1. **Project Title:** DESIGN AND FABRICATION OF MULTIPURPOSE VEGETABLE CUTTER.

**Project Guide:** Mr. Akshay Kumar

**Team Members:**
Abhay Shetty
Balachandra Chalawadi
Karthik G
Kiran Kumar P N

**Abstract:**

Photograph of project with project guide Mr. Akshay Kumar and team members
Automation was the rage of the engineering world. By using automatic machines, its reduced man power, time etc. Now we are in the stage where everything needs to be automatic and faster. So everyone needs to do work in less time. In our busy life for the cooking purpose, cutting vegetables is also a tedious and time consuming. So lot of innovations made, many researched vegetable cutting machine are came into the market or competition world. These machines were having drawbacks such as high investment cost, non-detachable blades, additional man power and time consumption caused by manual processing. By considering that we designed this machine called “Multipurpose Vegetable Cutter”. This slicer is mainly designed to reduce human effort and make the job of chopping vegetables much easier, faster and effectively. In this machine, we provided a hopper for the feeding of vegetables and separate blades for slicing and chopping. Different shapes of blades are available which can attached for different shapes of vegetables. The chopped and sliced vegetable pieces are come out of the outlet provided on the housing. Its main features are fully automated, easily portable, less power consumption and changeable aluminum disc, sharp blade, guide blade etc. Experiments are conducted on cutting the different vegetables for different purposes. The experimental result showed that, time required for slicing the vegetable is less as compared with traditional method. In this project we made the job of cutting vegetables easier by atomizing and also the machine is easy to use that an unskilled labor can easily operate the machine.

The present work focuses on design and development of an improved version of a multipurpose vegetable cutter that takes care of the problems mentioned above. This machine comes with various contacting parts that is made of stainless steel and aluminum that is completely hygienic. The shafts, discs, blades and bushings are made using stainless steel that is easy to clean and hence hygienic.

2. **Project Title:** DESIGN AND FABRICATION OF LOAD CARRYING FOUR WHEEL VEHICLES WITH SEEDING MACHINE

**Project Guide:** Mr. Sudarshan M L

**Team Members:**
Akhilesh Bhat P
Guru Kiran
Avin Rai V
Emil K Varghese

**Abstract:**
India is an agricultural country. Agriculture is demographically the broadest economic sector and plays a significant role in the overall economy of India. For the growth of Indian economy, mechanization is necessary. The main purpose of mechanization in agriculture is to improve the overall productivity and production. Load carrying vehicle is one kind of machinery used on a farm to help with farming. Load carrying vehicle is an engineering vehicle specifically designed to deliver a high tractive effort (or torque) at slow speeds, for the purposes of carrying agricultural
commodities like coconut, areca nut, etc. Agricultural implements (Seeding machine) may be towed behind or mounted on the load carrying vehicle, and the load carrying vehicle may also provide a source of power if the implement is mechanized. The seeding machine is a key component of agriculture field. The performance of seed sowing device has a remarkable influence on the cost and yield of agriculture products. Presently there are many approaches to detect the performance of seeding device. Depth of seeding has shown to be an important factor affecting seeding vigor and crop yield. As day by day the labor availability becomes the great concern for the farmers and labor cost is more, this machine reduces the efforts and total cost of sowing the seeds.

Photograph of project with project guide Mr. Sudarshan M L and team members

3. **Project Title:** DESIGN AND FABRICATION OF COCOA POD SPLITTING AND SEED SEPARATING MACHINE

**Project Guide:** Mr. Vrijesh Rai

**Team Members:**
- Akshith V
- Bharatheesh
- Ganesha U
- Jayaraj

**Abstract:**

This study outlines the design of a very efficient, highly productive, cost-effective, ergonomic and environmentally friendly cocoa pod splitting and seed separating machine that will be used by cocoa farmers to increase and boost productivity and enhance the quality of cocoa products to
the highest possible level devoid of any hazards, dangers or perils. This machine can be manufactured from locally available scraps and assembled and maintained at a relatively low cost. This machine consists of splitting and separating sections where in the splitting section splitting of cocoa pod at the both ends are done through the two knives by manually and the separation section includes two motors of 0.25HP connected to the one end of the shaft and small bean remover part at the other end. Which removes the whole set of cocoa seeds from the pod by pushing against the rotating part and another motor of 0.5HP which rotates the hollow shaft using belt drive mechanism and this hollow shaft containing number of teeth which is placed inside the drum in vertical direction and due the rotational motion the seeds are separated.

4. **Project Title:** FABRICATION AND ANALYSIS OF WAVY FIN HEAT EXCHANGER

**Project Guide:** Mr. Sunil B Lakkundi

**Team Members:**
Akhil Vinod
Amal Chandran P
Avinash Shenoy H
Dileep P

**Abstract:**
Our project deals with the design and the fabrication of the wavy fin heat exchanger. Heat dissipation becomes a significant issue in efficiency promotion and stable operation. Wavy fin are of current interest for use in heat exchangers where very high heat transfer performance is desired. In this project, the fabrication and analysis of fluid flow and heat transfer in a wavy fin
heat exchanger is conducted. Water and air are used as the working fluids and flowed through wavy fin. For forced convection cooling with air, a fan is used. Water flow and heat transfer experiments are conducted on the fabricated wavy fin heat exchanger. In analysis, we are analyzing various factors that affect the heat exchanging capacity. In practical analysis we vary the flow rate to convenient readings and note down the various temperature readings, with the help of formulae the heat transfer rate is calculated. Then we vary the speed of the fan and the again the heat transfer rate at different speed is calculated. In practical analysis we are calculating the effectiveness, rate of heat transfer and the NTU. The analysis is done at two different speeds and at three different temperature ranges. The speed is kept at 4.1 kg/sec and 5.1 kg/sec. The temperature range is at 50-52°C, 60-62°C and 70-72°C. The result obtained from the experiment is that the rate of heat transfer and effectiveness is maximum at (70-72°C), the mass flow rate of water increases with the rate of heat transfer and mass flow rate of air increases with the effectiveness.

Photograph of project with project guide Mr. Sunil B L and team members
5. **Project Title:** DESIGN AND FABRICATION OF PONGAMIA SEED AND GROUNDNUT DECORTICATOR  
**Project Guide:** Mr. Santosha S R  
**Team Members:**  
Asheeth Kumar  
Hari Kirana U R  
Jerry Varghese  
Kaushik S J  

**Abstract:**  
There are some seeds like pongamia, groundnut, jathropha etc from which oil can be extracted. Pongamia is one of the most important seed which is used in the production of biodiesel. To obtain the biodiesel/oil it is very important to decorticate and separate the seed. The aim of our project is to design and develop a low cost decorticator that can be used by the farmers and small scale industries. The present decorticating machine available on the market is of high cost and decorticating efficiency is low because of the partial crushing of seeds, which causes low oil production. The machine which we are developing is of low cost and reduces the partial crushing of seeds. And it can decorticate up to 30 to 40 seeds per minute. The decortication machine works on the principle of crank and lever mechanism. This machine can also be used to decorticate other seeds like groundnut, Jathropha etc by adjusting stroke length.
6. **Project Title:** DESIGN AND FABRICATION OF FARMER FRIENDLY AGRICULTURE EQUIPMENT  
**Project Guide:** Mr. Puneeth N  
**Team Members:**  
Amrit Yashodhara Rao  
Vikyath P B  
**Abstract:**

In India there is a great scope for the use of grass cutter machine. A grass cutter is a machine that uses revolving blades, to cut grass in a garden land spaces. Our project work titled “Design and fabrication of farmer friendly agricultural equipment” is basically a grass cutting and weed plucking equipment. The equipment consist of horizontal blades fixed between two discs mounted on a shaft, a fixed plate located behind the wheel-blade assembly. When the equipment is manually pushed forward, the discs along with the blades roll over the ground and the blades of the lower periphery moves backward whereas the fixed plate fitted to the frame moves forward. The backward moving blades and the forward moving fixed plate tends to meet each other and at this moment the grass trapped in between moving blades and fixed plate cuts due to shearing action. The weed plucking operation is done by gripping the weed in between the
movable and fixed clamp plates provided and manually pulling the equipment backward. Our project work focus on designing an equipment which is of low cost, easy to operate, light weight and compact size. The highlighting feature of our project is that the equipment is purely mechanically driven (manual drive) and avoids use of external energy sources like electrical energy or fuel energy so that the running cost of the equipment is minimum.

7. **Project Title:** DEVELOPMENT OF MULTİ USE REFRİGERATİON SYSTEM

**Project Guide:** Mr. Harish S R

**Team Members:**
Ranjith Shetty K
Gopi Krishnan M P
John Ronish M S
Vikas K S

**Abstract:**

Heat is energy, so energy saving is one of the key matters from view point of fuel consumption and for the protection of global environment. So it is necessary that a significant and concrete effort should be made for conserving energy through waste heat recovery. Existing refrigerator systems exerts a lot of heat through condenser. This heat can be used for number of domestic and industrial purposes. The project aims to satisfy various needs to bring in customer
satisfaction in an economical way. A multiuse refrigeration setup has been developed where, both heating and cooling will be done simultaneously with the help of single vapour compression refrigeration cycle. It has the waste heat recovery system from the compressor for heating effect. Here waste heat energy is used for useful work without disturbing refrigeration cycle. The study has shown that such a system is technically feasible and economically viable. The concept can be extended for applications in air conditions, freezers, water coolers and small scale refrigeration plants. The project will lead to hybrid heating and cooling application with same vapour compression refrigeration system.

8. Project Title: EXTRACTION AND ANALYSIS OF FUEL FROM WASTE PLASTIC

Project Guide: Mr. Deepak K B

Team Members:
Abhilash P J
Bhavan Kumar
Pradeep B
Vinyas

Abstract:
Photograph of project with project guide Mr. Deepak K B and team members

Plastics have been used extensively in both food and water packaging because of their inherent properties such as low bulk densities and inertness that make them convenient carrier materials.
Plastics have woven their way into our daily lives and now pose a tremendous threat to the environment. The disposal of waste plastics is an important environmental problem in developed countries. Over 100 million tons of plastics are produced annually worldwide, and the used products have become a common feature at overflowing bins and landfills. Though work has been done to make futuristic biodegradable plastics, there have not been many conclusive steps towards cleaning up the existing problem. Here, the process of converting waste plastic into value added fuels is explained as a viable solution for recycling of plastics. Thus two universal problems such as problems of waste plastic and problems of fuel shortage are being tackled simultaneously. In this experimental work, waste plastics are subjected to depolymerisation, pyrolysis and fractional distillation to obtain different value added fuels. Initially Pyrolysis of polythene waste grocery bags are done followed by distillation, resulting in a liquid hydrocarbon mixture. The result of distillation is separated as samples at different temperatures (# sample 1-170 to 220°C, #sample2 220 to 290°C, #sample 3-290°C and above) by fractional distillation process. Comparison of the fuel properties to the petro diesel fuel standard (ASTM D975) revealed that the synthetic product was within all specification. Notably the derived fuel properties like the energy content or calorific value (41.3 Mj/kg), kinematic viscosity at 40°C, flash point (61°C), density (0.7449 gms/cm³) of #sample 2 in our experimental work was nearer to the standards of petro diesel values. In summary, converting waste plastics into fuel hold great promise for both the environmental and economic scenarios. Thus, the process of converting plastics to fuel has now turned the problems into an opportunity to make wealth from waste.

9. Project Title: SOLAR POWERED VACCUM CLEANER

Project Guide: Mr. BhaskarKulkarni
Team Members:
Shreepathi A
Arun K,
Shamshuddin A,
Shastha Mohith Alva

Abstract:
India is facing pollution problem and one of the sources is littering of plastic item, so keeping the cities clean is a difficult task. Chocolate wrappers, plastic bags and gutka wrappers are major
pollutant of environment. In various fields manually these wastes are handled, but it is a difficult and time consuming task. In order to avoid this problem, available technology can be used. Our project is about fabrication of a solar powered vacuum cleaner, in which we have a suction pump which will run by a dc motor the outlet of the pump will be connected to a bin which will hold the litter. The power to the dc motor will be provided by a battery, which will be charged by the solar panels mounted on top of the device which makes it portable. The complete unit will be mounted on a trolley for easy movement. This device can be used in places like school, hospital, apartments, railway stations, bus stand, where people tend to throw litter wastes, and this device can also be used in lawns to carry away fallen leaves. This project is an attempt to clean the environment at a faster rate and by cost effective means.

10. Project Title: AIR COMPRESSED WATER LITIGATION  
Project Guide: Mr. Puneeth N  
Team Members:  
Girish Sarawari  
Ningarajappa H B  
Pavan Bijapur  
Manikanta A N  
Abstract:  
The Hydraulic Ram Pump, Hydram, or simply Ram Pump is an automatic pumping device that is capable of pumping water higher than its original source without using electricity or any other power source. It uses just two moving parts, and it is therefore mechanically very simple. This
gives it very high reliability, minimal maintenance requirements and a long operation life. A hydraulic ram (or water ram) pump is a simple, motorless device for pumping water at low flow rates. It uses the energy of flowing water to lift water from a stream, pond, or spring to an elevated storage tank or to a discharge point. It is suitable for use where small quantities of water are required and power supplies are limited, such as for household, garden, or livestock water supply. A hydraulic ram pump is useful where the water source flows constantly and the usable fall from the water source to the pump location is at least 3 feet.

11. Project Title: FABRICATION OF CENTRAL TIRE INFLATION SYSTEM
Project Guide: Mr. Santosh Kunnur
Team Members:
Pratheek C Rai
Suraj K
Naveenkumara A S
Sagar S
Abstract:
Tire pressure plays an important role in ensuring safe and economical driving. Improperly inflated tires can affect stopping distance increases the chance of tire delaminating, reduces the handling characteristics which in turn affects the control of vehicle. Even then, many vehicles
with under inflated tires are observed to be on the road due to the unawareness of the fact that properly inflated tires can safe tire life up to 20%, save fuel from 4% to 10%, increase braking efficiency up to 20%, lightens the steering system and can help in ease self-steer. In every month, there is a pressure drop of 10KPa to 20KPa in a car. Drop of each 10KPa is equivalent to adding a 70Kg person into the car and causes over loading due to virtual passenger condition in the car. To address this problem, an automatic tire pressure inflation system has been idealized to ensure correct pressure is inflated into the tires regardless of the setting on the pressure source. The device will alert the user upon reaching the appropriate pressure by a LED indication. The system consists of a storage tank, dc compressor, pressure switch, battery and solenoid valve. Air taken from the atmosphere is compressed in the compressor and is transferred to the tire when the pressure reduces from the recommended value.

12. Project Title: AUTOMATIC PINEAPPLE PEELING AND SLICING MACHINE
Project Guide: Mr. Sunil B Lakkundi
Team Members:
Nithin K G
Sandesh Kumar
Abstract:

Pineapple cutting machine is a machine used to cut and peel the pineapple to form the cylindrical shape pulp. To do this project, a few pineapple machines are studied to learn the main process of pineapple machine. Various pineapple cutting machines are available in the market, but most of the machine cannot accomplish all the process automatically. The main aim of this research is to develop a pineapple cutting machine to solve the problems faced by Small Medium Enterprise (SME) industries, where the machine developed can reduce the time taken for pineapple preparation. The present work involved the design and development of pineapple machine to fulfill the user needs. Redesigned machine aims at automating the process of peeling and slicing of pineapple. It consists of motor and pneumatic cylinder to operate the pineapple peeling and slicing equipment. In order to operate the machine, pineapple is initially located at the machine. Air supply to the pneumatic cylinder fully controlled by a microcontroller through the solenoid valve and also controls lead screw movement. Once the machine gets operated, pneumatic cylinder peels the skin of the pineapple, which will be placed at the outside of the cutting cylinder whereas core of the pineapple will be placed at the inside of the cutting cylinder. The pineapple is pushed by push plate using motor and lead screw arrangement. After pushing of the pineapple core, cutting blade cuts the pineapple with the help of air supply from the pneumatic cylinder. In manual operation requires 3 minutes for peeling and slicing of a single pineapple. In these machine it will take nearly 20 seconds for cutting and slicing operation. It also reduce the manpower. Also we have achieved the thickness of the slice 10 to 15mm. This machine slice
10 to 12 piece of pineapple in 2 bar pressure. The main purpose of this project is to reduce the man power, work load and production time.

13. **Project Title:** DESIGN AND FABRICATION OF USER DEFINED GRAVITY BASED LIQUID FILLING MACHINE  
**Project Guide:** Rakshith Kumar Shetty  
**Team Members:**  
Laizil Prem Dsouza  
Shrisha S  
Udaya Kumar P  
Vishanth Kumar B S  
**Abstract:**

Photograph of project with project guide Mr. Rakshith Shetty and team members

Earlier days filling was done manually, a person had to weigh the product using some means like weight balance and then fill it to a container and then pack it. This takes lot of labour time and
time is the key factor in mass production as well as in batch production. This project is to develop a semi-automatic liquid filling machine using the principle of gravity that is a machine named Gravity Based Liquid Filling Machine. Since it is a semi-automatic system there is need of human involvement in doing some job like replacing the cups. There are two modules electronic and mechanical. The electronic module consists of control panel and solenoid valve. Mechanical module consists of hopper, frame, ball valve and union joint.

14. Project Title: DESIGN AND FABRICATION OF MULTI-PURPOSE CARPENTRY MACHINE

Project Guide: Pavan Joshuva

Team Members:
Shrikantha
Madhusudhan D.L.
Sandesh K.
Shubham Tuppad

Abstract:

 Photograph of project with project guide Mr. Pavan Joshuva and team members
“Multi-purpose carpentry machine” is mainly designed to facilitate multiple operations such as drilling, cutting, shaping on a single machine. Earlier all these operations were carried out separately on different machines. Usage of these separate machines requires high skilled labourers, large floor space and high capital investment and also efficiency is less due to human errors. In this machine, all these operations are done by using single router machine. The router machine has a shaft in which drilling, cutting and shaping tools can be fit by making suitable modification for their respective operations. The router machine is placed between two U-shaped over arm. It can slide easily upon the over arm with the help of rollers that are being provided between the router machine and the over- arm. Router machine is positioned on the horizontal arm for drilling and shaping operations by fixing the respective tool bit to the router machine tool head. For cutting operation, the router machine is positioned on the vertical arm and the cutting tool is fixed. The work piece is held on the work table with the help of jigs and fixtures. The depth of cut is given by lifting the table with the help of a suitable mechanism. This machine is best suitable for small scale carpentry and furniture industries. Overall, this machine provides high efficiency in terms of cost and accuracy.

15. **Project Title:** EMISSION AND NOISE CONTROL BY AQUA SILENCER

**Project Guide:** Mr. Kiran Ganti

**Team Members:**
- Roshan Shetty N H
- Mohammed Isak K
- Mahammad Nowfal N
- Zainudheen M

**Abstract:**
Air pollution is the introduction of chemicals, particulate matter or biological materials that cause harm or discomfort to humans or other living organisms or cause damage to environment. The atmosphere is a complex dynamic natural gaseous system that is essential to support life on planet. The important pollutants involved are carbon monoxide, lead, hydrocarbons, nitrogen oxides, etc.

The main reason for air pollution is the exhaust of the engine. The power to move a vehicle comes from burning fuel from an engine. Pollution from vehicle comes from by-products of this combustion process(exhaust) and from the evaporation of fuel itself. The stationary engines from heavy industries also are the source of pollution. The necessary steps must be taken in the direction to control the emission.
This work is an attempt to control the emissions caused by the engine exhaust using charcoal and water. The unit developed is fitted to the exhaust of the system. The sound produced under water is less audible than it produced in atmosphere. The charcoal absorbs the exhaust gasses thereby bringing down the emission caused by the engines. This is simple, cheaper and easy to install unlike the conventional catalytic converter. The smoke coming out of the exhaust of the engine is also a source of emission hence we have aimed at reducing the amount of smoke entering the atmosphere by considerable amount.

Photograph of project with project guide Mr. Kiran Gantti and team members
16. Project Title: PERFORMANCE STUDY OF FRESNEL LENS BASED SOLAR WATER HEATER CUM DISTILLATION SYSTEM

Project Guide: Mr. Satheesha Kumar K

Team Members:
Pradeep Kumar M B,
Mahesha A,
Theerthaprasad,
Sachin A

Abstract:

To overcome the freshwater crisis, throughout the countries many researches and innovative technologies are going on. But from these researches and innovations major models are still in experimental level. Therefore by reviewing these researches and innovations an attempt has been made to develop a new design of Fresnel lens based solar water heater cum desalination system. The main objective of this project is to efficient production of hot water and fresh drinking water and identification of absorber performances on the production of hot and fresh water. In this project the use of a point Fresnel lens to concentrate the solar energy on a special designed absorber for the production of hot water and from solar water heater hot water is transferred to the solar still where it is vaporized and condensed to form fresh water. The proper focusing of solar intensity on special designed absorber is achieved with the help of tracking
mechanism. Using this setup experiments are carried out by different water samples. The results for solar water heater cum desalination system by Fresnel lens showed that yield of hot water and fresh water depends on water flow rate and pressure inside the system. At the end of the experimentation period yield of hot water was from 5-8 liters/hour on bright sunny day and yield of fresh water was from 2-5 liters/hour on bright sunny day. From experimental results showed that by providing proper orientation of the absorber i.e. conical shaped coil can achieve maximum hot water than inverted orientation of same coil. Also fresh water production can be enhanced by decreasing pressure inside the system.

17. Project Title: HYBRID VEHICLE WITH FRONT WHEEL DRIVE
Project Guide: Mr. Deepak Kumar Shetty K
Team Members:
Manu Krishnakumar
Nitheesh A
Philip Kurian
Sreehari A
Abstract:

A Hybrid Electric Vehicle is a vehicle which relies not only on batteries but also on an internal combustion engine. The aim of our project is to minimize the use of non renewable fuel, i.e.
petrol in two wheelers. Hybrid Electric Vehicle has great advantages over the normally used two wheelers that drives the power from gasoline only, which is a major source of air pollution. The objective is to fabricate a two wheeler hybrid electric vehicle powered by both battery and gasoline. The combination of both the power makes the vehicle dynamic in nature. It provides its owner with advantages in fuel economy and environmental impact over conventional automobiles. This project comprises an electric motor, battery and power system along with an internal combustion engine to achieve better fuel economy and reduce amount of emissions. Here the rear wheel is driven by engine and front by hub motor. In accelerating, long highways or hill climbing the electric motor provides additional power to assist the engine. This allows a smaller, more efficient engine to be used. Thus the vehicle is best suited for the growing urban areas with high traffic.

18. Project Title: DESIGN AND FABRICATION OF COMPACT CASHEW APPLE JUICE EXTRACTOR

Project Guide: Mr. Shyam Prasad

Team Members:
Nithin A
Premkumar N K
Rajesha N C
Sanchith Rai K

Abstract:
Cashew apple is one potential fruit, to extract juice and to consume. At present, these cashew apples are either used as a fertilizer to the cashew plant or thrown away as garbage. Many industries are trying to manufacture an economical cashew juice extractor but they are failing due to the lack of knowledge about the cashew apple.

There are many stages at which cashew apple can be squeezed to extract juice. At first stage the juice is very pure and tasty. As the stage descends the quality of the juice also deteriorates. The present day juice extracting machines apply unknown and sudden loads on to the cashew apples. This causes the apple to break making the juice pulpy, which is not acceptable for the consumers.

In this project we are analyzing the amount of force required to extract the different quality of juice from the cashew apple. To do so, we are fabricating a manually operated small machine/instrument to calculate the exact amount of load that is required to extract juice from cashew apple at different stages without breaking the cashew apple.

So these numerical values will help the manufacturers to optimize the present juice extracting machines and sell at lower cost. Also the juice of cashew apple will be a great value addition to the cashew industry and farmers will be directly benefited from the same.
19. **Project Title:** EFFECT OF RUBBER FILLER ON THE MECHANICAL CHARACTERISTICS OF E-GLASS/EPOXY COMPOSITES

**Project Guide:** Mr. Kiran Ganti

**Team Members:**
Thasreef P
Zameer Ahmad P
Sampath K
Thameez Muhammed

**Abstract:**
The present work describes the development and characterization of a new set of composites consisting of glass fiber and recycled rubber filler as reinforcements. The newly developed composites are characterized with respect to their mechanical characteristics. The study of the behavior of composites with variation in the filler percentage (0, 5, 10 and 15%) is done. The mechanical characteristics like, tensile strength, flexural strength and impact strength were carried out.
It is observed that, impact strength increases while filler percentage is increased. The flexural and the interlaminar shear strength are increased in the Filler added specimen. The tensile strength of the composite specimen is decreased with increase in filler percentage, due to the presence of rubber filler. As there is an increase in the flexural and impact strength with the addition of recycled rubber fillers in the glass reinforced epoxy composites, the composite prepared can be best suitable for members subjected to impact and bending load considering the vehicle structures applications.

Photograph of project with project guide Mr. Kiran Ganti and team members

20. Project Title: DESIGN, FABRICATION AND ANALYSIS OF SEMI-AUTOMATIC WEIGHING AND PACKING MACHINE

Project Guide: Mr. Sudarshan ML

Team Members:
Avinash Kalluraya M
Bharath Kumar S Shetty
Royston Remo Lewis
Sanketh S
Abstract:

21. **Project Title:** MANUALLY OPERATED INTEGRATED FLOOR CLEANING MACHINE  
**Project Guide:** Mr. Ajith K  
**Team Members:**  
Chaithanya Aradhya U S  
Naveen S Hegde  
Sudarshan K H  
Shekara V K
Abstract:

Today population is increasing drastically all over the world. In a pursuit of providing every kid a cleaner surrounding to grow up, numerous machines have been developed since 19th century like pedal operated, gasoline powered, and eclectically operated machines etcetera. But still these machines were costly and also operating costs are high. Later on working become simpler such that anybody could operate a floor cleaning machine but cost was still a problem. Hence we came up with an idea of a mechanically operated.

A mechanically operated floor cleaning machine is a least concerned area in the history of floor cleaning. As in electrical system energy is expended to overcome the inertia while hear inertia is the driving force hence reducing mass is not a required because higher the mass higher the inertia force. In many countries, load shedding is more and also function and ceremonies are usual. It is difficult to clean places like bus stand, railway stations etcetera hence the idea of mechanically operated floor cleaning machine had its origin. In this project an effort has made to come out with a machine that can clean mop and wipes the floor to ensure proper cleaning and that too without using electrical energy hence it is both cost effective and also user friendly.
22. Project Title: ARECA NUT BAGGING MACHINE
Project Guide: Mr. Bhaskar Kulkarni
Team Members:
Dayananda
Ejith S
Sandeep Rai T
Gowtham K L
Abstract:

Photograph of project with project guide Mr. Bhaskar Kulkarni and team members

Areca nut, commonly referred to as betel nut is not a true nut, but rather a drup. Areca palms are grown in India, Bangladesh, Malaysia, Taiwan and many other Asian countries for their seeds. Areca nut is one of the major plantation crops in India which is grown with an annual production of 4,15,000 tons per year. It is largely grown in the states of Karnataka and Kerala. Depending upon the consumption requirement, areca nut is harvested either at a tender stage or when the nuts are fully ripened. Fully ripped areca nut is harvested in the months starting from November to February and sun dried for about 40 days by evenly spreading them in a single layer on level ground.
Areca nut cultivation is a long process involving harvesting, separating the nut, moving the areca nut to ground for drying, separating the nut, bagging, de-husking etc. Several machines are being developed to help farmers, but machines for collecting the areca nut from ground after drying have not been developed. Collecting the areca nut from ground is a tedious, painful and time-consuming process. Areca nut collecting and bagging machine is a solution for this problem. The machine is intended to collect areca nuts from the ground directly to gunny bags fixed in exit provided at the top end of screw conveyor. After the bag is filled, it is removed from the exit to move the bags to store rooms. The machine requires one person to operate it, so that the farmer himself can use it. The whole mechanism used to collect and bag areca nut is mounted on wheel assembly. This machine consists of screw conveyor, which is used to collect and bag the areca nut to the gunny bag. Screw conveyor is mounted on casing pipe with help two flange bearings on both the sides. One end of the conveyor is connected to the motor drive by means of belt drive mechanism. When motor rotates, it turns the screw conveyor. As the conveyor rotates, it lifts the areca nut from the ground, moves it towards the exit, and finally collects it in the gunny bag. This machine has the capacity to collect areca nut of about 19 kg/min.

23. Project Title: MULTIPURPOSE MACHINE FOR CARPENTRY WORK

Project Guide: Mr. Avinash N V

Team Members:
Prashanth P N
Prashantha U R
Arun Kumar P
Gagandeep C K

Abstract:
The modern world which we live now, demands everything compact and affordable. This paper presents the concept of multipurpose machine used in carpentry shop. This single machine can miraculously perform almost all the operations related to carpentry shop. It is the dream of all the foremen to accommodate the machines in less space. The operations like cutting, drilling, grinding, slotting, which are carried out by an individual machine requires large space but this is very compact machine which carries out all the operations in a single machine simultaneously. This machine saves a large amount of power also. In short, the foreman is undoubtedly profited.

This compact machine consists of a rigid frame where all the tools are mounted. A motor of 1 hp is used in this model. When motor starts, it rotates a pulley. This pulley is connected to the shaft by a belt drive. This shaft is used for separating the power for various operations. The main shaft consists of 3 pulleys used for 2 operations. When first pulley rotates, it connects to another pulley through a belt drive, which is used for grinding operation. Similarly, another pulley is used for drilling operation. At the end of the main shaft, it consists of a cam which is used for reciprocating motion. Reciprocating motion is used for slotting and cutting operation.
24. **Project Title:** FABRICATION OF MANUALLY OPERATED PAPER RECYCLING MACHINE  
**Project Guide:** Mr. Santosh Kunnur  
**Team Members:**  
Karthik Hebbar A  
G Vishwanatha  
Ganesha  
Srajan  
**Abstract:**  
A manually operated paper-recycling machine was fabricated. This was done to enable waste paper conversion into useful product. The fabricated plant consists of three major components that include the pulp maker, filtering equipment and the pressing equipment. From the results of experimental analysis carried out on the study, it was discovered that for every 0.1kg of used paper fed into the pulp maker, about 2000ml of water is required to make the pulp. The fabricated machine is capable of producing 70gm of recycled product per 0.1kg of waste paper.
25. **Project Title:** CASE STUDY AND DESIGN OF WASTE TO ENERGY PLANT AT PUTTUR MUNICIPALITY

**Project Guide:** Dr. Gangadharan Nair K

**Team Members:**
Mahadeva s
Ashwin P Binoy

**Abstract:**
The renewable energy resources from organic solid waste are increasing day by day throughout the country. This work includes a detailed case study and design of a biogas plant at Puttur municipality. Solid waste undergo anaerobic digestion processes. Biogas production and power generation from the solid waste play an important role. This study reveals that around a power of 100 kW is possible in Puttur municipality from the solid waste.