

ABSTRACT BOOK

INDIAN SCIENCE & ENGINEERING FAIR (INSEF)

INSEF Regional Fair – Bangalore

October 31, 2014

Conducted By



Science Society of India

<http://sciencesociety.in>

in association with



**VAGDEVI VILAS
INSTITUTIONS**

on October 31, 2014 at

Vagdevi Vilas School, Marathahalli Post, Munekollalu, Bangalore

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

INDEX

Project Subject Category (Total)	Page No.
Behavioural Science (2)	1
Biology (1)	4
Chemistry (1)	5
Computer Science (1)	5
Energy (4)	6
Engineering (11)	9
Environment (8)	17
Maths (1)	23

- | | | | | | | | |
|----|------|--------|----|-------|--------|--------|---------|
| a) | Left | middle | vs | Right | middle | finger | pattern |
| b) | Left | ring | vs | Right | ring | finger | pattern |
| c) | Left | thumb | vs | Right | little | finger | pattern |
| d) | Left | index | vs | Right | little | finger | pattern |
| e) | Left | little | vs | Right | ring | finger | pattern |

(Graph of the above is available in the uploaded file)

Conclusion :

a) 82.1% of the sample have similar finger patterns in the left middle finger & right middle finger and same percentage is also observed between left ring and right ring finger. These indicate high correlation between them.

b) 80.3% of the sample have similar finger pattern in left thumb and right little fingers.

c) 83.9% of the sample have similar finger pattern in left index & right little fingers

d) 82.1% of the sample have similar finger pattern in left little and right ring fingers.

e) Most importantly, it was found that the correlation of patterns was highest with reference to left middle finger and left ring finger at 89.2%

Project Code: BehvSc-02 (Team) Online ID:810

Title: stammering as one of the hurdles to communication in an effective manner.

Name: Bhavana. N & Soundarya. s Std: 10

Subject: Behavioural Science

Guide: ShubhaHarish

School: vagdevi vilas school, Bidadi

ABSTRACT:

Introduction:-In the present day scenario,communicative skills are very important for the success of an individual. Communicative skills involve speaking with confidence,vocabulary,spontaneous flow of words.

Problem:- stammering is one of the hurdles to communication in an effective manner.

Step1:-Five subjects with the stammering problems are selected for study.

Step2:-To find out the intensity of stammering.

Step3:- helping them to accept their problem and boost their self confidence.

Step4:- involving the subjects in activities to overcome the problem. Activities planned- pick and speak, tongue twister, poem recitation, story telling, debate ,group discussion. Etc.

Some of the activities are conducted with preparation and without preparation. Step5 To record the number of subjects improved after the activities. The subjects are observed for the period of one month and the result will be recorded.

Project Code: BIO-01 (Team) Online ID:642

Title: To Bee or Not to BEE

Name: Pranav Anirudh N & Bharath U Std: 10

Subject: Biology

Guide: Apoorva BV

School: Maruthi Vidya Kendra

ABSTRACT:

TO 'BEE' OR 'NOT TO BEE'

AIM OF THE PROJECT

People are forgetting about their responsibilities towards the nature. It has been noticed that urban parents are not letting their kids to feel love for nature.

Beekeeping and resource management is an interesting eco-friendly activity. The project is aimed at studying about 'Apis Cerana Indica', the Honey bees which are social insects. Bee keeping is a supplement to the traditional farming activity.

In a nut shell the project is aimed at studying Bee keeping, Bee products, Significance of Bee products in the field of medicine, Contribution of Bees towards pollination and thus increasing crop productivity and conservation of Apis Cerana Indica species of Bees.

PROCEDURES USED

The bees are reared in a box (ISI A Standard with 7 frames along with a bee colony) kept on a stand to study food collection process, multiplication in their numbers, honey collection, effect of bee pollination on the crop yield.

DATA

The data is gathered to observe quantum of honey collection during various seasons, recommendation of box size, byproducts of the process, effect of pollination from bees on increase of yields.

LOGBOOK

Is maintained to calculate capped & open brood, forages activities, queen's activity, drone cells, pollen storage and honey cells.

CONCLUSION

Optimization of infrastructure for Apiculture.
Optimizing the crop calendars and selections for agriculture.
Implementation of Apiculture.

Project Code: CHEM-01 (Team) Online ID:668

Title: Smart Nanodevices- Future for clean air and green world.

Name: Komal S & Aditya B Std: 10th Std

Subject: Chemistry

Guide: Ganesh Shastri

School: Sharada vidyaniketana, Talapady, Devinagar,

ABSTRACT:

Obnoxious gases such as carbon monoxide (CO) and sulfur dioxide (SO₂), emitted from the vehicles contribute to 70 % of air pollution (Fig. 1). Hence, there is a growing need in the continuous monitoring of these gases at lower detection limits. In particular, various nanomaterials have been reported to sense CO and SO₂ gases. Among them, metal oxide semiconductors have been studied widely. However, either these sensors have large detection limit or are inactive at low temperature of function. Using the currently available semiconductor gas sensors CO and SO₂ can be detected as low as 30 and 20 ppm, respectively. Considering the above criteria, we envisaged to develop sensors for detection of the target gases, CO and SO₂, at low temperature with lower detection limit and long term stability so as to apply them in real-time monitoring of emission near transport infrastructure. During the screening test, to our surprise, we found for the first time (never reported in literature) that manganese ferrite (MnFe₂O₄) and cerium oxide (CeO₂) nanoparticles furnished absolute response over the target gases, CO and SO₂, respectively. These nanomaterials were synthesized by simple methods. The MnFe₂O₄ nanosensor detects CO at a concentration as low as 5 ppm at 250 oC whereas; CeO₂ selectively detects 3 ppm SO₂ at 200 oC. We have built a small prototype device using readily available materials and our nanoparticles as gas sensor materials. Sensitivity of 18 and 10 % was observed for MnFe₂O₄ and CeO₂. The cost is expected to be under Rs500.

Project Code: COMPSC-01 Online ID:816

Title: DONT DRINK AND DRIVE- SMART HELMET

Name: DANISH ALAINA & Std: 10

Subject: Computer Science & Engineering

Guide: Sai Venkata Raman
School: Agragami Vidya Kendra

ABSTRACT:

Many people don't realize that helmets prevent skull fractures, not concussions, which are brain injuries. A high technology sensor is available in the market , I used and develops a range of Shock Box Sensors to alert parents or coaches that an "at-risk" hit has occurred, so concussion checks and protocols start as early as possible

Here I introduce "smart helmets" and mouth guards outfitted with gps and gsm technology radio-frequency identification to measure the location and direction of hits experienced during a accident and game or practice. The data is wirelessly transmitted to a cell phone on the sidelines, which calculates the magnitude of the hit and the location of the blow.

GSM (Global System for Mobile communications) is the technology that underpins most of the world's mobile phone networks. The GSM platform is a hugely successful wireless technology and an unprecedented story of global achievement and cooperation.

Today's GSM platform is living, growing and evolving and already offers an expanded and feature-rich 'family' of voice and multimedia services. GSM currently has a data transfer rate of 9.6k. New developments that will push up data transfer rates for GSM users are HSCSD (high speed circuit switched data) and GPRS (general packet radio service) are now available.

Project Code: Energy-01 (Team) Online ID:794

Title: Solar digging , seed sowing watering and fork lifting for Agriculture

Name: prachurjya panda & Shreyas s koushik Std: 11

Subject: Energy

Guide: SAI VENKATA RAMAN

School: Agragami Vidya Kendra

ABSTRACT:

ABSTRACT

A seed drill is a sowing device that precisely positions seeds in the soil and then covers them. Before the introduction of the seed drill, the common practice was to plant seeds by hand. Besides being wasteful, planting was very imprecise and led to a poor distribution of seeds, leading to low productivity. The use of a seed drill can improve the ratio of crop yield by as much as nine times The real power required for machine equipment depends on the resistance to the movement of it. Some of these resistances are the wind resistance, the rolling resistance and the gradient resistance.

Even now, in 98% of the contemporary machines that run, this power for movement is provided by the burning of fossil fuels in the IC engines or the external combustion engines. This, as evident, has led to widespread air, water and noise pollution and most importantly has led to a realistic energy crisis in the near future.

INTRODUCTION

The main aim for our project has been to develop a solar operated digging machine, which is solar powered. In this machine used a solar panel to capture and convert solar energy into electrical energy which in turn is used to charge four 12V batteries, which then gives the necessary power to a shunt wound DC motor. This power is then transmitted to the rear wheel through belt drives. The speed control is done through a variable belt arrangement. Consequently, in this project an attempt is made to make the electric and mechanical systems share their powers in an efficient way. Thus taking into consideration the ever increasing pollution levels and the stringent pollution norms (EURO-II and onwards) set up by the POLLUTION CONTROL BOARDS, and since the fossil fuels are depleting, probably may last within the decades to come or earlier, and to reduce the running cost of the digging machine, we are in an attempt to incorporate the above mentioned features in our cutting machine.

Project Code: Energy-02 (Jr) Online ID:797

Title: Geo-thermally Cooled Granary

Name: Romir Kulshrestha & Std: 7

Subject: Energy

Guide: Sangeeta Kumar

School: Delhi Public School, Bangalore (East)

ABSTRACT:

In India, inadequate storage infrastructure results in wastage of fruits, grains and vegetables worth Rs.44,000 crore every year. This is due to inadequate cold storage facilities. The warehouses owned by Food Corporation of India and Central Warehousing Corporation are inadequate to cater to the total annual production. Much of this crop would have been saved and the exchequer would have saved the money (spent on import of essential supplies) if there was adequate storage facility across the country. It will take a long time before the country can be completely self-sufficient in storage of food grains. So, the question is – “Can we create a low cost granary with a cooling system near the farmlands that does not depend on the state’s supply of power?”

“My idea is to employ the Geothermal System to cool the granaries” and create a low cost solution available locally near farmlands for storage of food grains. My geothermal granary works on the geothermal principle – “below the frost line the temperature of the ground remains fairly stable year round”. The shallow ground, or the upper 10 feet of the Earth, maintains a temperature between 50° and 60°F (10°–16°C). This temperature is warmer than the air above it in the winter and cooler in the summer. Since most granaries are required to maintain a temperature of 15 degrees Celsius this method of cooling is both feasible and cheap. The geothermal cooled granary keeps the grains stored at the correct temperature and prevents spoilage.

Title: Thermoelectric Power Generation**Name: Susmit Agrawal & Std: 11****Subject: Energy****Guide: Hemant Agrawal****School: Delhi Public School, Bangalore North****ABSTRACT:**

There is a continuous search for non-conventional sources of electrical power to meet the ever-increasing demand of electricity. Solar panels, wind mills and fuel cells are the most popular non-conventional sources at present. A number of other non-conventional sources are available but their potential is yet to be explored to make them commercially viable. Thermoelectricity is one of such promising sources of electrical power. Objective of this project is to demonstrate the potential of Thermoelectricity for Electrical Power Generation.

Basic design of the model consists of a hot plate and two containers. A thermoelectric module is sandwiched between the hot plate and the first container. Water is heated in the second container to produce steam. The hot plate is heated with steam in order to limit its temperature at a value less than 100 degree Celsius. Limiting the temperature is necessary to prevent the thermoelectric module from getting damaged by a temperature more than its rated value. Temperature difference between two surfaces of the thermoelectric module is produced by filling the first container with cold water. The thermoelectric module will generate electrical power as long as the temperature difference between its surfaces is maintained. Magnitude of the generated voltage as well as the available electrical power depends on the temperature difference. The electrical power thus generated can be used for powering loads such as electrical motor and LEDs as well as for charging the battery of mobile phone.

Project Code: Energy-04 Online ID:815

Title: Heat Engine based on Stirling Cycle for converting plant waste into power

Name: Sampreeth Rayadurga & Std: 11th

Subject: Energy

Guide: Sreedhar.R

School: Sri Chaitanya PU College,Marathahalli Bangalore

ABSTRACT:

The vast population of India living in rural areas and engaged in agriculture need affordable access to power for their agricultural and household needs. Typically, lot of plant waste is generated during harvesting of crops, out of which only a part is used for composting along with animal waste. Hence, lot of plant waste is available which can be put to use for generation of electricity if an efficient and affordable means is available.

This project provides the details of a proposed Heat Engine based on “Stirling Cycle”, a thermodynamic cycle which converts heat supplied into mechanical energy, which can be in turn converted into electrical energy using a generator. Stirling engine was invented, developed and patented in 1816 by Reverend Dr. Robert Stirling. The cycle is defined as a closed cycle with a gaseous working fluid, wherein the working fluid is permanently contained within the thermodynamic system. In other words, this engine can be categorised as an external heat engine, in contrast to Internal Heat Engines commonly used.

The cycle is the same as most other heat cycles in that there are four main processes: compression, heat addition, expansion, and heat removal.

Stirling Engine, being an External Combustion Engine, represents a very high potential for using a variety of agricultural waste to generate heat which can be converted into mechanical energy, which in turn can be used to produce electricity for use in pumping water and household lighting purposes at virtually no operating cost.

Detailed thermodynamic calculations and development of the model is in progress

Project Code: ENGG-01 (Team) (Jr) Online ID:580

Title: Medicine Alarm System with Messaging Facility

Name: Sharanya Narayanan & Srujitha Venkata Bade Std: 8

Subject: Engineering

Guide: Suryanarayana Rao S.R

School: Sishu Griha Montessori and High School

ABSTRACT:

Medicine Alarm System with Messaging Facility is designed to help people suffering from chronic ailments and need to take prescribed medicines at different predefined intervals during the day.

The system comprises of the following components which are mutually connected:

1. Medicine cabinet with four separate compartments to store different medicines for each interval.
2. Visual alarm with LED lights for each compartment.
3. Common audio alarm with a buzzer.
4. Power backup for 4 hours with 12 volts battery.
5. Programmable Micro-Controller with a real time clock.
6. Messaging system connected to communication network.

Working Principle:

Prescribed medicines are placed in the respective compartments of the cabinet sequentially from first dosage of the day to the last dosage. Ten minutes before the dosage time, the respective LED light glows and the buzzer rings indicating that it is time for the medicines to be taken. If the patient forgets to take the medication on time, after two minutes, the system sends a text message to the caretaker indicating that the respective dosage has been missed.

If the patient responds by pressing a response button after taking the specific dosage, no message will be sent to the care taker. The process is repeated for subsequent doses during the day. The alarm and messaging pattern repeats itself automatically, every day to ensure that the prescription is followed unless the time settings are changed based on changes in doctor's prescription if any.

We have received provisional patent on 25th Aug, 2014.

Project Code: ENGG-02 (Team) (Jr)

Online ID:686

Title: ELECTRONIC AID FOR SPEECHLESS

Name: M. Balaji & G. Neeraj Std: 8

Subject: Engineering

Guide: P.ASHA KIRAN

School: VAGDEVI VILAS SCHOOL

ABSTRACT:

The main aim of the project is to develop an electronic speaking glove designed to facilitate an easy communication through synthesized speech for the benefit of speechless patients. Generally a speechless person communicates through sign language which is not understood by the majority of the people. The proposed system is designed to solve this problem gestures of fingers of a user of this glove will be converted into synthesized speech to convey an audible message to others, for example in a critical communication with doctors. The processing of an information sends a unique set of signals to the PIC micro controller and speak jet IC which is pre programmed to speak desired sentences.

Project Code: ENGG-03 (Team) (Jr)

Online ID:731

Title: Intelligent Helmet for coal miners

Name: Karthik Manoj & Amith Gore Std: 8

Subject: Engineering

Guide: Tirumala Reddy P

School: Vagdevi Vilas school, Munnekolalu, Bangalore

ABSTRACT:

This project is designed to provide Intelligent Helmet for Coal Miners and safety monitoring of Coal miners. Various parameters like Methane gas, Carbon monoxide gas, Temperature and Humidity are monitored for the safety of coal miners. These sensors are should be fitted in the helmet of the coal miners. Whenever any parameter crosses a particular threshold value, a buzzer is turned on so as to indicate the miner about the danger. Thus this system performs function of miners safety monitoring and controlling system.

Block Diagram:

Applications of Intelligent Helmet for Coal Miners

1) "Intelligent Helmet for Coal Miners project" can be used in various coal mines for detecting the dangerous environment situations.

Advantages of Intelligent Helmet for Miners project:

1) "Intelligent Helmet for Coal Miners" provides an automatic safety system for coal miners and other workers or engineers entering into coal mine.

Project Code: ENGG-04 (Team) (Jr)

Online ID:732

Title: Car speed detection radar using micro controller

Name: Prashanth Reddy & Rohit Pandiyan Std: 7

Subject: Engineering

Guide: Tirumala Reddy P

School: Vagdevi Vilas school, Munnekolalu, Bangalore

ABSTRACT:

Speed control is in the need of the hour due to the increased rate of accidents reported in our day-to-day life. During 2011, in India a whole of 4, 97,686 road accidents were reported which is a result of lack of speed control and violating the road rules [9]. Road accidents can be prevented by adopting measures such as Traffic management, improving quality of road infrastructure and safer vehicles. To ensure decline in accidents and to improve road safety, speed control techniques such as speed control in school and college zones. The existing techniques still doesn't able to reduce the number of accidents. Hence there is a need to implement Intelligent Speed Adaptation (ISA) in which violation

management provides efficient monitoring, registering and reporting system of speed of the vehicle which exceeds the limit. The driving behavior of the driver is monitored based on which penalty points are calculated. In the present day scenario traffic rules are frequently violated by the drivers and over speeding occur due to bad driving behavior. So, a driver assistance system is provided to prevent over speeding, violation of road rules and also to display alert messages. The proposed system has an alerting, recording and reporting system for over speed violation management.

Now-a-days we hear news about accidents on Highways very frequently. And in most of the cases main reason of accident is over speed. Although all highways do have signboards indicating maximum speed limit for the sake of driver's safety, but still people does not obey highway speed limit. The project mentioned here is "CAR Speed Detection RADAR using Micro Controller". This project is designed and developed by taking into consideration the problem mentioned above. We have used sensors in this project. These sensors detect the vehicle speed.

Liquid Crystal Display (LCD display) is connected to this project. This display will show the vehicle speed. It will also intimate user if vehicle speed crossed the maximum speed limit or not. The project also has a Buzzer. Over speed condition is indicated by turning on the Buzzer.

Block Diagram:

Micro Controller 89S52

Description in detail:

microcontroller calculates the speed. Formula used to calculate speed is:
 $Speed = Distance / Time$

Here in this project, Formula is interpreted as,
 $Vehicle\ Speed = Distance\ between\ 2\ sensors / Time\ taken\ by\ the\ timer$

This project contains following blocks

1. Microcontroller – We have used 89s51 microcontroller which is 8051 series microcontroller to calculate the speed.
2. Sensors – We have Ultra sonic sensors t measure the speed.
3. LCD- To display the speed.
4. Buzzer- Is used to indicate the speed is crossed.

Applications and Advantages:

1. This can be used at Highways (National Highways, State level Highways).
2. This project can also be used inside university campus areas or inside any company's premises.
3. This implementation will be very useful for traffic personnel to regulate the speed control
4. Traffic signs and information about alerts can be intimated to the vehicle users

5. Insurance schemes can be implemented based on the driving behavior
6. Comparing earlier implementations, this is a low cost method which is practically feasible

Future Development:

1. A CCTV Camera can be placed on the highway. If any vehicle has crossed the maximum speed limit then this camera will be triggered to take a picture of the vehicle.
2. We can add voice announcement system. It will intimate the driver that he/she has crossed the over speed condition.
3. We can implement the GSM technology. So that the nearest highway security authorities will be informed about the vehicle which has over speed.

Project Code: ENGG-05 (Team) Online ID:733

Title: Location Detector for the Visually Challenged

Name: K. Kashyap & V. Sanjeev Prabhu Std: 9

Subject: Engineering

Guide: Rohini Ghatpande

School: Vagdevi Vilas School, Marathahalli, Bangalore

ABSTRACT:

Visually challenged are now venturing into many fields on their own to earn a livelihood. It makes it challenging for them to move around in their work areas. If they are able to identify a few locations in their work area, it makes it easy for them to mind map the other locations.

This project would enable a user to identify two locations in the premises of their work place.

The “Remote Keyless System (RKS)” used in cars to lock the vehicle remotely, would be used to execute this project. Keys are actually short range radio transmitters and the locks are receivers.

The user would actually carry the key box (keys put in a box). The lock part would be fixed at two different physical locations. Pressing of the button on the key and the listening to the beep from the lock would indicate to the user his proximity to the location.

Project Code: ENGG-06 (Team) Online ID:736

Title: OPTIC FIBRE LIGHT (OFL)

Name: Siddharth Ashwin . C & Joseph John Std: 9

Subject: Engineering

Guide: Rohini Ghatpande

School: Vagdevi Vilas School, Marathahalli, Bangalore

ABSTRACT:

Saving energy and utilization of renewable resources of energy is the word of today. It is now time to save this energy for our own generation! Sun is an abundant source of heat and light energy. This energy is primarily used up by the plants to begin the food chain. All the other resources directly or indirectly depend on the Sun.

Our project aims at combining the Optic Fibre Cable(s) and the Solar Bulb (Bottle filled with water) to bring in sunlight into sunlight deprived balconies.

Project Code: ENGG-07 (Team) (Jr)

Online ID:744

Title: SMART TROLLEY

Name: PRIYANSI PARIDA & PREKSHA SIROHIA Std: 7

Subject: Engineering

Guide: G. ASHA RAJU

School: Vagdevi Vilas

ABSTRACT:

Smart trolley which can help us do shopping as well as billing at the same time. We are doing this to save time which people waste during billing while shopping. A barcode reader is attached to the trolley. While shopping each item scanned with the item's barcode with the barcode reader. This barcode reader is attached to the computer, all the data gets inputted in the computer. So while the customers go to the billing counter the person in the counter types the barcode number and all the details about their billing comes. After this people only have to pay money on a flat weighing machine. The computer has a barcode with the gross weight saved in it. The weight of the trolley should be subtracted from the total weight obtained from the weighing machine. If the weight is same with the gross weight, then people have not cheated.

Project Code: ENGG-08

Online ID:750

Title: Eco Electricity

Name: Vikram Manivannan & Std: 9

Subject: Engineering

Guide: Abhilash Madhava

School: Vagdevi Vilas School, Marathahalli, Bangalore

ABSTRACT:

In this project a new method for generating electric current using gravitational energy, magnetic energy, wind energy and hydraulic energy is tested. Horizontal roller type wind mill is mounted on the arm of a pendulum. It is subjected to free oscillation under the influence of gravity. The roller type windmill will rotate during the oscillation producing electricity which is in turn stored in a battery connected to the roller. The free oscillations are sustained for a longer time by giving a repulsive magnetic thrust to the arm of the pendulum from both the sides using hydraulic energy. The dimensions, material, working of the model is analyzed for better results using simulation software.

Project Code: ENGG-09 (Team) (Jr)

Online ID:754

Title: Low cost chapati vending machine

Name: Varun Venkat & K. Natarajan Std: 8

Subject: Engineering

Guide: Suma N

School: Vagdevi Vilas School- marathahalli

ABSTRACT:

In today's busy world everyone would like to save their time in cooking or A vending machine is a machine which dispenses items such as snacks, beverages. This simple and user friendly chapati vending machine offers you to enjoy hot chapati/rotis within seconds. This machine contains atta kneader and the chapatti rollers and heaters. Also the machine has a water inlet which allows the required amount of water to enter the atta kneader while kneading atta. The atta (wheat flour) has to be added at the back of the machine. The operator has to press a button which allows the required quantity of water to flow into atta kneader and gets kneaded. When the consumer or the customer needs chapatti/roti, the operator presses the button which allows the correct amount of kneaded dough move on the roller, where it gets pressed like a chapatti, which again moves on the heating rollers where the chapati gets cooked, and it pops out through outlet. The operator has to press the button which specifies the number of chapattis. Based on the buttons pressed the chapatis will be dispensed. The advantages of this machine is: 1. It is low cost and less time consuming, 2. very hygiene 3. Low maintenance and cleaning cost, 4. Tasty and delicious

Project Code: ENGG-10 (Team)

Online ID:800

Title: Tech Scissor

Name: Ganesh Sathish & Parinith.S.Kumar Std: 9

Subject: Engineering

Guide: SMT>Shanthaladevi

School: Vagdevi Vilas School, Bidadi, Bangalore

ABSTRACT:

Aim:- To know the accuracy while cutting a paper or a cloth.
Materials required:- 1 scissor, 15 small LEDs, 15cm Scale, rechargeable Battery, thin copper wire and plug.

Information:- To an ordinary scissor, small LEDs are fixed to the lever and the scale, which is used to measure the length, which we have to cut is fixed to the opposite lever, and to glow the LEDs a rechargeable battery is fixed near the handle, which can be charged by plugging into a electrical switch board. If a solar panel can also be fixed to the scissor if possible. This can be used in textiles and Garments industries. And the main advantage is that it is cost effective and no complicated mechanism.

Title: Eco Friendly Advanced Hospital

Name: Keerthana. V & SAPNA.CHOWDHURY Std: 10

Subject: Engineering

Guide: SAI VENKATA RAMAN

School: AGRAGAMI VIDYA KENDRA

ABSTRACT:

INTRODUCTION

As all of us visit hospitals when we not feel well and we come back after the treatment. But there will be some patients who remain at the hospital for months together for their treatment so that they heal there disease. They may be HEART patient COMA patient etc .They can be called as ICU patient. So its necessary to monitor those patients for complete 24 hrs. So that even a small movement made by the patient is noticed by the doctors and nurses such that they can rush to that particular patient and take immediate care. But monitoring can't be done by a human being for 24 hrs .Its just impossible for any person to stay and monitor a set of patients for whole night and day. So here we have designed a hardware using various devices which will monitor the patients for the complete 24 hrs without any errors in indication about the patients condition.Using this hardware the doctors can sit in his chamber and monitor those ICU patients .And can immediately go to that patient or direct a nurse if he is busy to go to that patient.So we are reducing the man power and hence serving the same purpose with less human intervention .And hence achieving our goal. The patient bed having the following measuring instruments if any variation of the RF transmitter send signal to the doctor room .In the doctor room one RF receiver and announcement section is available which is produce the announcement according to the sensor ,the same time it display in LCD display

Hypothesis

As we surveyed a few hospitals where the unexpected death cases with lack of time examine to the patient, we did this project we can make the doctor's convenient method to examine the patient. As the technology improving we did the project for easy methods to identify the patient problem without examine in the presence of hospital cot. Every patient will feel happy when a hospital having the following technology methods.

- A certified, efficient EHR system
- Surgical and service line technologies
- Smart phones, tablets and applications
- Hybrid operating rooms
- Tele health tools
- Ultrasound imaging devices

- Infection detecting technologies.

In This device we are using the following features

1. Automatic checking of heartbeat pulses
2. Automatic checking temperature of human body
3. Automatic checking of patient urine
4. Automatic checking of glucose level
5. Automatic checking movement of patient
6. RF transmitter and RF receiver is used for communication
7. Separate code for separate sensor and individual patient

Project Code: ENV-01 (Team) (Jr) Online ID:629

Title: Plastic Charkha - Wire from plastic bottles

Name: Aishwarya Vinod Nambiar & Ram A Mannath Std: 8

Subject: Environment

Guide: Vinod Nambiar

School: SishuGriha Montessori & High School, Bangalore

ABSTRACT:

Use of plastic bottles for liquids and beverages is widespread. These bottles are made of PET (Polyethylene Terephthalate) and are not easily biodegradable (it can take between 100-1000s of years to biodegrade). Over 500 billion bottles are used globally in a year. In India 300,000 tonnes of PET bottles are recycled (into fibre) annually, so much more is created. This is a big landfill problem

Our project, the plastic charkha is an innovative way to reuse these bottles. We came across a video where we saw a contraption made by people in Russia and Brazil that cut plastic bottles into strips. We did not see similar device in India. Inspired by these, we set out to make, what we called a Plastic Charkha. We have built four prototypes (Refer uploaded file) so far.

The strips we've made are fairly strong and can be used to make many products. Our plan is to help create an ecosystem for collection of used bottles, creation of strips using the Plastic Charkha & making of products that will generate wealth & employment. Products we have identified so far include woven stools, cots, bags, meshes that can be used in concrete blocks etc

Project Code: ENV-02 (Jr) Online ID:660

Title: Study of Impact of Water Heated in a Microwave Oven vis-à-vis Normal Tap Water on the Growth of Plants

Name: Sanjna Kartik & Std: 7

Subject: Environment

Guide: Mr. Suryanarayana Rao SR

School: Sishu Griha Montessori and High School, Bangalore

ABSTRACT:

In the present world the use of microwave ovens in our everyday life is increasingly common especially in the urban areas. Literature survey revealed controversial reports with respect to impact on plant and animal life. The aim of this experiment is to study and assess the impact of microwave heated water on plant growth quantitatively and qualitatively.

Procedure

Six samples of bean plants were used. All parameters except water were kept constant. The study lasted for about 10 weeks.

The water was heated to different pre-determined temperatures in a microwave, after which, was cooled to room temperature. Three of them were watered with this water and three of them with normal water on a daily basis. Comparative studies were made regarding growth pattern of both sets of plants.

Observation

The growth pattern of both sets and plants did not display any significant variation. However, the first plant to flower was the normal watered plant.

Results Achieved so far

Though quantitatively there was no difference in the yield, the normal watered plants yielded beans faster than the microwave watered ones. They were however, slightly thinner and shorter in length (see Annexure)

Future Scope of Work

1. A viability test is in progress to study the impact on the growth pattern and yield of the microwave watered plant.

2. Efforts to test the yield quality are also in progress.

(Sample scan of log book pages, literature survey, action photographs (see Annexure))

Project Code: ENV-03 Online ID:662

Title: POWER SAVING IN MOBILE CHARGERS BY MINIMISING PHANTOMLOAD BY MECHANICAL TIMER

Name: Siddharth.H & Std: 09

Subject: Environment

Guide: Suryanarayan Rao S R

School: SISHU GRIHA MONTESSORI AND HIGH SCHOOL (BANGALORE)

ABSTRACT:

My project aims at saving power by minimizing the phantom load in mobile chargers.

The maximum charging in time from zero to full charge is a maximum of about two hours. Survey indicates 60% of people keep the mobile on charge for about 8hrs during the night instead of 2 hrs.

From Literature survey power loss of about 1watts on an average when the power source is ON and charging is stopped .Thus loss of 2kWh per year per mobile. By inserting a simple two hour- mechanical timer between the power source and the

charger and setting the charging time as per the requirement and thereby eliminates the power loss due to phantom load. As per the literature survey such a simple device is not being made used to save power in mobile chargers.

Work done so far :

1. Survey to study the charging cycle.
2. Power Vs. time measurement of different chargers from zero to full charge taken and graph was drawn.
3. Inserting a mechanical timer between the power source and the mobile charger.

Impact:

1. In India there are about 900 million mobile users, if the simple device is used along with the charging device, there will be substantial reduction in power demand by about 500 megawatt, considering even saving at 60% level.
2. Reducing 1 billion kWh of electrical energy per year
3. By reducing 9 lakh tones of carbon di oxide emission per year.

Future Plan:

1. Develop a simple mechanical timer like an adopter .Explore for stopping the countdown time in case of power failure.
2. Create awareness about the device.

Project Code: ENV-04 (Team)

Online ID:698

Title: ECO-PCP FILTERS (Pollen Cum Pollutants Filters)

Name: DHANUSHREE.P & LAVANYA HEMANTH Std: 10

Subject: Environment

Guide: Mrs.ANITHA SUKHDEV

**School: VAGDEVI VILAS SCHOOL ,MARATHAHALLI POST
,BANGALORE**

ABSTRACT:

Our aim is to develop an Eco friendly / all natural facial, nasal filter which can be set for house hold air conditioners also. The filter is designed to eliminate:

*Pollutants

*Pollen grains and

*other impurities

The filter is scientifically designed with layers of different material placed sequentially, which allows filtration of air before being inhaled. This filter is flexible and can be made in different shapes, colours and sizes to meet the users comfort and benefit. All the material used are 100% natural and biodegradable.

*1st layer: It is made of knitted wool which has fine pores which attracts dust and pollen grains due to its electrostatic force.

*2nd layer: It has activated carbon which absorbs pollutants, bacteria, fine pollen grains, fine dust particles, soot particles and bread moulds due to its strong chemical bonding.

*3rd layer: It has activated charcoal that absorbs chlorine and harmful odors due to its strong chemical bonding.

*4th layer: It has a layer of thin cotton which only lets fresh air to pass through it.

All the 4 layers are enclosed in a skin color cloth which can be worn as a mask. The whole set up can be slightly modified and sandwiched in a thin, firm mesh support and fixed in AC unit. We also intend to add an additional feature for AC, which will have a source for UV radiation to kill germs in the air entering the room.

Project Code: ENV-05 (Team)

Online ID:725

Title: Plant extracts to enhance the seed germination process of Indian economical seeds

Name: S. Gopamma & K. Priyanka Std: 10

Subject: Environment

Guide: Chaya Devi

School: Zilla. Parishad High School, Chinnagollapalli

ABSTRACT:

Plants play an important role in our Indian economy, especially mustard, ragi, bean and tomato. These plants are considered as one of the main food crop, for being important source of oil, protein, spices etc...

There have been numerous researches taking place to find treatments which act as growth promoters.

Our project concentrated on a simple question “Can natural organics enhance faster seed growth and develop resistance against plant diseases”

The present investigation was carried out with an objective

1. To study the influence of different organics on seeds(mustard, bean, ragi and tomato)
 - Germination percentage,
 - speed and rate of germination,
 - Vigor index.
2. To study the efficacy of seeds against disease causing pathogens like fungi

etc.

Organic aqueous extracts were prepared from fresh and dry leaves of *Argemone mexicana*, *Lantana camara*, *Carica papaya* and *Annona squamosa* leaves. 100 seeds each of bean, ragi, mustard and tomato were soaked in these organic extracts separately for 24 hours, similarly 100 seeds each were soaked in Jeevamrutha (traditional growth promoter), IBA (commercial growth promoter) and tap water (as a control) for 24 hours. Seeds were transferred to testing plates as per labels and lab bioassay was conducted to study germination%, speed of germination, rate of germination and vigor index. Seeds treated with *Lantana camara* fresh leaf extract showed best results in terms of germination%, rate and vigor index compared to other organic and growth promoters

Field study: Bean seeds have been planted in the fields, to study their germination, yield and resistivity to diseases.

Project Code: ENV-06 (Team)

Online ID:728

Title: ALBIZIA LEBBECK FLOWERS A REMEDY FOR BODY ODOR

Name: B. VIJAY & S. PRASANNA KUAMR Std: 9th std

Subject: Environment

Guide: M. D. Mahadev

School: Z.P.G. High School, New pet, Kuppam-517425, A.P.

ABSTRACT:

The objective of the project was to isolate the bacteria from the sweat and socks of human body and spread plated in the nutrient agar medium containing petriplates than four well was created in the gel and spreaded with bacterial culture in which the dry flower powder of *Albizia* in mg/ml concentration was dispensed in the wells in 50 μ l, 100 μ l and 150 μ l quantity and was subjected for incubation to check the antibacterial activity over the period of 24 hours at 35 $^{\circ}$ C-37 $^{\circ}$ C, after incubation zone of inhibition was observed was maximum 2mm in radius around 150 μ l dispensed well and no zone of inhibition in undispensed (control) well. This flower extract was also tested with the same bacteria with standard antibiotics like Tetracycline, Ampiciline, Methicillin, kanamycine (30 μ g/disc) as control in which bacterial culture showed resistant to Amphiciline alone and other three antibiotics are sensitive to bacterial culture but there was a little scatter growth of bacteria in the region of zone around kanomycine. The project was also aim in doing the social work as a case study. Four groups of children were selected as I, II, III and IV. Group I was kept as control and others given with *Albizia* flower dry powder alone, Normal talcum powder, *Albizia* flower with talcum powder respectively and make it to sprinkle on socks before wearing the shoes and opinion were collected after 10 days. The best result was found with the group III which used *Albizia* flower with talcum powder.

Project Code: ENV-07 (Team) (Jr) Online ID:734

Title: Effective treatment of textile effluent using green approach.

Name: Balaji M & Chandrahas M. V Std: 8

Subject: Environment

Guide: Tirumala Reddy P

School: Vagdevi Vilas school, Munnekolalu, Bangalore

ABSTRACT:

Project name: Effective Treatment of Textile Effluent Using Green Approach (Ceiba Pentandra and Citrullus Lanatus) And Meaningful Utilization of Textile Solid Waste into Building Materials.

To collect and to characterize the textile industrial effluent □ To collect, characterize and obtain the desired size of the adsorbents.

To prepare and activate green adsorbents like Kapok hull carbon (Ceiba Pentandra) and watermelon shell (Citrullus Lanatus).

To study the effectiveness of treatment of textile effluent using Green Route (Ceiba Pentandra and Citrullus Lanatus).

To evaluate the adsorption capacity of kapok hull and water melon shell on treatment of textile effluent and to analyse the influence of various parameters like amount and size of adsorbent, effect of contact time, effluent volume, PH, flow rates, temperature, agitation speed, etc. on removal of COD and other toxic characteristics.

To optimize the parameters and to use the optimized parameters for designing of the reactor with further scale up. To study the various adsorption isotherms and kinetics of adsorption.

To analyse nature and composition of solid waste and to characterize the textile industrial solid waste and analysis of possibility of recovery of possible minerals from solid waste.

To convert solid waste into building materials like bricks, concrete blocks and flower pots.

To test the important properties like compressive strength, water holding capacity and efflorescence test, etc. for the feasibility of the value added products.

Project Code: ENV-08 (Team)

Online ID:747

Title: EFFECT OF CIGARETTE/TOBACCO SMOKE ON SEED GERMINATION AND ITS GROWTH

Name: Y. GREESHMA SREE & Y. GIRISREE Std: 9th std

Subject: Environment

Guide: M. D. Mahadev

School: A.P. MODEL SCHOOL, GUDUPALLI (M), KUPPAM (T), CHIT

ABSTRACT:

Everyone knows that cigarette smoke and chewing tobacco have negative effects on people, but what about plants? In the present investigation the effect of seed germination and its growth rate were studied in exposing the seeds of fenugreek to various sources of smoke like cigarette, agarabathi and dried leaves along with the type of water either normal or tobacco soaked water used for seed germination and its growth the results revealed that the seeds with repeatedly exposed to cigarette smoke with the tobacco soaked water showed with the least germination rate (two days) and least growth (4.5 cm) and this growth rate were seen increased with seeds exposed to cigarette smoke followed by dried leaves smoke and agarabathi smoke, maximum growth (18.2 cm) seen in normally growing conditions compare during the observation for a period of seven days. These results ultimately showing the plants too have the effect of smoking and tobacco usage.

Project Code: Maths-01

Online ID:594

Title: DESIGN AND DEVELOPMENT OF PI TAPE FOR THE ESTIMATION OF DIAMETERS

Name: DIVYA MUNGAMURI & Std: 9

Subject: Maths

Guide: MRS. LAKSHMI.V

School: SISHU GRIHA MONTESSORI AND HIGH SCHOOL (BANGALORE)

ABSTRACT:

To design a tape that could help in estimating the diameter of cylindrical objects, directly without any direct measurement or calculation.

Uniqueness

Based on literature survey, there are such instruments fitted with Vernier available in the market. These are not commonly used by field personnel as they are not so affordable. Uniqueness of our project is to make it simpler and affordable. Survey also indicates low awareness level.

Design and Methodology

Normally, when we wind a measuring tape around a cylinder, we measure its circumference. As circumference is π times the diameter, the diameter can be

found by dividing the circumference by π . The design involves graduating the measuring tape in integral and decimal fractions of π . As each main division is marked 1 but equal to 3.14 centimeters, the scale directly reads diameter in centimeters.

Experimentation

The π tape was developed mainly in two stages:

Stage-1

Manually, a paper tape was graduated in terms of π and the estimation of diameters of cylindrical objects was done.

Stage-2

As the paper tape manually graduated was not so precise, the π tape was designed using Auto-CAD software. Its least count is 0.5 mm. This tape was covered with thin plastic. Estimation of diameter was done for cylindrical objects and results were compared to those obtained by direct measurement of diameter (using a ruler).

Usefulness

1. User friendly, simple and cost effective.
2. Vernier scale has a limitation unlike the π tape.
3. Small and large diameter estimations are possible.