

ABSTRACT BOOK

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(The abstract text provided is exactly as submitted by the participants)

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Project Code:Bio-01 (Team) Online ID:1902

Title: Bio Filter

Name: Asiq Jamal K & Prakdesh.S Std: 10

Guide: Alok Tripathi

School: Sri Sessaas International Public School; Salem

ABSTRACT:

Principle: This project is based on simple process of filtration which is multi-step process and efficiency increases with number of filtration layer. This filter is made up of natural things without any chemicals so no side effects on consumption. It is an efficient way of filtering the water using sand; gravel; pebble and charcoal. In this there is use of antimicrobial substances extracted from natural sources so will produce sterile and pure water which is fit for drinking purposes. It is an efficient replacement to the filter which runs on electricity and which involves use of chemical that has adverse effect on human body. This efficient system of filtration can be a boon to the poor people who can't afford the costly filters.

Project Code:Chem-01 (Team) (Jr) Online ID:1906

Title: Carbon Filter

Name: Dhanush.P.N & Vijay Ragavendra.S.R Std: 8

Guide: Roshini

School: Sri Sessaas International Public School; Salem

ABSTRACT:

This project is about filtering CO₂ out of diesel engine vehicle. Also reduces the amount of CO₂ in atmosphere; in which there will be a reduction of global warming. It does not need large amount to make it as it is small and the required things to make it are of low price. In this model transformer oil is used to filter CO₂ in gaseous form by trapping CO₂ and release only plain air.

Project Code:Chem-02 (Team) (Jr) Online ID:1914

Title: Gold Recovery From Electronic Waste.

Name: Sai Dhruthi Nama. & Pranava. Koorapati Std: 8

Guide: Mr. B.Satheesh Kumar.

School: DELHI PUBLIC SCHOOL-warangal

ABSTRACT:

OBJECTIVE : GOLD RECOVERY FROM ELECTRONIC - SCRAP (To retrieve the used gold present in the E-waste / E- Scrape) PROCEDURE :

(Hydrometallurgical processing of e-waste) : Sorting & Dismantling : Where Separation of Re-Usable parts takes Place by means of Mechanical method & Magnetic separation methods (Eddy current) . In this process; we Consider 500gms of e-waste materials which may be industrial scrap and other source metal which is placed in a mixed acid solution of nitric acid and hydrochloric acid in a volume ratio of 1:3. This has an extremely strong oxidizing power that dissolves most precious metals including gold. On the other hand; it does not dissolve plastics and

other resins. Soak the e-waste material in the acid (nitric acid and hydrochloric acid) for a 30 mins where we find the gold foils start releasing or coming off from the e-waste material. Add some Sulphuric acid to precipitate the lead present in the newly started solution and add some Iced tap water to cool the solution. Now filter the new solution to remove the solid particles (fingers-plastic waste). We need to check the solution with -Stannous chloride Test - to see whether the solution contains gold or not. This time we will trace the gold in the solution very clearly. Now add sodium Meta Bisulphite (SMB) to precipitate the gold. Cool the solution and filter it. Now melt the gold with the help of Flame. We get pure gold by this process.

Project Code:CompSc-01 (Team)

Online ID:1909

Title: Counting machine with saving electricity

Name: Kokilavani.S & Madhumitha.B Std: 11

Guide: Venkatadri Dasolla

School: Sri Sessaas International Public School; Salem

ABSTRACT:

Using this machine we can count people and vehicles visiting a particular place and this also helps to save electricity when some body forget to switch off the lights and electric appliances. This will do the 2 different works at same time and with less use of electricity.

Project Code:Energy-01 (Team)

Online ID:1871

Title: different methods to increase the efficiency of solar panel

Name: sree vaishnavi & khushi penthala Std: 9th std

Guide: M.Manohar

School: delhi public school warangal city:warangal

ABSTRACT:

In this modern and technological world electricity has become one of the basic needs of human life. 90% we depend on non-renewable resources for production of electricity like coal; petrol; diesel; etc. and other 10% on renewable resources such as water; wind; sunlight; etc. But these resources may get exhausted in the future as they are non-renewable and our future generations should face the consequences and also by using these resources we are polluting the environment. So we should also utilize the renewable resources such as hydroelectricity; wind energy; solar energy; etc. as efficiently as possible for the production of electricity. Among all the renewable resources the solar energy is the best one. So we need to utilize solar energy and research should be done on how we can utilize the maximum solar energy. In today's generation people started using solar energy as electrical energy by capturing the sun rays by solar panels but it is not working so efficiently because the electricity produced by the panels is not sufficient to fulfill the present needs. The output of the solar panel depends on the amount of light falling on it and the intensity of sun light. In this project we are reporting a system

by which the efficiency of solar panels will be increased. We are reporting a method which uses mirrors to reflect light onto the solar panel and also a motor which will allow the solar panel to turn in the direction of sun so that the rays will fall perpendicularly on the panel. We performed experiments to get maximum output without mirrors; with mirrors and aligned the panel to fall sun rays exactly perpendicularly. With the obtained results it is clear that by using mirrors and by putting the panel perpendicular to sun light the output of the panel has increased.

Project Code:Energy-02

Online ID:1930

Title: Solar powered desalination module with thermal feedback.

Name: S ANIRUDH & X Std: 11

Guide: K SREEKUMAR

School: VSSC Central School; Thiruvananthapuram

ABSTRACT:

Energy and drinking water are basic elements of any society. Even though more than 70% of Earth surface is covered with water; potable water is less than 1% of it. Equally world is running short of conventional energy sources and we are keen to tap solar energy. Hence in our project we are trying to put both solar energy and desalination process together by designing a portable solar powered desalination module suitable for use anywhere- from middle of ocean to top of Himalaya. We are trying to convert entire spectrum of sun rays for direct use. During our project We made a glass envelope over SPV panel by placing a 2 mm glass sheet over existing panel glass. Both the glass sheets are separated by approximately 3mm air gap. A salt water inlet at bottom and water vapour outlet at top were made. Vapour outlet from enclosure was connected to the suction inlet of air pump. Discharge (compressor) outlet of air pump was fed to the bottom side of enclosure through separate copper tube immersed in salt water. Outlet of this tube is connected to fresh water collection tank.

Project Code:Energy-03 (Jr)

Online ID:1931

Title: Bio-Fuel from Erikku plant

Name: P. Piyush & X Std: 6

Guide: R. Renuka

School: Pon Vidyashram - Valasaravakkam; Chennai

ABSTRACT:

Erikku (Hindi:Arka; English: Gigantic Swallowwort; botanical name: Calotropis Gigantea) is a weed grown in most part of India. It is found in tropical; semi-arid and arid regions. This plant is known for its milky latex and used as home remedy for many health problems. One such case is for treatment of warts. In Ayurveda and traditional medicine latex from two year old plant is applied on skin externally to remove warts. Green leaf is also used for fumigating mosquitoes. It is also noticed that leaf and other plant parts contain sucrose. This project is to produce Bio-Fuel(Ethenol) energy from this plant. Bio-Fuel is made by Fermenting leaf

crush. Bioethanol is an alcohol made by fermentation; mostly from carbohydrates produced in sugar or starch crops. Ethanol can be used as a fuel for vehicles in its pure form; but it is usually used as a gasoline additive to increase octane and improve vehicle emissions.

Project Code:Env-01

Online ID:1573

Title: Diminishing the levels of Nitrogen dioxide and Sulfur dioxide produced by automobiles

Name: Ashna Choudhary & X Std: 10

Guide: Ajeet Kumar

School: PSBB.S.S.School;Chennai

ABSTRACT:

Acid rain and environment degradation are quite concerning factors of the current era. Among the most influential causes of acid rain are Nitrogen dioxide and Sulfur dioxide. Prominent sources of emission of these 2 gases are the combustion of fuel in automobiles. So to reduce the quantity of SO₂ and NO₂ produced by combustion (in automobiles); I have aimed to make the Nitrogen dioxide react with Iron and Sulfur dioxide to react with Calcium hydroxide in the tail pipe of an exhaust. The expected outcome of it would be that NO₂ would react with Fe and form Fe₃O₄ and Nitrogen (N₂) while SO₂ reacts with Ca(OH)₂ to form water vapour and Calcium sulfite (CaSO₃) even under harsh temperature and pressure conditions. I read through various refining process and recognized that there are various fuel cleaning techniques meant to reduce numerous chemical emissions; but these processes can be made much more efficient. So I worked on my design of controlling the emissions. For the same purpose; I tried reacting NO₂ with Fe and SO₂ with Ca(OH)₂ under conditions similar to that of a tail pipe (high pressure and temperature). During testing; we noted that the rate of reaction was moderate to mildly high under the testing conditions and there was just a only negligible pressure drop due to the presence of an obstruction (i.e. Fe and Ca(OH)₂). Hence; the reactions were quite stable and the proposal can be practically brought into play for commercial purpose. This simple; but practical project can play a very significant role to control the emissions of acidic gases and preserve the environment.

Project Code:Env-02 (Jr)

Online ID:1916

Title: ECO FRIENDLY SMART HELMET

Name: SONAA. MEYYAPPAN & X Std: 6

Guide: VISWANATHAN V

School: NATHELLA VIDHYODAYA

ABSTRACT:

The Wind cum Solar-Helmet integrates the recharger into the safety helmet; allowing bikers and cyclists to harness wind power and sunlight during motion and to convert this to electricity to charge portable devices such as mobile phones; digital cameras and mp3 players. The ECOFRIENDLY-Helmet is a self-contained

unit whereas many other portable battery rechargers on the market require the user to carry extra equipment. The ECO-FRIENDLY HEAD GEAR uses windmill and solar panel to generate electricity to recharge the battery. In our project we have Five main sections. They are 1.Windmill generator and Solar Panel2.USB Charger3.Buckle switch with a buzzer 4.Indicator LEDs5.Alcohol SensorAn indicator LED is placed in the windmill and solar panel section to ensure whether the battery is charging or not. From the battery we have connected a main switch. An USB PORT is placed to charge the digital equipment's such as mobile phones; digital cameras and mp3 players. If the helmet buckle is not locked properly the buzzer gives a buzz sound. Once the buckle is locked the alcohol sensor starts sensing whether the rider has consumed alcohol or not. If the rider has consumed alcohol; it gives an indication through a RED LED placed at the mouth of the helmet. This is can give an alert to police and co riders as well.

Project Code:Physics-01 (Team)

Online ID:1899

Title: Home Made Wireless Charger

Name: Sri Harihara Sudhan K B & Abishiek. M Std: 9

Guide: Veknatadri

School: Sri Sessaas International Public School; Salem

ABSTRACT:

Principle: This project works on simple Electromagnetic field which can be used to charge a chargeable devices cost effectively.It is based on method of wireless charging of devices based on Electromagnetic field. It is available in the market but we have to pay Rs. 3k - 4k to purchase it. This charger is highly cost effective with minimal cost as it is made up of very simple things. Apart from this; it is portable with weight of around 100 - 150 gms and hence easy to carry. it is fitted with battery to generate he field which is used for charging of devices.

Project Code:Physics-02 (Team)

Online ID:1904

Title: Afforestation Rover

Name: Navaneetha Krishnan.V & Naren Bharathi.J Std: 10

Guide: Venkatadri Dasolla

School: Sri Sessaas International Public School; Salem

ABSTRACT:

Afforestation Rover helps in planting trees without any human effort. Presently root of all evil is the process of deforestation and in this era no one has the time for the plantation of trees so my project is going to be boon to the environment and complete humanity. this project works as per computer programming. the rover moves for 10 sec and then pause for 5 sec during which it will create a hole into the ground in which automatically a packet if placed containing seed; manures and fertilizers. since the packet is biodegradable so no environment risk. It runs on batteries so no pollution problem. This rover can run on mountain and terrains

with equal efficiency.

Project Code:Physics-03 (Team)

Online ID:1912

Title: Wireless Notice Board

Name: Arshak.A & -Bharanidhar Raj.S- Std: 9

Guide: Venkatadri Dasolla

School: Sri Sessaas International Public School; Salem

ABSTRACT:

My project will be of great importance at the places where Display board are installed like railway station; bus stand; secretariat; airport etc. It is very different from the notice board which are installed near these places since my notice board can be controlled from a distant place and things which are being displayed can be changed with only single sms registered with device. My device uses a software called hyperterminal which will revolutionize current display systems.It can be used as wake up call for flood; any enemy attack; danger to LOC and in other cases of emergency.

Project Code:Physics-04 (Jr)

Online ID:1923

Title: hydraulic lift

Name: -Shyam Prem Kumar.R- & X Std: 7

Guide: Priya

School: Sri Sessaas International Public School; Salem

ABSTRACT:

Principle: my project is based on PASCAL's LAW which states that if we apply a pressure onto a confined incompressible fluid the force exerted will be distributed everywhere.It is a project which demonstrate the Pascals law and can be used to lift big and heavy objects with a smaller force. However; the same is being used in JCB; Trucks and brakes. In this project I have used simple household waste things like wooden board; syringes; pipes; bolts etc. All these pipes are filled with water and connected with syringes which will be used to change the pressure. This is project is very cost effective and portable.

Project Code:Tech-01 (Team) (Jr)

Online ID:1908

Title: PSI Agri-robot

Name: -Shyam Pragathesh M- & Ela.Sanat Std: 9

Guide: Alok Tripathi

School: Sri Sessaas International Public School; Salem

ABSTRACT:

Principle: Robotic based agricultureThis project mainly concerned with agricultural practices with almost negligible human resources directly. It is machine which has inbuilt Ploughing; Sowing and Irrigative (PSI) devices. In its working firstly the water in the form of sprinkles is poured onto the ground to loosen the soil then plough attached with the machine in the center starts working

leading to ploughing i.e. creating furrows in the soil for sowing. During sowing cabinet is attached at the end of the machine to put seed into the soil through the hole slowly and gradually. Through this machine we can do all the three process together very efficiently with less involvement of human power. This machine is very cost effective and hence can be affordable by the farmer.

Project Code:Tech-02 (Team) Online ID:1915

Title: Semi-Autonomous Landing and Taxiing Module [SAL&T-M]

Name: Dharma Sushanth Reddy & Miryala Priyanshu Rao Std: 9

Guide: G.Suresh

School: DELHI PUBLIC SCHOOL-warangal

ABSTRACT:

During landing 47% of plane crashes are caused and during Taxiing 10% of plane crashes are caused and it results in 500 bent planes per year it's a great economic loss and it also cause fatalities(landing=40% and taxiing 0% out of 20;000 people). These are caused due to pilots' shortage of skill:-1-judgemental mistakes2-improper training3-rudder mishandling4-psychological pressure5-weather circumstances6-exteme emergenciesResolution to this trouble:-Light following moduleUsage of the module:-If this module is connected to the aircrafts' auto-pilot computer then this module detects the IR rays from the runway and lands safely even during fog and during day the IR sensors can be used for detecting taxiing assisting linesNOTE: this module must be only switched on during landing and taxiingComponents used:-On robot (as we cannot attach it to a plane we are making a replica:-1-LDR2-Ultrasonic sensor3-Microcontroller4-Jumper wires and jumps5-Motors (preferably 300RPM gear type)IN the airport:-On specialized runway:-1-IR LED strips2-normal LED stripsIn ATC Tower:-1-Switches to operate runway strips (preferably toggle type) Usage of the components:-1-LDR-A Light Dependent Resistor (LDR) or a photo resistor is a device whose resistivity is a function of the incident electromagnetic radiation. Hence; they are light sensitive devices. They are also called as photo conductors; photo conductive cells or simply photocells. They are made up of semiconductor materials having high resistance. There are many different symbols used to indicate a LDR; one of the most commonly used symbol is shown in the figure below. The arrow indicates light falling on it. 2-Ultrasonic sensor: it detects the distance between the aircraft and runway; it also detects obstacles .These devices work on a principle similar to that of transducers used in radar and sonar systems; which evaluate attributes of a target by interpreting the echoes from radio or sound waves; respectively. Active ultrasonic sensors generate high-frequency sound waves and evaluate the echo which is received back by the sensor; measuring the time interval between sending the signal and receiving the echo to determine the distance to an object. Passive ultrasonic sensors are basically microphones that detect ultrasonic noise that is present under certain conditions; convert it to an electrical signal; and report it to a computer.3-Microcontroller: it is the brain of the Light following module.

Microcontrollers are used in automatically controlled products and devices; such as automobile engine control systems; implantable medical devices; remote controls; office machines; appliances; power tools; toys and other embedded systems. By reducing the size and cost compared to a design that uses a separate microprocessor; memory; and input/output devices; microcontrollers make it economical to digitally control even more devices and processes. Mixed signal microcontrollers are common; integrating analog components needed to control non-digital electronic systems.4-Jumper wires and jumps: they are the connectors of microcontroller to other components. A jump wire; is a short electrical wire with a solid tip at each end (or sometimes without them; simply -tinned-); which is normally used to interconnect the components in a breadboard. PE: among others; they are used to transfer electrical signals from anywhere on the breadboard to the input/output pins of a microcontroller.[1]Jump wires are fitted by inserting their -end connectors- into the slots provided in the breadboard that beneath its surface has a few sets of parallel plates that connect the slots in groups of rows or columns depending on the area. The -end connectors- are inserted into the breadboard; without soldering; in the particular slots that need to be connected in the specific prototype. Conclusion: When the plane lands on a runway during fog(less visibility) the IR Rays which appear in the cockpit camera display the runway and whenever the LDRs detect the IR light frequency (which is collaborated by the ATC and the pilot to avoid problems and module errors) the plane corrects its yaw and roll disturbances caused due to turbulence . The ultrasonic sensors take care of the altitude. Rest must be taken care by the pilot. This way there are less chances of error.

Project Code:Tech-03 (Team) Online ID:1924

Title: Floor Cleaning Robot

Name: -Dharani Dharan.E- & -Sathish Kumar S- Std: 9

Guide: Venkatadri Dasolla

School: Sri Sessaas International Public School; Salem

ABSTRACT:

It is a project based in robotics. In this project the model contains a cardboard on which different components like a motor; special brush; water pump; water tank etc. are arranged in perfect way so that the floor can be cleaned automatically without any human effort. This can be used in every home as it is very cost effective and eco-friendly. With this device real time cleaning of floor can be done.

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