

# INSEF ABSTRACT BOOK

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**Mahila Vidyalaya High School**

College Road, Belgaum

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



Innovation Partner of INSEF

**Title: Effect of Pencil Cactus on fruit flies**

**Name: Prasannakumar Halli & Rohit Moyali Std: 8**

**Guide: N Babanagar**

**School: GBHS Vijayapur Vijayapur**

**ABSTRACT:**

Aim & Objective:

- Well utilizing natural resources.
- Changing traditional ideas to modern idea.
- Study of Ephobia family plant harmful to household insects & pests.

Method:

1. Identifying cactus plant species.,
2. Latex extraction
3. pH , chromatography, lab tests.
4. Fruit fly generation by Banana
5. Testing by stem hanging method, Spray method and hanging evaporating block method.
6. Observation and tabulation by experimental result.

Results:

- The effect of Hanging Euphorbia Tirucalliis better than other Cactus like Euphorbia poissoniPax plant.
- To get long lasting effect of our product can use it as an “Evaporating block” like odonil freshener blocks and Naphthalene bolls.

Conclusion:

- Euphorbia family plants have an insecticidal property and it is establishing itself like complete air refreshing expert,
- Using pesticides and insecticides in liquid form in home is not better way, even natural pesticides (from Euphorbia family) contain some poisonous chemicals.

**Project Code: Bio-01**    Online ID:2264

**Title: Bacterial Cellulose - The Future Biomaterial**

**Name: Nikhil Dinesh Raikar    Std: 11**

**Guide: Dinesh Raikar**

**School: Vidya Vikas Academy;VVM Campus;Comba;Margao;Goa**

**ABSTRACT:**

Traditional methods of extracting Cellulose from plants are insufficient and have demerits like the Plant Cellulose so obtained normally branches with hemicellulose and lignin, hence has to undergo harsh alkali and acid treatment leading to pollution & deforestation. Thus this project aims to study the synthesis of Bacterial Cellulose which will be an alternative to Plant Cellulose. Bacterial Cellulose is a remarkably versatile bio-material that can be used in wide variety of applied scientific endeavors, such as 3D printing, decomposable packaging materials, electronics & biomedical uses. I am developing a 100 % biocompatible, self constructing and protective packaging material using Bacterial Cellulose which will increase the shelf life of perishable substances using Silver ions and graphite nano-particles. The untreated initial hydrogel state of the Bacterial Cellulose which I got from the Kombucha solution can be used as a moisturizing and damping packaging material. Bacterial Cellulose can also be used as freeze-dried protective structure for sensitive products due to its good insulating and damping properties. Here I have studied the properties and conditions required for synthesis of a novel biomaterial- Bacterial Cellulose, so that large scale production of Bacterial Cellulose is possible. Bacterial Cellulose has many advantages over Plant Cellulose namely higher degree of polymerization, higher water holding capacity and higher mechanical strength.

**Project Code: Bio-02 (Jr)**    Online ID:2360

**Title: Contamination of Tooth brush with fecal bacteria - A Health Hazard**

**Name: ADITYA SHANKAR    Std: 8**

**Guide: Dr Shrinidhi M S**

**School: JnanaDeepa Vidya samste; shivamogga**

**ABSTRACT:**

Toothbrush contamination is extremely common and so rampant yet this terrible health hazard easily escapes our attention. Reasons for the ease in contamination are 1) close vicinity of the sanitary area to the wash areas

where tooth brushes are commonly stored in open containers, 2) aerosol from the flushing the toilets and the subsequent fecal micro-organisms lingering in the atmosphere and eventually settling on any and every surface. 3) toothbrushes are moist making them conducive for survival of the bacteria.

A study was designed to determine if this contamination could be contained or atleast reduced. 3 natural antimicrobial agents which are easily available in any Indian household were used, namely, Neem, Bilwa and Tulsi. 3 new toothbrushes were dipped twice daily in the aqueous extracts of the above mentioned agents and a 4th dipped in water as control. These brushes were kept at a distance of 6 feet from the sanitary area for a period of 7 days. At the end of 7 days, bristles were cut and deposited in transport media and sent for microbiological analysis. The analysis was confined to a combined count of colony forming units of E.coli and enterococcal pathogens.

Results showed the highest contamination with respect to the brush assigned as control (2500 CFU) closely followed by bilwa ( 2376 ) and neem and tulsi dipped bristles (1861 and 1467 CFUs. )

It can thus be inferred that the agents probably are completely or partially ineffective in decontaminating tooth brushes.

**Project Code: Chem-01 (Team) (Jr)**      Online ID:2260

**Title: Tissue culture by Silver Nano Particles**

**Name: Praveen Sutagundi & Premsagar Sabakale      Std: 8**

**Guide: Nagaraj Mandekar**

**School: Govt HS Jalanagar Vijayapur**

**ABSTRACT:**

ABSTRACT

Aim & Objective:

To improve the Culturing system by silver nano particle by doing the experimentation. And Comair with

other culturing system.

Method:

- ☐ Collection of cow dung and rose plants from the local available area.
- ☐ Culturing process starts in Various type of soil by silver nano particle solution,

☒ Take 16 pots set of 4 culture Cow dung only Silver nano particle only, mixture of cow dung with

silver nano, and Soil only.16 numbers of rose plants stem cut cross section and put planting into

separate Pots.

☒ Daily add 100 ml of water and measuring the Plant growth and record in tabulation up to 15 days

☒ Compare the effectiveness of silver nano particle in various soils.

☒ silver nano particles solution culturing given good results it grows very fast as compared to other

culturing plants.

Results

All the experiments observed by physically measurement we get well result in Silver nano particle at red

soil. Compare black and red soil for tissue culturing Red Soil is good soil for developing the plant by

silver nano particle.

Conclusion:

As our Experimental result shows that method of culturing by silver nano particle is improved method of

speed grooving technological system. The rate of plant growth in red soil compare to black soil.

Novelty:

Simple technological Culturing system

Anybody can adopt for their own culturing system

**Project Code: Chem-02 (Team)**      Online ID:2366

**Title: PRODUCTION OF BIODIESEL FROM COTTON SEED**

**Name: KEERTI VINOD GUDODAGI & DEEPA MALLAPPA**

**KORAWAR      Std: 10 std**

**Guide: SHRI S S HIREKOPPA**

**School: B.S.TIMASANI HIGH SCHOOL BELLUBBI Vijayapura**

## **ABSTRACT:**

### 1. Abstract :-

The present study is intended to consider aspects related to the feasibility of the production of biodiesel from CSO. This report deals with biodiesel obtained from CSO which are mono esters produced using transesterification process. The optimum conditions to achieve maximum yield of biodiesel were investigated at different temperatures and with different molar ratio of CSO and methanol.

### 2. Methodology :

#### 2. 1. BASE CATALYZED METHOD

One liter sample oil (cotton oil) is taken in a three necked flask which is heated till temperature reaches close to boiling point of methanol (65-70°C) on magnetic stirrer as shown in fig1. The amount of NaOH needed as catalyst for every liter of crude vegetable oil was determined based on FFA carried out by titration and given in table 1. NaOH and methanol (200 ml) mixture known as methoxide was added slowly and heated for one and half hour. After the reaction, the oil was transferred to a separating funnel for glycerol separation. The lower glycerol layer was removed and remaining upper layer i.e. biodiesel/ mono methyl ester contains some traces of NaOH, methanol and glycerol.

#### 2.2 WASHING OF PRODUCT

After transesterification the upper ester layer may contain traces of NaOH, methanol and glycerol. Since the remaining unreacted methanol in the biodiesel has safety risks and can corrode engine components, the residual catalyst (NaOH) can damage engine components, and glycerol in the biodiesel can reduce fuel lubricity and cause injector coking and other deposits. [2]. These being water soluble is removed by washing (4-6 times) the biodiesel with water maintained at 40-50°C as shown in fig 2. Washing is carried out by spraying hot water over the biodiesel; precautions were taken to avoid soap formation. Adding hot water Stirring Separation of water Draining out water . After the completion of washing process the biodiesel may contain some traces of water. Biodiesel is heated to 110°C to remove the trapped traces of water

### 3. Conclusion

Studies have been made using CSO oil, a novel feedstock of obtaining biodiesel which is renewable in nature. The effect of methanol to oil molar ratio and acid & alkali catalyst transesterification were analyzed. The exhaust emissions of CSO blended biodiesel are studied. Compared with conventional diesel fuel, diesel exhaust emissions including smoke and CO were reduced, while NOX emission was increased with the diesel-NOME blends. The reductions in CO and smoke emissions and the increase in NOX emission with Diesel –CSOME blends may be associated with the oxygen content in the fuel. More than 15% CSOME-diesel blends created poor atomization tendency and incomplete combustion in engine. So the engine exhaust emission level is increased. The ester of this oil can be used as environment friendly alternative fuel for diesel engine creating a greener environment in the future

**Project Code: Chem-03 (Team) (Jr)**      Online ID:2509

**Title: PRODUCTION OF BIO DIESEL FORM NEEM OIL**

**Name: ANUSHA I HAVALAKOD & SHALINI SHEKAR PAWAR**

**Std: 7th Std**

**Guide: MANJUNTH S NIRAKARI**

**School: R P I ENGLISH MEDIUM SCHOOL LOKAPUR**

#### **ABSTRACT:**

In India Neem tree is a widely grown crop, termed as Divine Tree due to its wide relevance in many areas of study. Diesel engines are widely used for different application in industrial power plants, transportation, agriculture etc. Despite these advantages, the environmental pollution caused by diesel engines becomes a major concern throughout the world. Diesel engines produce smoke, particulate matter, oxides of nitrogen (NOX), oxides of carbon (CO & CO<sub>2</sub>) and unburnt hydrocarbon (HC). Several alternative fuels have been studied to either substitute diesel fuel partially or completely. Vegetable oils are proposed to be promising alternatives to diesel, as they are produced in rural areas. The oil produced from seeds can provide self employment opportunities.

During the experiment while conversion to biodiesel by transesterification, it was found that yield of cotton seed oil (CSO) and mahua seed oil is less compared to neem oil. Transesterification of vegetable oils was carried out using methanol (CH<sub>3</sub>OH) and sodium hydroxide (NaOH). Based on FFA calculation transesterification process is carried out and

their properties are determined and found that biodiesel properties are near to diesel.

The present study is intended to consider aspects related to the feasibility of the production of biodiesel from neem oil. This report deals with biodiesel obtained from neem oil which are mono esters produced using transesterification process. The optimum conditions to achieve maximum yield of biodiesel were investigated at different temperatures and with different molar ratio of neem oil and methanol. The temperature increases yield of

### 6. 1. BASE CATALYZED METHOD

One liter sample oil (vegetable oil) is taken in a three necked flask which is heated till temperature reaches close to boiling point of methanol (65-70°C) on magnetic stirrer. The amount of NaOH needed as catalyst for every liter of crude vegetable oil was determined based on FFA carried out by titration. NaOH and methanol (200 ml) mixture known as methoxide was added slowly and heated for one and half hour. After the reaction, the oil was transferred to a separating funnel for glycerol separation. The lower glycerol layer was removed and remaining upper layer i.e. biodiesel/ mono methyl ester contains some traces of NaOH, methanol and glycerol.

Table 3. Yield of Biodiesel by transesterification (NOME)

Batch

FFA

	Neem (ml)	Glycerol (ml)		Biodiesel before washing (ml)	Biodiesel after washing (ml)	
			Biodiesel after heating (ml)			
I	2.31	1000	200	1050	990	950
II	2.31	1000	230	1010	885	870
III	2.36	1000	240	985	890	845
IV	2.41	1000	200	990	820	810
V	2.71	1000	230	950	820	755
VI	2.8	1000	270	920	880	850
VII	3	1000	230	885	810	790

VIII 3.2 1000 280 865 830 810

Fig.2 Effect of temperature

Table 2. Comparison of Biodiesel obtained from acid, alkali catalysts and Commercial Diesel

PROPERTIES	NOME (ACID CATALYST)	NOME ALKALI CATALYST)	DIESEL FUEL
Viscosity at 40 OC (cP)	5.3	4.9	6.8
Density at 15 OC (g/cc)	0.78	0.81	0.8
Heating value(Mj/kg)	39.1	39.4	44.5
Cetane number	46.0	46.0	51.0
Carbon mass (wt %)	76.7	76.7	86.8
Hydrogen (wt %)	12.1	12.1	13.1
Oxygen (wt %)	11.15	11.15	0.00
C/H ratio	6.33	6.33	6.63
Sulphur (wt %)	<=0.004	<=0.004	0.042
Total glycerin (%)	0.027	0.03	-
Free glycerin	0	0.00	-

**Project Code: CompSc-01** Online ID:2520

**Title: ROBOTIC ARM**

**Name: ROHNAK SHASHIDHAR SHAHAPURKAR Std: 10**

**Guide: SHASHIDHAR.S.SHAHAPURKAR**

**School: KLES INTERNATIONAL SCHOOL**

**ABSTRACT:**

\*ROBOTIC ARM\*

DONE BY : ROHNAK.SHAHAPURKAR

\*PRINCIPLE OF ROBOTIC ARM\*

•ROBOTIC ARM IS A TYPE OF A MECHANICAL OR COMPLEX ARM

SIMILAR TO THAT OF A HUMAN ARM

•IT CAN BE JUST A SIMPLE OR A PROGRAMMABLE ARM

\*MATERIALS REQUIRED\*

- 4 METALLIC GEAR SERVO MOTOR
- 1 SMALL METAL GEAR SERVO
- ARDUINO UNO R3
- 4 CASTOR WHEEL
- 2 METAL SERVO HORN
- 40 PCS MALE FEMALE JUMPER WIRE
- MALE FEMALE PINOUT
- 1 PCB BOARD
- BATTERY 6V, 4.5AH
- 1 IC 7805/7806
- L-BRACKETS
- SCREW SIZES
  - 3mm x 10mm
  - 3mm x 15mm
  - 3mm x 20mm
  - 3mm x 40mm
  - 3mm x 30mm
- Arduino programming cable
- Door hinges
- Acrylic sheet
- Potential meter
- Servo/arduino power pLUG

\*Uses of robotic arm\*

- It is used in industries to assemble things

- Its used for welding purposes
- It is used in automobile factories
- It is used in space shuttle
- It is used in garages
- \*Additional information\*
- Total days for designing required are minimum 7 days
- Total days required for assembly is minimum 5 days
- Total amount estimation for this arm is minimum 'rs 6000'

**Project Code: CompSc-02 (Team)**      Online ID:2525

**Title: Prototype model of curiosity rover**

**Name: Samyak Hanamgond & Omkar Umadi    Std: 10**

**Guide: Mahesh Khori**

**School: St.pauls high school;camp. belagavi**

**ABSTRACT:**

This is basically a prototype model of the curiosity rover which is on mars it has 6 wheels and it is designed in such a way that it can clear obstacles and pick light weighted objects, it can do basic things like climbing stairs and mountain like places. It is an arduino based project which has 3 IC's. It has a 4K gopro camera which records very clearly. The rover is very light weighted and has a motors of 45 rpm. It has rubber tiers and the robot is research oriented. It also has a wireless hydraulic robotic arm powered by motors and connected to syringes. The robot rotates on its own axis, it can also perform a 360 turn on its own axis. The rover is powered by a DC source and is controlled wirelessly using gadgets like tabs, mobile phone etc.

Materials used in the project

- 1) PVC pipes (1mtr thick, body is made up of PVC pipes.)
- 2) Arduino based circuits with 3 IC's and a Bluetooth module
- 3) Gopro hero 05 camera (with a 4K display)
- 4) Syringes (for the hydraulic arm)
- 5) Rubber tiers (thick tires for better grip)
- 6) 45 RPM motors (12 volt per motor)

7) 300 MAH battery (DC source)

8) Cardboard (hydraulic arm)

**Project Code: CompSc-03 (Team)**

Online ID:2528

**Title: Novel approach to help farmers optimize their food production**

**Name: Gautam.shivaji.patil & Akshay.nagendra.rajai Std: 12**

**Guide: Prashant mohitep**

**School: Jain pu college belgaum**

**ABSTRACT:**

We have made a automatic controlled agriculture system which can help us to solve the world hunger problems , we have programmed a software which asks the user to enter the crop name which he wants to grow in this farm , n the rest of entire work till the crop bears large yield is controlled by the microcontroller audrino uno r3 , in our survey we came to know that different crops need different temp, water content to optimize their yield ,using this logic we have created a data base which contains all the information of about nearly 500 different variations of crops , when the user enters the name of the crop the audrino controls the temperature, water content , nutrient content required for the plants using the temp sensor , moisture sensor,etc. it also sends the data n images of the growth of plants to the user via an app created by us.the user can get a detailed information about their farm with life streaming video at home .

**Applications**

- 1.it has increased the food production by 10 %
- 2.no more diseased crops
- 3.saves water
- 4.saves money
- 5.saves wastage of nutrients
- 6.provides relief to farmers
- 7.helps in solving the world hunger problems
- 8.good quality n nutritional crops

**Project Code: Energy-01 (Team)**

Online ID:2256

**Title: Multi Chanel Renewable Energy System**

**Name: Tippanna Valikar & Laxmi Bandi Std: 9**

**Guide: basavaraj Tadahal**

**School: St Xevior HS Tumarikoppa Kalaghatagi**

**ABSTRACT:**

**ABSTRACT**

**Aim & Objective:**

Energy is the main source for everything; Mankind gets of energy in our daily life & it plays a vital role to fulfill needs of mankind. Many people just say conserve the energy; save the electricity but nobody reusing the electricity, Our Project aims that to “Use Electricity in smarter way “energy from various sources, but not utilizing in effective way. Electricity is one of the most widely used forms

**Method:**

- 1.Collection of required electric materials such as panel boards, Bulb, Connecting wires, LED, Battery etc
- 2.Construct the circuit as per the user requirement.
- 3.Designing & Fixing the electrical assemblies as per the circuit.
- 4.Testing part carried with Various bulbs such as Tube light, LED, etc
- 5.Record the Input & Output as per the DMM (Digital multi meter) in observations sheet.
- 6.Comparison with Watts of the Bulbs.

**Results:**

Solar panels not work only on solar light intensity, any minimum amount of light emit on the photo voltaic shell of the solar panel it produces the electric energy.

**Conclusion:**

As per our observations & results we have concluded that minimum amount of light source is good enough to produce electricity to glow the bulb.

**Project Code: Energy-02 (Team)**      Online ID:2258

**Title: Development of Reactor for Biodiesel production using waste oil & non edible oil seeds.**

**Name: SHIVANI. C. GAVIMATH & Sanjana Suraj Gunjati**  
**Std: 9th**

**Guide: Dr. C.C. Gavimath**

**School: Divine Providence School; Tilakwadi; Belagavi.**

**ABSTRACT:**

Biodiesel is an alternate & renewable fuel, in this project we have made an effort to produce biodiesel from waste cooked oil, temple oil & also from non edible oil seeds by using our simple reactor. Biodiesel reactor is developed by using pressure vessel, mechanical stirrer, pressure gauge, temperature gauge, pressure release valve with Inlet & Ball valve with outlet. Biodiesel obtained in this reactor by transesterification is used to study its feasibility of engine application. Diesel parameters like density, viscosity, flash point & fire point were studied and compared with conventional diesel, results obtained were at par with the conventional diesel. Then we have run diesel engine vehicles by blending our biodiesel with conventional diesel vehicle ran very smoothly & we also used our Biodiesel for 5HP water pumps without any problem water was lifted to 50 feet height.

Our Biodiesel is safer because its flash point is high and has low volatility and it has higher cetane number hence it autoignites the fuel very quickly. In Biodiesel oxygen content is high (11%) which leads to complete combustion & contributing a reduction in emissions upto 50% hence biodiesel reduces emissions. Our Biodiesel has higher flash point therefore it is safer than petroleum diesel. Our biodiesel can be used for any diesel engine vehicle or generators without making any modifications in the engine. It is cheap & environmental friendly.

**Project Code: Engg-01 (Team) (Jr)**      Online ID:2384

**Title: Portable Wind and Solar Mobile Charger**

**Name: PAVITRA HIREMATH & BAGYASHREE GANIGER**  
**Std: 8TH STD**

**Guide: SHRI S S HIREKOPPA**

**School: B S TIMASANI HS BELLUBBI Vijayapura**

**ABSTRACT:**

**Abstract:** Charging of mobile phone is a big problem when travelling a long distance journey or where power supply is not available. This paper proposes a universal mobile charger which can work on wind as well as solar energy. This charger is highly efficient and very economical as it uses non conventional energy sources of power.

**Keywords:** Universal mobile charger, economical mobile charger, mobile charger, mobile phones.

### III. WORKING OF UNIVERSAL MOBILE CHARGER

We are charging batteries by connecting them to a wind-powered generator, consisting of fan blades, a rotor that picks up energy from the blades and accelerates it, and a motor which receives energy from the rotor and produces DC current.

When we use massive fans to generate electric

power, we're relying on the motion of wind. In the simplest terms, the blades of the fans capture kinetic energy, or the energy of motion, from the movement of the wind. As the blades spin, the shaft attached to the blades also move. As the shaft spins, it creates rotational energy, and it transfers this energy over to a generator. A generator, in the case of a wind turbine, is simply a set of magnets that spin around a coiled wire. The magnets spinning around the wire create an electrical current and provide power. Here, we are using a 12 volt gear motor as generator.

**Project Code: Engg-02 (Team)**      Online ID:2529

**Title: cell phone detector**

**Name: netra s neginhal & C. Spoorthi      Std: 10**

**Guide: Keerti**

**School: bensons english medium high school belagavi**

#### **ABSTRACT:**

This handy, pocket size mobile transmission detector or sniffer can sense the presence of an activated mobile phone from a distance of one and a half meter. The circuit can detect the incoming and outgoing calls, sms and video transmission even if the phone is kept in the silent mode. The moment the bug detects rf transmission signal from an activated mobile phone, the led blinks. Assemble the circuit on a general purpose pcb as compact as possible and enclose in a small box like junk mobile case.

**Project Code: Env-01 (Team) (Jr)**      Online ID:2064

**Title: Reducing The city garbage through innovative pipe compost**

**Name: Vibha K Bhat & Prajwal Bhandari**      **Std: 6**

**Guide: Krishnamurthy L Bhat**

**School: Srinikethana Isloor Sirsi**

**ABSTRACT:**

Aim : Reducing the city garbage and accelerate the beauty of city through using pipe compost in each houses.

Materials and Methods/ Experimentation :

Take 5 Ft. Length of 6 inches diameter PVC pipe which is cut as below 1 ft and above portion 4 ft in length and connected to T as shown in the figure. The other end of the T is sealed by a end cap and the 4 ft length having may several holes at their top as shown in the figure. The shorter end of the pipe is fixed in a dig of the ground or in a pot. Now add into the pipe such as 1 KG cowdung , and ½ Kg jaggery. Daily poured kitchen wastages into the pipe and add some soil. Put holed like structure of pipe with having sand pebbles and charcoal pieces in the middle of the pipe compost. It is looked like a stump by which water is sprayed weekly once. Pipe is supported by a stand with having water plate. So ants, mices, lizards are not going through this. The top of the pipe is covered by a plate with having one meter length long pipe for ventilation purpose. The holes of bigger pipe and the cover plate pipe is covered by mosquito clothes. Afterwords of 2 – 3 months we can get compost at T pipe with the opening of end pipe. Thus we can reduce the garbage with the formation of compost.

**Project Code: Env-02 (Team)**      Online ID:2253

**Title: Eco Friendly Bio Fuel Briquettes**

**Name: Pavan Byahatti & Shashank Bewoor**      **Std: 9**

**Guide: Gundappa Bewoor**

**School: Shri S R Bommai High School Gokul. tq Hubballi**

**ABSTRACT:**

Aim & Objective:

India use wood as source of energy for cooking and other purpose in rural regions. Caesalpina Pulcherrima

plant & samaena saman tree produces bio mass waste every year, which is abundant resource. Disposal of this

bio waste will create an environmental issues, so to avoid this and make support the demand for energy, we

Prepared bio mass fuel briquettes.

Method:

Collected dry pods of *Caesalpinia pulcherrima* & *Samanea Saman*

Chopped pods into small pieces, grinded & crushed into paste of *Samanea Saman* pods.

Designed moulds of different shapes like Cube, Cylinder & Cuboid for shaping briquettes.

Combine *Caesalpinia pulcherrima* powder and *Samanea Saman* paste in ratio of mixture 70:30, 60:40, and 50:50

Pressed material inside the mould and produced briquetting kept in hot under sun light dry for three days

Qualitative Study of the briquette:

Ignition, Burning, Water Boiling PH, % moisture, ash content Tests.

Results:

70:30 ratios of all shapes briquettes is getting good result in all testing.

60:40 and 50:50 ratio briquettes changes its properties at climatic conditions.

50:50 ratio briquettes after burning release more sooty smoke computing other than will ratio.

Conclusions:

*Caesalpinia pulcherrima* can be used to prepare bio fuel-briquette and addition of

*samanea saman* pod act as binder and helps in increasing the efficacy of briquette.

Briquettes can be utilized such as cooking, Ironing in laundries, boilers in hostel and tender stoves in mall hotels

Its usage will show positive impact on environment

**Project Code: Tech-01 (Team)**      Online ID:2235

**Title: cng ; lpg gas leakage alarm with automation in home or commercial purpose**

**Name: vishal mangal & himesh soni Std: 12**

**Guide: himanshu garg**

**School: brij public school transyamuna colony**

**ABSTRACT:**

it is an innovative project , in this project if the gas like lpg or cng is leak in home then alarm is generate and a msg is send to mobile that gas leaked in home , after 1 min if no one person is near turn off gas leak then the light in the kitchen is switched off automatically to prevent sparking and accident . if the cylinder lpg is leaked automatically exhaust fan is on and gas is come out in kitchen to garden to prevent accident . it is a project that saves life due to gas leakage accidents.

**Project Code: Tech-02**      Online ID:2467

**Title: How to make a HOVER BOARD with handle at home?**

**Name: PREM AMOL RAIKAR      Std: 10**

**Guide: MRS. ARUNA J. JADHAV**

**School: KARNATAKA DAIVAJNYA ENG. MED.SCH.; SHASTRI NAGAR;**

**ABSTRACT:**

**MATERIALS REQUIRED:** Two 24 volt scooter motors, A 12 volt, 12 amp battery, a 2"x 2" piece of plywood, 1/4 inch sheet plywood, wood glue, screws, epoxy, small rubber wheels, waste of children cycle materials

**Summary:** First take waste of children cycle material and go on removing all bolts from the axle that do not play a part in holding the bearings in. Now cut the frame in 2 thin pieces of plywood and also cut the frame from the thicker piece of plywood. The shape of the frame does not matter only need to be wide enough to fit your feet and a battery. Cut a square out of 1 of the thinner pieces of plywood. The square should be size of the battery. Drill holes slightly bigger than the wheel's axles into each end. You can then proceed to fill each end with epoxy and mix the epoxy for 1 minute while it is inside of the hole. Use a generous amount of epoxy and do not use the dollar store stuff. This will give the wood strength. Now attach the wheel and axle assembly on to the

thin piece of plywood with the square cut out of it. Cut 2 more pieces on 2 x 2 wood as shown and attach them using wood glue and screw. Using the same 2 x 2 pieces of wood and another one of the thin pieces of plywood., build the structure shown. You can attach the bottom part of the frame to the middle frame. In the picture you can see I removed the wheels for this to make it easier to work with. You can also disregard the driving assembly visible there, that was all removed later. You may find it beneficial to leave epoxying the wheel into place until after the frame is complete and dry.

This will be used to hold motor against the wheels.

**Project Code: Tech-03 (Team)**      Online ID:2511

**Title: Sustainable Multi Storied Car Parking**

**Name: MANASI S.RAJPUT & DISHA D.MAHALSEKAR Std: 10**

**Guide: x**

**School: KLE'S International School;Kuvempu Nagar; Belagavi**

**ABSTRACT:**

Purpose: The growing population of India has created many problems. One of the challenging ones being car parking which we confront almost every day. Besides the problem of space for cars moving on the road, greater is the problem of space for a parked vehicle considering that private vehicles remain parked for most of their time.

The Scientific principle involved: It works on the principle of hydraulic pressure, which makes the platform move upwards and downwards for parking of vehicle. The water which is used for the movement of platform is contaminated, which is transported from industries. The polluted air from the industries is used to lift the elevators. Before the contaminated air and water reaches the parking structure, it gets purified first.

Materials Used: Cardboard, Two Syringe, Syringe Pipes, Remote Control Car, Ice Cream Sticks, Copper wire and Some accessories.

Working:: The platform which is attached to the hydraulic jack moves up and waits for the car which has to be parked. After the car comes and stands on the platform, the platform is made to move down and it stops at the required empty floor where the car has to be parked and the car moves into the racks. After the parking is done, the platform moves up again for the next car which is to be parked. The water which is used for the movement of platform is contaminated, which is transported from industries. The polluted air from the industries is used to lift the elevators. Before the contaminated air and water

reaches the parking structure, it gets purified first. An elevator is attached to each floor, so that the driver can reach up stairs.

Construction: Firstly we need to draw concentric circle on a cardboard and repeat this diagram twice, then we need to cut out these three sets of concentric circle. After this we need to draw one more circle of radius less than the smaller concentric circle and this circle is used as platform on which the car stops and this three sets of concentric circle is used as floor on which racks are constructed on each concentric circle and these three sets of concentric circles are arranged one above the other. The space between these concentric circles is used for the movement of platform. Then we need to construct hydraulic jack with some ice-cream sticks, copper wire and some syringe and we need to attach the hydraulic jack to the platform, due to which the platform moves. Next we need to construct an elevator using some syringe and cardboard, which is attached to each floor, so that the driver can reach up stairs. Then we need to construct some industries from where the contaminated water and air is transported to parking structure and in between them, we need to construct some purifiers which purify the contaminated air and water. Both the purifies and industries are construct by using cardboard. Lastly we need to construct a complex building by using cardboard which is in need of such “multi-storey structure. Application: It is used in malls, offices, hospitals, universities, market areas etc.

**Project Code: Tech-04 (Team)**      Online ID:2518

**Title: GESTURE CONTROL ROBOT CAR**

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**ABSTRACT:**

The project is to make a vehicle that can be controlled wirelessly by hand gestures. This involves two modules. One is the glove that translates the motions of the hand using an accelerometer and wirelessly through RF modules transmits it to the vehicle in question. The vehicle here being the second module that interprets the signal sent in by the accelerometer and modifies its motion with respect to the signal given by the hand gesture. The car itself simulates the motion of a vehicle using a servo for its steering mechanism and steppers for its movement, speed control.