENEV)

PALASTINE , MUFID F. A. ALAWNA

Wireless irrigation system

"This system allows the farmer to complete irrigation of crops to the fullest through only one connection, since this communication process activate the system automatically starts the irrigation process, the project contains a timer circuit electronic working to determine the irrigation process time which is determined by crop type and the need of water, the system contains an electronic circuit works as a buoy to prevent operation of the system when the water tank is empty . The main objective of the project is controlled wirelessly by the device which with protection line (Is a line that can not receive a call from the number, but only the owner of the land) Was selected example of a control, water pumps to irrigate crops, where they can control the operation of the water pump to irrigate crops wirelessly from a water reservoir is filled from a main tank and control using an electronic buoy operate automatically. That many aspects of the project and ways to use countless in all areas of life, whether in the areas of industrial, agricultural, vital areas, clean energy and environmental side, so that the use of technology has become in the present day saves time and effort and speed of performance."

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ENEV 02 Environmental Engineering (ENEV)

TUNIS , Iman El Nouri

Sky Cleaner Atmosphere's Purification from Greenhouse Gases

The greenhouse gases are harming our environment, especially the ozone layer and our health. That's why we decide to treat them in the atmosphere by sending a flying system to the stratosphere using a stratospheric balloon which reaches the stratosphere and remains fixed in this layer, so we add 4 ventilators to guide it to the polluted areas. It contains a new system we named ATGS (Adsorbing Toxic Gases System), composed of sensors of greenhouse gases to detect their presences and which will set a vacuum cleaner connected to the column that contains the activated carbon for the adsorption. We choose the activated carbon due to its surface area which is available for adsorption. But after a period, it will be saturated when all its pores are filled by greenhouse gases. Thus we will regenerate it at a high temperature. And after a big number of regeneration, it loses its adsorption capability, so it will be rejected in nature which is a principal source of pollution. That's why we decided to valorize these toxic products by transform them into a biogas which is renewable energy source. To conclude, this project can not only eliminate air pollution and save our environment but also we can take advantage of those rare and benefic products. In addition, it respects the main principles of the green chemistry which makes it more important and extraordinary.

ENEV 03 Environmental Engineering (ENEV)

KUWAIT , Rataj S H M ALDHAFIRI

Can we make friendly soil to environment?

Agricultural area in Kuwait is a small considered relatively due to us Kuwait desert and warm soil is sandy broken homes, but that did not prevent the development of the agricultural sector to meet at least part of the population need of food reaching self-sufficiency rate of production of the most important plant products 52%, according to statistics in 2004 and deployed in Kuwait 4545 farm total area of 134.535 acres spread over three zones, namely Al-Abdali and Wafra and the Crusades ... After mixing sandy soil loose with other materials it is expensive and unsafe where there should be a follow-up insect and rodent control pesticides harmful to humans and the environment and causes other such that some areas not suitable for agriculture and therefore must have access to alternative methods of agriculture in our country and fill part of the population needing both on the level General or individual .. The question Does the current generation to visualize the post-oil era of alternative energy or agricultural patch

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ENEV 04 Environmental Engineering (ENEV)

KUWAIT , ABDULRAHMAN R M M ALJASEM,,

Recycling of used tires

It possesses the State of Kuwait huge number of used tires of about a million and two hundred thousand framework, which causes a problem environmental issues under very large as it more than once a fire has occurred in nearby tire store resulting in the emission of a large amount of toxic gases and harmful require a major effort in extinguishing the fire After the preview of this tire turned out to be in very good condition, enabling us to recycle them in different ways - Action bumpers waves prevent beach erosion 2. Action waterways be a substitute for bridges and wooden walkways charged 3. Many of the other uses

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ENEV 05 Environmental Engineering (ENEV)

OMAN , Saif Issa Hammoud Al-farei,Salem Saif Salem Al-farei,

Insects and reptiles industry

The elimination of insects that do not fly and spread in homes and gardens which are harmful to humans, plants and pets Get rid of creeping animals and rodents The current search problem: The ways to get rid of insects and reptiles harmful and dangerous to humans, pets and rodents has been searched. In addition, the research did not find a dedicated machine for that issue and we found some chemical pesticides harmful to the environment which not good. The solution steps: The primitive model of the device has been manufacture and test it at such home. The optimum work has been developed until the has reached the current state. The main results of the project: The unique system which has been designed to eliminate the insects and reptiles plane non-hazardous to humans and rodents and pets.

ENEV 06 Environmental Engineering (ENEV)

QATAR , Mohammed salem M H Abushareeda,,

Project to design a vertical integrated agricultural device

Project to design a vertical integrated agricultural device

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ENEV 07 Environmental Engineering (ENEV)

EGYPT , Yara Abdelwahab Ahmad,Rawan Sayed AbdelRaheem,

Between moringa and ultrasonic sewage can be a solution

One of the most significant grand challenges that Egypt faces is water concern. Water issue involves inefficient use and contamination of water ,along with the unqualified infrastructure in Egypt. Our project works on exploiting sewage water which represents a main cause for water pollution. Sewage water does not only lead to 4% of deaths in the world, but also it brings most of the diseases found all over the globe. In order to solve sewage water dilemma we chose certain design requirements. Selected requisites start with having economic ,efficient ,applicable filter, accompanied by having proper number of stages, and using local materials from Egypt. According to these defined criteria, we have designed a solution to recycle sewage water in order to generate new source for non-potable water. The constructed filter consists of physical and chemical treatment followed by biological treatment. Physical and chemical treatment include 5 stages. These stages are settlement and screening , followed by coagulating with Moringa ,filtering with sand ,besides adsorption and ion exchange with activated carbon and Zeolite. Biological treatment involve shedding ultrasonic waves on the last container which will kill bacteria. After analyzing and experimenting the physical and chemical treatment part ,sand and Moringa were found to remove most of sediments from water. Zeolite and activated carbon were found to regulate PH, along with decreasing turbidity and salinity. Following the construction of ultrasonic circuit ,the circuit worked efficiently. In conclusion, the water produced will be clean enough to be used in irrigation, industry, toilets, washing cars and some domestic uses.

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ENEV 08 Environmental Engineering (ENEV)

EGYPT , Ahmed Nasser Sayed,,

"FBG" Develop and improve the efficiency of biogas production Using a mixture of Methanegensis and Home scale digester

"Rubbish in all Egyptian cities is increasing year after year , especially with the growing population and size of the rubbish in Egypt could reach 30.2 M tons in 2016 after 2001 reached about 15 M tons according to official figures from the Ministry of Environment (2013,2014) , and Rubbish consists of (60-70%) organic materials and also according to the latest statistics released by (Ministry of Agriculture) Egypt has about 8 million head of cattle produces 93 million kilograms of organic waste per day and also sewage rich in organic matter. Egypt depends on the treatment of organic waste either by burning and can not take advantage of it or burial to turn it into compost to become a benefit for land and agricultural but in the forms of benefit from it in the field of energy and fertilizer also Egypt depends on the digester of Indian-style and Chinese with a cost precious as the desired output size is limited Only a class peasants, and those of technology has some drawbacks, including the longest duration of fermentation and the resulting lack of efficiency of the gas, which affects the electricity generator and reduces its efficiency with continued use, etc. we Search about stimulate microbial activity within the AD next to the provision of essential factors appropriate to increase the reaction rate and reduce the duration of production within the digester. The results revealed that the addition of different strains of Methanegensis exist in a mixture of cow manure and sewage with the increased surface Mod organic with the fundamental factors relative depending on the temperatures that the reaction is faster and production is on the mend, the spectrum due to the simplification of those microbes in AD process related articles the size of the largest to the most basic materials used by the danger effect of life different from those primitive microbes for the production process. And This is done use develop digester small connected biological sewage source ""solid waste"" and using the foods waste at home and at lower cost and higher efficiency and also has the advantage and put it in several different places is not limited to one class only in order to benefit from all class."

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ENEV 09 Environmental Engineering (ENEV)

UAE , Shayma ahmed rashed ali bin subait alshemeili,Shaika ali Abdulla bin naser alteneiji,

The intelligent faucet

The Intelligent faucet Its hot climate of our country and in most cases, especially at noon. When you open the water faucet, the water is very hot and we waste some water while we expect that moderate temperature of the water in order to be able to use. We decided to find a way of reducing water waste, this thought in the following: A triple Valve extension put a sense of heat in the faucet. And when it opens measures the temperature of the water if the water temperature was too hot will come back to the tank, And come down with the appropriate water Body temperature. This speech also applied to the cold water.

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ENEV 10 Environmental Engineering (ENEV)

UAE , Maryam Mohammad Al Hashmi,,

The Epilogue of Plasticus

Project Description: An innovative method of recycling plastics by using plastic bottles with the support of solar energy to transform the bottles into cheap, efficient and eco-friendly modules that can be used as a source of natural lighting and an alternative to electric light. What we do on land affects even the most remote parts of our planet. As we all know, plastic is found almost everywhere and anywhere. Although plastics are a necessity for many diverse products, they can also display a negative effect on our environment. The practice of recovering scraps and waste plastic and reprocessing these materials into new products is called recycling. Recycling plastics are very beneficial to our environment since they can ultimately lead to a dramatic cut to our landfill waste. The target of this project is to find diverse methods of recycling plastics in an attempt to gain an advantageous result in the end. The purpose is to encourage more environmentally friendly ways of eliminating plastics, to stimulate local economics, and to gain a substantial environment. We conducted two hypotheses, the first one states that if the type of plastic used is of high resistance of heat, then the photocell absorption of solar energy will be most efficient. Another hypothesis that we concluded was that if three types of plastics are used, then different intensities of light absorption can be determined. In this project, we will use plastic bottles with the support of solar energy to turn it into an efficient module that can light it up. This method's innovation depends upon its fulfillment of cheap durable and abundant available materials to produce natural lighting allowing the poor access to an affordable eco-friendly alternative to electric light. We will also create a device that will save solar energy for the usage of light produced from the plastic bottles in the night time. This photocell device will also be made out of plastic in order to help aid the reduction of plastic wastes. We will also be experimenting on which type of plastic responds well to the energy of sunlight and its resistance which varies with the intensity of light falling on it. This project is an innovation that redefines plastic recycling for a better and healthier future ahead.

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Engineering Mechanics (ENMC)

ENMC 01 Engineering Mechanics (ENMC)

JORDAN , omar Hani Alamreen,Rashed bassam Alamreen,

use of intelligent systems in renewable energy

The Kingdom of Jordan suffers from lacking the natural resources which in return helps solving most of the economic problems. And now, it's necessary for us to find new resources of energy, so we need to use the natural methods of the renewable (Inexhaustible) energy such as the wind and the solar energy in order to convert those recourses of energy through the solar cells, special sensors and intelligent Artificial intelligence works to track the position of the sunlight, so the solar radiation falling vertically on the solar cells to give the maximum amount of sunlight o any source of light, converting it into the electrical power and storage the converted power into containers (rechargeable batteries). This method helps reducing the burden of the simple power supplies which uses the petrol in producing the power with their bad effect on environment in general. The Jordanian government as well as the citizens will get great benefits following this project precisely the Jordanian economy. This project has multi functioning equipment and sensors solves the weaknesses of the normal solar cell, as example; in this project, the cell has wipers that automatically cleans the surface of the cell in case of sensing dust or any object effect the full functioning of the solar cell getting the maximum benefit of the sunlight

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ENMC 02 Engineering Mechanics (ENMC)

PALASTINE , MIAR J. A. ABUHELAL,,

Safety Cleaning Device

"blocks and high buildings are new developments that have started to increase gradually, and they are in almost every city in the world that countries even started to compete to build them. These building are often with glass facades that need to be cleaned frequently, which is usually done in traditional and negative ways. One of these negativities is that it needs laborers, so it's a dangerous job that caused injuries and deaths to many people. So this is why the Safety Cleaning Device is essential,it cleans the glass automatically without needing any laborers. It sprays water and then wipe it. Also there's a wind pump that helps getting rid of dust. Plus we can operate the whole device using solar cells for reducing energy."

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ENMC 03 Engineering Mechanics (ENMC)

PALASTINE , ATHAR K. H. ARBAS,HAWAA T. M. SWAILEM,

Electric Children Stoller

the idea of the project came up from the fact that mothers face great difficalty while pulling their childrens (stoller) especially in high grounds or pumby roads and the sitation becomes worse if the mother has twins, so we designed self pollying baby stroller using achargable electric motor. it can

be activated by pressing a button placed on the handle of the stoller .the carriage is very safe as it stops completely when the hand is off the button>

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ENMC 04 Engineering Mechanics (ENMC)

PALASTINE , HUSSEIN QUZMAR,NADIM KAZMAR,

Smart traffic light

"the project is consisted of three traffic signs on three roads each one has three colored (red, orange and green) these signs are to organise the traffic on three roads effectively by using a clever traffic sign (Smart traffic light) . the clever (Smart) sign neglects the allowed time for the (non busy roads) and the allowance for busy road by using sensors under Asphalt which have high sensitivity for cars being on the roads . the project carried out on several steps . the first one was by using simulating program (proteus) , then the project was carried out on a breadboard after make sure that the circuits one in right order the project was finally carried out on a copper board and the circuit was installed on its final sketch . the project depends on controller (PIC 16F877A)and (4MHz) frequency and (Inductive Proximity Sensor Switch NPN) sensors. where three sensors used on three roads and this type of sensors is usually used to identify the place of metals on 0.5 mm space ."

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ENMC 05 Engineering Mechanics (ENMC)

KSA , KHALID ABDULALIM ALZAID,,

Prototyping a Compact Multi-Format Optical Transmitter for Next Generation Regional and Long Haul Terabit Networks

The last two decades have seen 60% annual growth rate (AGR) in the global IP traffic and it is expected that the AGR will keep the exponential growth in the next five years. Recent advances in digital signal processing enabled the implementation of the dual polarization (DP) optical coherent digital receivers, which substantially improved their performance. The goal of this research is to develop a prototype of a compact superchannel flexible DP M-ary quadrature amplitude modulation (MQAM) optical transmitter and demonstrate its reconfigurability to accommodate baud rates ranging from 8-32 Gbaud/s to achieve 1 Tb/s and beyond using the same hardware. The research work consists of three phases; Phase I is the study of transmitter electrical and optical parts; Phase II investigates the potential configurations for frequency comb generator circuit; Phase III deals with the superchannel experimental prototype. The results obtained so far are pertaining to phase I and phase II with some preliminary experimental validation pertaining to phase III. The experimental results show that the measured component characteristics are matched with the components specifications data sheets. Additionally, the designed frequency comb generator was able to create up to 9 optical subcarriers with flat gain of 0.5 dB amplitude. Transmission over optical subcarriers has been attempted using standard optical transmitter. These results show promise towards the generation of a variable data rate up to 1Tb/s. IEEE and ITU-T standardization effort considered these data rates to appear around 2017, and are intended for Next Generation Regional/Long-haul Networks.

ENMC 06 Engineering Mechanics (ENMC)

OMAN , ALzahraa Mohammed Hamed ALhusslnl.,,

AUTOMATIVE PAVEMENT

Introduction: The various holes in the streets that may affect the vehicles, makes us to introduce "automatic pavement" as a model that would help solve the problem of accidents and technical breakdowns in vehicles and traffic congestions. The holes in the old and new paved streets that would subject vehicles to accidents and breakdowns. How can we rehabilitate the holes in the new and old streets to avoid accidents and breakdowns as soon as possible? Project Objectives: •

Providing solutions to the problem of holes in streets •Serve the society to find a safe way to avoid accidents resulting from street holes and vehicle breakdowns. Idea: Introduction of a system to fix street holes to avoid accidents and breakdowns. Recommendations •

Need for continuous maintenance of the automatic pavement truck. •Provision of trucks that work continuously in each Wilayat. • Continuous follow-up of streets by the competent authorities.

Conclusions The project idea received the applause of the majority of questionnaire population. the results were as follows: 1. The majority of the sample supported the solution intimated in the questionnaire (automatic pavement truck). They asserted the need for that and the role of the project in reducing the accidents and breakdowns. 1. The majority of the sample agreed that the technical and design errors during pavement increase the probability of future holes.

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ENMC 07 Engineering Mechanics (ENMC)

UAE , Mohammad Abdulla Abdulmalek,Saif Yaqoob Al Shamsi,Khalid Khalid Anwahi

Mechanical Neonatal Ventilators

Mechanical neonatal ventilator is a low cost device that performs the essential duties of an ordinary ventilator in order to save the lives of premature babies and those born with breathing conditions that need these devices to get through their most difficult early weeks. Mechanical neonatal ventilators can cost tens of thousands of dollars each, a price that's out of reach for many impoverished areas of the world. Premature babies and those born with breathing conditions often desperately need these lifesaving devices to get through the most difficult early weeks.

ENMC 08 Engineering Mechanics (ENMC)

EGYPT , Mohamed Mahmoud Zidan, Taher Sobhy El Sayed

Smart Machine

Faces many of the owners of nurseries big problem in the process of sowing seeds, this process requires a lot of manpower. Either the time it takes working a great time in the cultivation of one unit where take him much effort and it affects in the production process so we searched to find a solution to this problem and we reached progeny seed inside greenhouse providing manpower and effort and time spent and thus underestimate the actual cost of the transplant alone machine has been designed by and through this research we worked on improving the performance of Machines seeding used inside greenhouses and combining the processes of Bottoming seeding and development of industrial soil

ENMC 09 Engineering Mechanics (ENMC)

UAE , TALAL ABDULAH FADHL ALGUMAEI, ADEL SAEED ABDULAZIZ ALSAFRAN ALHAJERI

Home Automation Power saving

The main idea is : We use a sensor to detect human body presence not PIR motion sensor Turning AC to Economy power saving or turn off due to presence of human Controlling this option due to what we intelligent selection throw Web Even we can control more thing like light,,, etc. The benefit Reduce the electricity consuming. Reduce carbon footprint (reduce emotion of CO2). Reduce load in electricity generator in rush hour. Reduce the bill amount from 20% to 80% due to duty cycle of presence people in location, and intelligent options we select throw Web. Integrated climate protection with tangible added value Also use for safety & security system.

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Systems Software (SOFT)

SOFT 01 Systems Software (SOFT)

TUNIS , Tarek Aloui

Using fake dictionaries in cryptology to develop a more secure cipher

In this research, I introduce a new block cipher mode inspired from human languages. In fact, this algorithm makes fake dictionaries from past communications, which are a data base of a fake language only understood by the allowed computers so that the eavesdropper cannot know the real content of the messages

SOFT 02 Systems Software (SOFT)

QATAR , Shaikha Ali A A Al-Mannai, Dima Ibrahim Musa

Permanent AC for parked Car

Permanent AC for parked Car

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Materials Science (MATS)**MATS 01 Materials Science (MATS)**

KSA , waleed khalid seddiq

Creating an Expedient Manufacturing Technique to Improve the Quality of ZnO Nanorods to be Used in Optoelectronic Applications

Industry efforts have been focused on the synthesis and modification of ZnO nanostructures for different applications such as electronic devices. Different forms of ZnO nanostructures such as nanowires, nanotubes, nanorods, and nanotetrapods have been fabricated using different methods. However, these methods require either high temperatures or long time process and have frequently resulted in poor quality and shape. The present study focused on producing ZnO nanorods using a simple route in a very short time. Highly pure well-shaped ZnO nanorods were produced in five minutes by using a microwave oven. The first step of procedures was mixing the materials (Zinc nitrat + KOH) that used to make ZnO nanorods together and mix it with distilled water , and then stirring them for 30 minutes, after that putting them in microwave oven for 5 minutes with 750 watt. The ten grown samples were characterized by a field emission scanning electron microscopy (FESEM) and X-ray defecation (XRD) The absorption and photoluminescence spectra (PL) were studied in more details. FESEM images show nanorods structures with diameters in the range 30-70 nm and lengths around 0.4- 1 μ m. These nanorods have well-defined hexagonal shapes at their ends. The grown nanorods have almost uniform size distribution. This approach could provide highly pure, wellshaped ZnO nanorods in a very short time, which might be useful for high performance ZnO based optoelectronic devices including all electronic devices

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Computational Biology and Bioinformatics (CBIO)**CBIO 01 Computational Biology and Bioinformatics (CBIO)**

TUNIS , ANIS JEMEL

Using EEG and machine learning in the reconstruction of visual patterns from the brain

The human eye is technically the best camera in the world. However, its data is inaccessible by machines. Our project aims to use data in the form human electroencephalograms to recognize the visual input received from the human eye. The recognition method is made using multiple machine learning algorithms (k-Nearest Neighbors, Support Vector Machine and Artificial Neural network) as

a base. The data processing was optimized using cross-validation, a dimension reducing pipeline of analysis to filter out redundant dimensions (features), and a Genetic Algorithm to synthesize new dimension weights to be tested. A comparative study is established to compare the efficiencies of different classifications to come up with the best algorithm to identify visual perception. The experiments from which the data would be withdrawn incline in complexity, starting with a proof of concept, in which patients' entire field of vision would be completely filled with a uniform color. Then we consider expanding the field of view to a multi-pixel grid, further approximating visual perception. The applications of this study go from the arts all the way to intelligence.

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CBIO 02 Computational Biology and Bioinformatics (CBIO)

QATAR , Ghanim Ibrahim J A Al-Mansouri, Hussam Ait Al-qadi,

"Innovative game software for the improving the four English language skills for non-native speakers"

How to support people non-native speakers

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CBIO 03 Computational Biology and Bioinformatics (CBIO)

QATAR , Ali Abdulla A S Al-Kuwari, Mohamed Nabeel M N Al_Emadi,

Implementing assistive communication system for an individual with severe motor disabilities based on Hybrid brain computer interface (Hybrid-BCI).

Implementing assistive communication system for an individual with severe motor disabilities based on Hybrid brain computer interface (Hybrid-BCI).

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Microbiology (MCRO)

MCRO 01 Microbiology (MCRO)

KUWAIT , zianab ahmed saleh mesri

How can the beneficial bacteria affect the dairy after expiration?

The dairy products such as yoghurt and great economic nutritional value, as it is one of the essential elements of daily meals in the task of the human being. And probably noticed a lot of the existence of specific dates for the validity of this milk (yogurt) on cans ... These dates refer to the validity of these food products for humans May come to the reader's mind that the validity of yogurt (yogurt) as soon as the end product becomes harmful to human health and that he should get rid of it immediately so as not to cause the injury or illness. But we found through the implementation of this research that there are many circumstances control the validity of these products such as Period in which they passed on the validity of the end of yogurt (yogurt), in addition to the surrounding environmental conditions, a temperature and humidity. We can search through this transfer of interest for each person consumes dairy products (yogurt) and spread awareness about Ally ability to take advantage of them if they expired for a period of time not exceeding a simple two weeks

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Earth and Environmental Sciences (EAEV)

EAEV 01 Earth and Environmental Sciences (EAEV)

JORDAN , Rafat omar Yousef Al-Dmour

AIR FILTERING DEVICE

I have made it clear the results of the studies in a large number of the countries of the third world that the concentration of greenhouse gases, which is within the normal level and does not pose any danger to the warming but the preventive actions that can be taken to reduce the emission of pollutants on ways to protect the environment, from the heat that will lead to a reduction of the proportion of pollution in the local environment and thus maintain the public health, as well as the other benefits of rationalization of energy consumption and save money and improve the health situation Hence the idea in the design device to absorb these gases in air in water and pumped into the air by using solar energy , where gas pressure with water dissolved which then separated in pipeline overpressure fresh air is used to generate electricity. Buffering gases is the oxides of acid when it melts in water is working to reduce the degree of acidity and low percentages of acidity evidence that the device is to look at the largest sink of harmful gases in the atmosphere.

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EAEV 02 Earth and Environmental Sciences (EAEV)

PALASTINE , RAMA W. N. HETHNAWI

Healthy Water Tank

The project aimed at designing a healthy water tank, safe ,and free of contamination resulting from the sediments and salts dissolved in water, which might cause a number of diseases for the human being. The idea of the project emanated from the problem faced by the residents of Jenin province, is the presence of a large amount of sediments and dissolved salts in the water at the moment it reaches the water tanks, especially after the water cuts for several days due to water scarcity in the province. The project was based on several assumptions including: increasing the proportion of sediments in running water inside the pipes increase the proportion of dissolved salts in, and therefore an increase in the conductivity of electricity, and cause an increase in the likelihood of water contamination, in addition to the water cuts in pipes for long periods increases the sediments within . Descriptive approach was used to collect information and data related to the topic of the project ,and look at previous studies, then the scientific method was used to see the relationship between the project variables, then the design and implementation of the project starting from drawing the block diagram and identify its components and ending its final form . To achieve the project objectives, a healthy water tank was designed that discharge the water flow at the moment it reaches from the main line of the water company for 5 minutes and use water to irrigate crops to get rid of the sediments, and after five minutes the flow of water diversion into the healthy water tank to fill it at a specific level that it is controlled by electric float, and in the event of contamination after a sensor and control circuit works, the owner of the tank immediately notice the occurrence of water contamination by flashing a red light ,and at the same time he receives a call to inform him that the water has been contaminated. The importance of the project is to provide a safe and healthy water, in addition to the speed of informing the owner of the tank for contamination in the water to prevent disease, as well as rationalization of water consumption through the use of

contaminated water to irrigate crops. The project is classified as environmental healthy project, and at the same time classified as electronic and control project, combining its components in a number of pieces of plumbing, and number of electronic circuits and wireless communication systems . The project concluded that the increasing of the sediments proportion in the water increases the proportion of dissolved salts, thus increasing the conductivity of the water and decreases the electrical resistance, then increasing the likelihood of contamination, in addition to the continuity of water flow in the pipes reduces the sediments accumulation inside it.

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EAEV 03 Earth and Environmental Sciences (EAEV)

KSA , REEMA SAAED M ALZAIDI

Developing a Novel Water Treatment of Organic Pollutants Using Multi-Walled Carbon Nanotubes and Nanographene

Organic Pollutants (OPs) are substances that pose a risk of causing adverse effects to human health and the environment. This research focuses on the remediation of polluted water from organic pollutants using nanomaterials such as Multi-walled carbon nanotubes (MWCNTs) and nanographene (NGs). The morphological structure of MWCNTs and NGs was studied using a scanning electron microscope and showed that carbon nanotubes exist as entangled multi-walled nanotubes with nano diameter, whereas NGs exist as transparent overlapped sheets like nanoplate structures. The results showed that methylene blue dye (MB); representing the organic pollutant, was removed within few minutes from solution by both MWCNTs and NGs at ambient conditions. The physical modification of NGs was investigated through two routes; by adsorbing Cu(II) on the NGs surface to produce NGs/Cu(II), and by mixing NGs with Cu(0) nanoparticles to produce NGs/Cu(0) nanocomposite. The results showed the great ability of NGs/Cu(II) in comparison with the pristine NGs and NGs/Cu(0) nanocomposite. The removal efficiency of the NGs/Cu(II) was investigated using five different environmental samples spiked with MB; well water (WW), deionized water (DW), Red sea water (RSW), treated waste water (TWW), and tap water (TW). The results showed that NGs/Cu(II) were able to remove most of the MB, 80.0%, 95.0%, 68.0%, 87.0%, and 91.0%, from the WW, DW, RSW, TWW, and TW; respectively. Hence, carbon-based nanomaterials showed a great potential as promising adsorbents for the environmental remediation of polluted water from organic pollutants.

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Animal Sciences (ANIM)

ANIM 01 Animal Sciences (ANIM)

KUWAIT , SULTAN K J M ALANEZI

The effect of different colors and used for fodder on the chicken's behavior during the period from age to seven days

Got a researcher on the idea of scientific research through observation on the bird's ability to distinguish different colors, as well as to distinguish them attractive colors and particularly male ones, were selected this scientific research to study any colors you prefer chicks and the extent of different colors from the behavioral side effect, and on this basis The aim of conducting scientific research and the development of the hypothesis determine, where researchers assumed that in the case of color pots that provide nutrition for chicks change the feeding rate varies according to their degree of affinity for the color of the user. Then the researchers to search the background processing process, by visiting the public library and Internet search to gather sources and scientific references before you start to study this hypothesis experimentally, where were identified five different colors in the experiment, namely, (blue - red - white - green - orange) and that in order to note any of them have a greater impact attractive to chicks. After that, the application of the experiment by placing colored pots five-mentioned color in an open place, taking into account that the feed and water escorts the same amount at each color, were brought to the chicks until saturation, with the results recorded in the table with the measurement of temperature and humidity The first day, taking into account that the distance between the various pots equally among all the colors with the stability of temperature and humidity and the rest of the variables in the place in which it conducted the experiment. This has been to repeat the experience for 7 consecutive days, taking into account the results recorded with the relocation pots and switch colors at random every day, where the results showed that the chicks prefer eating at pots in red more than other colors, followed by the color orange was the conclusion confirms what has been imposed at the outset that the chicks are affected by different color and more attracted to the colors red and orange.

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Biomedical and Health Sciences (BMED)

BMED 01 Biomedical and Health Sciences (BMED)

JORDAN , SARA OSAMAH AHMAD ALOMARI

Temperature alarm device for diabetes and autism patient (TADD)

This device is used to alarm diabetic people to the symptoms that pose a threat to their lives without their knowing it . these symptoms may raise the body's temperature within 5-15 minutes. When This device is turned on ,it takes the temperature of the room and the body and the air and the atmosphere 10 times. Then it measures the mean of these readings , so if the temperature rises above the normal rate , it will sound the alarm.

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BMED 02 Biomedical and Health Sciences (BMED)

KSA , Yasmeen Zaki H AlSaif

GVHD Prophylaxis: A Novel Approach for Using the HCMV Glycoproteins to Downregulate MHC Class I and Class II Antigen Presentation Pathways

Graft Versus Host Disease (GVHD) is an immune-mediated disease and a complication of allogeneic Bone Marrow Transplants (BMT). It develops in between 20 to 80% of those who've undergone a BMT. The Major Histocompatibility Complex (MHC), also known as Human Leukocyte Antigens (HLA) in humans, is a determinant of GVHD. It's known that differences between donor and recipient MHC initiate the disease, as the immunocompetent cells of the donor marrow recognize the cells of the immunocompromised host as non-self, thus commencing an immune response. The Human Cytomegalovirus (HCMV) is a member of the herpesvirus family that has developed strategies to escape the immune response. This research develops a systematic review leading to a novel approach of using the HCMV glycoproteins US2, US3, US6 and US11 to downregulate MHC classes I and II, and hence prevent GVHD from developing in patients having an allogeneic BMT. An inclusion criterion has been applied to 620 studies from PubMed, Epistemonikos, and Google Scholar. 28 studies have been included and three results have been deduced; 1) HCMV glycoproteins partner to downregulate MHC class I and class II, 2) HCMV glycoproteins US2, US3, US6 and US11 regulate demolition of class I MHC molecules, and 3) HCMV glycoproteins US2 and US3 degrade MHC class II. The findings of this research could replace the current preventive treatments, as it would not cause immunodeficiency, since HCMV virion envelope proteins will not be used. This approach could be applied to diseases apart from GVHD that are triggered by non-self recognition

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BMED 03 Biomedical and Health Sciences (BMED)

KSA , MOHAMMED KHALID ALTOYAN

Investigating Memory T Cell Subtypes for the Regulation of Inflammatory Responses in Asthma Pathogenesis.

Asthma, a chronic inflammatory disorder of the lung, is associated with airway remodeling and hyper-responsiveness. T cells play a key role in regulating inflammatory responses in asthma. The

role of memory T cells, central (TCM) or effector memory (TEM), in asthma remains elusive. Contrary to TEM, TCM cells reside mostly in lymph nodes and are not expected to reside in the lungs. Moreover, preliminary data confirmed an increase in TCM cells in the bronchial lavage of asthmatic patients. This research investigated whether TCM cell number increases in the asthmatic lungs and becomes more persistent. Lung tissues from asthma induced mouse models and controls were processed using isolation of T-cells from lung tissues protocol. Cells were stained with TCM specific antibodies and analyzed by flow-cytometry to determine TCM population size. TCM were also treated with 5 μ M Dexamethasone for 24 hours, then analyzed using Flow Assorted Cell Sorter (FACS) after staining with PI and Annexin-V to determine the frequency of Dexamethasone responsive/resistant TCM. The results indicated significantly elevated levels of lung residing TCM cells ($p \leq 0.014$) in asthmatic based tissue ($n=13$) versus control ($n=13$). Moreover, TCM cells from asthmatic lung tissues were more persistent even in the presence of dexamethasone treatment comparing to control ($p \leq 0.013$). The current study indicates that TCM cells in the lung contribute to the pathogenesis of severe asthma. This study paves the way for medical drug interference to control and prevent memory T cell induced inflammation in severe asthma. This could open new horizons for asthma therapy.

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BMED 04 Biomedical and Health Sciences (BMED)

EGYPT , Mohamed Ayman Mohamed

Isolate lung cancer cell and prevent it of nutrition

Problem of cancer faced by all countries in the world, especially the poorer ones, the number of deaths of cancer disease almost is 8.2 million cases every year and lung cancer considered the most dangerous and the most frequent types of cancer; The treatment of these diseases in the surgical intervention, chemotherapy and radiotherapy, and these methods have the harmful effect on the sound Members in the body, and there are a lot of other treatments have not been applied in humans to date because of the side effects on the body and treatment of (Dr. Mustafa el-Sayid) by highlighting the gold nano-particles after transported by cell cancer antibodies, stick to cell only the cancerous cells without sound cells and then absorb light and turn it into heat enough to kill cancer cells, but after conducting several experiments show that gold nano-particles negatively affect the liver and spleen after their arrival to them; The research hypothesis is that isolate the cancer cells from the surrounding medium and prevent them from getting to the food needed for the split by cutin wax transported by antibodies to cancer cells. And do the experiments on the tissue cells of cell line of lung cancer cells and the adding the cutin to the cells and observe what happens during 48 hours, the results showed that whenever cutin concentration increased on the cells, observed: less cell division and increased death. And because of cutin one of organic material liver and spleen can opposition it after it arrives, they thus have been avoided side effects after completing the process and avoid the disadvantages of previous methods.

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BMED 05 Biomedical and Health Sciences (BMED)

EGYPT , Heba Emad Gaballa

Delivering of Cisplatin drug on Gold Nanoparticles

"For almost everyone, the word ""cancer"" evokes painful memories of a dearly beloved family member or friend. It is worth mentioning that around 7.6 million people died because of cancer (about 13% of all deaths) in 2014. Unfortunately, there is no cure for cancer, but a wide variety of treatments: radiation, laser, surgery, chemotherapy, etc. Specifically speaking, chemotherapy is considered to be the primary choice in Egypt due to its applicability, but, in fact, it targets not only cancer cells, but also bone marrow, kidney, lymph nodes, neron cells and other important cells, and it has a short half life time in human body, thus, when being injected, large doses are required to compensate its decay. In an attempt to improve chemotherapy, we exploit the difference between normal and tumor tissues' blood capillaries' pores between the endothelial cells. The hypothesis declares that by loading chemotherapeutic drug, Cisplatin (CDDP) on gold nano-particles (AuNPs), and adjusting their sizes, (CDDP) will be targeted and last longer in body, under the effect of Enhanced Permeability and Retention Effect & pH sensitivity. To test the hypothesis, many tests were conducted: in vitro, in vivo, and pH effects tests. The findings showed that CDDP-AuNPs has relatively the same efficiency as CDDP alone, does not harm important body cells, and has a longer half life time. In conclusion, AuNPs improve CDDP characteristics, help it to be targeted and reduce its side effects on body cells. "

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BMED 06 Biomedical and Health Sciences (BMED)

EGYPT , Heba Allah Mostafa Abdelwareth, Nourhan Kamal Mohammed

Rapid test for detecting breast cancer recurrence at home

"Abstract Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can invade surrounding tissues or metastasize to distant areas of the body. The disease occurs almost entirely in women, but men can get it, too. About 1.2 million cases of breast cancer have been diagnosed in 2014 worldwide, 70% of breast cancers occur in women without family history of the disease. ,90% of breast cancer cases are diagnosed with a palpable tumor size, Large numbers of women are without screening tests until a palpable lesion is felt, Men also get breast cancer but rarely . 96% of patients with local and systemic recurrence have elevated CA15-3, which can be used to predict recurrence earlier than radiological and clinical examination. 25% increase in the serum CA15-3 is associated with progression of carcinoma. 50% decrease in serum CA15-3 is associated with response to treatment. CA15-3 is more sensitive than CEA or any tumor marker in early detection of breast cancer recurrence. In combination with CA125, CA15-3 has been shown to be useful in early detection of relapse of ovarian cancer. CA15-3 levels are also increased in colon, lung and hepatic tumors. NH test is used as an aid for early diagnosis of breast cancer for women. It is a hand held rapid test to be used by women at home. It will be sold to consumers through pharmacy channels and the internet. The retail price will be in the range of 5 \$. Importance of NH: detection of ca15.3 in the blood and give patients positive or negative indication for breast cancer recurrence."

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BMED 07 Biomedical and Health Sciences (BMED)

LEBANON , Malak AlHadi,Waed Abou Dargham

How much of a deal is a high heel?

Wearing high heels gives elegance, confidence and adds few centimeters for ladies in need of. However toes deformation, feet and back pain, muscle cramps as well tendons or ligaments distortions are frequent ladies complains as a result of a false step or high hell fracture. In addition wearing high heels for a period of time results in the enlargement of the calf muscle as well an increased pressure on toes, heel and knee. It highlights this issue form multiple views in science, medicine, podiatrists in addition to a survey that involves ladies of different ages, cobblers and experts in this field.

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Plant Sciences (PLNT)

PLNT 01 Plant Sciences (PLNT)

KSA , mohammed ali rashid alsaeed

The effectiveness of gamma rays against the red palm weevil in the field

Arab world contains about 90 million date-Palm, which represent 75% of the world's palms . One of the biggest threats to the palm trees are red palm weevil. methods of Treatment that are available and practiced at the present time based on the use of harmful chemical compounds that have a negative impact on the environment in the short term and long term and also its waste deposit in underground water. This method has also proved to be ineffective in eliminating the red palm weevil that is inside the stem .The purpose of this study is to investigate the effectiveness of gamma radiation in treating the date-palm that infected of the red palm weevil to be an effective and less harmful to both the date- palm and the environment . Previous research has shown that red palm weevil die if exposed directly to 50 Gray of gamma radiation. Therefore, experiments were conducted to determine the doses required to reach a dose of 50 Gy in the middle of the stem and was founded to be 60 Gy . After that a group of seedlings that contain the insect inside will be irradiated in order to study the insect after irradiated inside the stem. Also similar experiments will be conducted on different species of date-palm trees and studying Palm growth after irradiation in the future

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PLNT 02 Plant Sciences (PLNT)

TUNIS , NADA JEMAL,TASNIM LOUHICHI,MERIEM MSILINI

Valorisation of natural resources for improving hydroponics cultures of cherry tomatoes

To improve the production of cherry tomatoes, the farmer grows them in greenhouses in plastic bags contains coconut fibers and he adds chemical fertilizers . as for us , we want to protect biology cherry tomatoes, that why we replace the chemical fertilizers by spirulina which is very beneficial alge and we change the coconuts fibers by pisodonia how is a marine plante existes on the mediterranean coasts.

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PLNT 03 Plant Sciences (PLNT)

OMAN , Hamood Thuwaini Mohammed AL-kharusi,Majed Salim Said AL-kharusi

The Shooe (Moringa Paregrina) products

The purpose of the project The purpose of the project is to do a comprehensive analysis to the components of the Shooe (Moringa Paregrina) tree including its leaves, roots, flowers, seeds, and wood. This analysis is to know its characteristics, health & medical benefits, and to extract oil from seeds to be used in various industries which benefit the community and generate economic income for the individuals. The research Issues & hypothesis - Are the components of the Shooe (Moringa Paregrina) tree (leaves, roots, flowers, seeds, woods) beneficial compared to other trees? - Could the Shooe (Moringa Paregrina) tree oil be used in various industries? General Steps - Finding the

whereabouts of the tree, where it exist in the mountainous regions because it bears thirst and need less water for irrigation. - Taking samples of Shooe (Moringa Paregrina) tree (leaves & wood) to dry them and the examine the components in the college of Agriculture laboratories at the Sultan Qaboos University. After that, making coals from the wood and comparing its quality to other trees. - Reaping the harvest of seeds to extract oil and examine it in the laboratories in order to try using it in industries like soap & perfume. - Visiting the specialist of herbal treatment Mr. Yousif Al-Kartoobi from Nakhal to talk about the use of Shooe (Moringa Paregrina) tree in traditional medicine. - Visiting Al-Mutaliq factory of perfume in Barka to use the oil in making perfumes. - Using oil to make soap in Wadi Bani kharous School`s laboratories. The Research Findings & Results The results were good and interesting. We have found through laboratory tests that Shooe (Moringa Paregrina) tree has rich food items in its leaves. Oil was used in the industries of soap & perfumes. Moreover, planting this tree in homes, sides of trees, and othe places is important and benefical considering the low amount of water that the tree needs for irrigation.

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PLNT 04 Plant Sciences (PLNT)

OMAN , Omayma Mohammed Abdallah Al-Masalhiya

Omani plants and their impact on ticks

Ticks name commonly articulated legs objects back row Ankabiyat it with eight legs and belong to a species of "to Otxoad " feeds on the blood of the animal's body is more common in the Arab world Qanta bodies of animals of cattle , camels , cows, due not caused by ticks of harm to animals and humans , where his great role in spreading diseases currently deployed as a disease and haemorrhagic fever Alchorana Aloim which leads man to bleed to death . What a speech gravely missed raises in self-volcano of questions need to be thinking to eliminate it and research in what it is and ways to combat it and we know that the current control depends on the spray Corrals pesticides and dipping the animal in water pools sterile detergents or injection object antibiotic our quest for the existence of solution eliminates the traditional methods of combat and return to Omani our environment , which has been and continues to the mouth of the interest of our forefathers , we decided that the sailing excursion in Oman and valleys to assemble sixteen wild plant and laboratory analysis , where we assume the existence of an active material in these wild plants are able to expel or kill ticks on the body of the organism And design a set of laboratory work experiences and assembly of ticks and test plants it Btjrepettan experience direct spraying and experience touching and repeat it several times delivered us to the conclusion that there is an active material in 15 kind of Oman's wild flora able to expel or kill ticks where he achieved all of the plant asset and Al Dhafra and Alhres ratio 100% in control and achieved frankincense and plant Ankiq ratio of 83.3% and achieved all of ra and Mufrfar pyramid, despair and Alhlm ratio of 66.6% and the rest of the samples 50% rate achieved under what amount of response depending on the type of plant and its focus is different This encourages us to exploit the Omani environment ores making natural medical drugs and reduce the harmful chemical properties of the individual and the environment and easy to ranchers easy to solve the problem without the use of veterinary centers.

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PLNT 05 Plant Sciences (PLNT)

KSA , Lulwah AlShiha

The Effect of Single Wavelength Red and Blue Laser Lights on the Growth of the Arabidopsis thaliana Plant

Mankind is challenged to ensure sustainability in providing food and water at affordable prices. The problem becomes more complex with the growth in global population, especially in difficult natural environments, like Saudi Arabia. Indoor horticulture with artificial illumination is an effective solution. The purpose of this research is to develop a novel system of diffused single wavelength red and blue laser lights towards the use as an energy-efficient laser-based illumination system. The coherent laser lights were mixed and guided through specially designed optic modules comprising of dichroic mirrors, a beam expander, and collimators before being channeled via optical fibers through a diffuser that is installed at the roof of the chamber. The laser lights were tested on the model plant, Arabidopsis thaliana, for 42 samples over a sum of 3 trials, using a ratio of 90% red light (671 nm) to 10% blue light (435 nm). This plant species recorded 15% lower fresh and 30% dry weights than those grown under white fluorescent lights. In addition, laser-grown plants have distinct phenotypes including lighter shades of green, earlier inflorescence, longer petiole, broader, thinner, less sharp and less hairy leaf, and the absence of anthocyanin in comparison to those grown under white lights. The Red-Blue ratio achieved slightly lower chlorophyll and carotenoid contents than those grown under white light. Overall, results suggest that plants can grow under single wavelength laser lights, serving as a platform for future expansion of this technology to commercially important crops on larger scale production capacity.