SAPTHAGIRI
College of Engineering
Creating Tomorrow

2018-19

Tech Grantha

DEPARTMENT OF MECHANICAL ENGINEERING

(Affiliated to VTU, Belagavi & Approved by AICTE, New Delhi)
#14/5, Chikkasandra, Hesaraghatta Main Road, Bengaluru-560 057.

INDEX

MANUALLY OPERATED ECO-FRIENDLY ROAD CLEANING MACHINE

Mr.KUSHAL.S (1SG14ME051)
Mr.SAGAR.H.S (1SG15ME418)
Mr.ANKAN.M.A (1SG14ME011)
Mr.SHREYAS.Y (1SG13ME108)

GUIDE
MR. HEMANTH KUMAR H R
ASSISTANT PROFESSOR

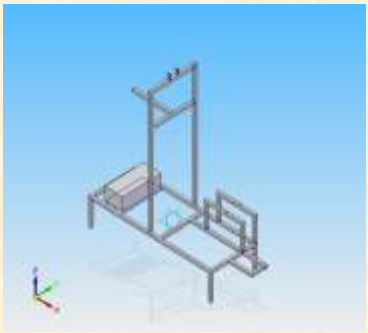
ABSTRACT

Cleaning is the main basic need for all human beings and it is necessary for daily routine process. The conventional road machine is most widely used in many applications such as example roads, railway stations, airports, hospitals, Bus stands, in multi buildings, colleges etc. also this machine uses human energy for its working operation. It is a user friendly as well as eco-friendly. In our project we are aimed to use easily available materials with low cost and it can be easily fabricated and easy to use and control. It is the better alternative for conventional machine. The manually operated eco-friendly road cleaner can work very efficiently with respect to covering area, time and cost of road cleaning process compared with the existing machineries. Also it is economical to use.

DESIGN AND FABRICATION OF AUTOMATED PORTABLE HAMMERING MACHINE

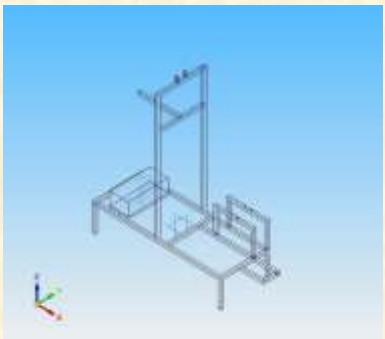
Mr.RAKSHITH K L (1SG16ME433)
Mr.MUSTAFA P K (1SG16ME422)
Mr.MANJUNATH A N (1SG16ME417)
Mr.RAJATH G M (1SG15ME074)

GUIDE
MR. MAHESH S
ASSISTANT PROFESSOR



ABSTRACT

In the present scenario due to the technologies advancement there are lots of demands of the products in the market for production of many components. This invention is relates to fabricate a simple power hammer machine having low cost, compact, easy to operate, and having less power requirement for a forging operation performed by blacksmiths. More particularly this invention is relates use of power hammer by small scale industries or workshops having less force requirement in forging than the other hammer machines available in the market to produce or manufacture a small parts like knives, medical equipment, sockets, hooks, clips, dental equipment, rings, manifolds, couplings, etc. This report discusses design and analysis of automatic portable hammering machine. Our goal for this paper is to design and Fabricate an automatic portable hammering machine. And for this, we have calculated the maximum torque, impact velocity for hammering, torque force. In our project we are using torque force to perform various manufacturing operation in industries like riveting, upset forging, punching etc. Also time required for operation is less.



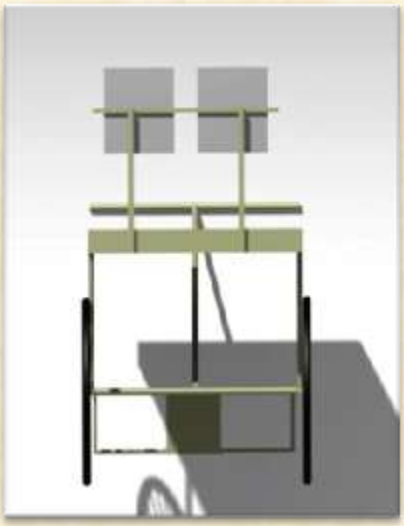
FABRICATION OF SOLAR/ELECTRICALLY DRIVEN VENDOR'S CART

KUMAR P G (1SG15ME046)
SHASHANK H PRASAD (1SG15ME091)
SYED ABEED (1SG15ME099)
SHRIDHAR A (1SG16ME440)

GUIDE
DR.P.MAHADEVASWAMY
PROFESSOR AND HEAD

ABSTRACT

Solar Energy is one of the major forms of Renewable source of energy found in the Environment and is used to generate different forms of energy. Solar Energy is used in most of the appliances and in recent achievements, solar energy is used for cars, bikes, carts and other forms of automobiles. Vendors on road selling vegetables and fruits, waste much of their physical energy to push the heavy carts in hilly and steep roads and also to pull the carts in down roads. It is hard for the Vendors to turn or move the cart around a curve on roads. Our project majorly aims at providing a braking system, steering system and transport system with help of Solar panels and battery to overcome the above mentioned problems. This project aims at developing a highly cost effective solar driven vendor's cart



DESIGN AND FABRICATION OF ADJUSTABLE PESTICIDE SPRAYER

Mr. DEEPU H (1SG15ME022)
Mr. DEVARAJ HIREMAT (1SG15ME023)
Mr. JANARDHAN K N (1SG15ME042)
Mr. DHANUSH N (1SG15ME057)

GUIDE
MS. PRATHIMA C N
ASSISTANT PROFESSOR

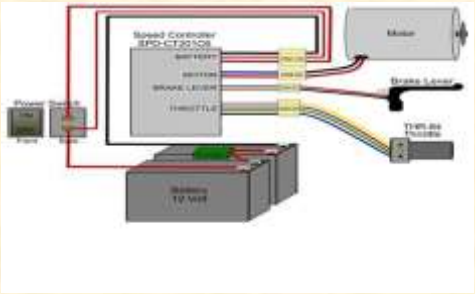
ABSTRACT

India is agriculture based nation, India giving best competition in the global level in all fields and also technology is growing fast but Indian forming culture is not advanced as compare to Europeans countries. Still in India formers are using conventional practice only for agriculture, this causes the low income from the farming, requires lots of humans efforts and time. In most of the developed countries farmers are using well advance technology in the agriculture staring from sowing of seeds till complete harvesting, by this they are getting high yield with minimum time and efforts but for Indian farmers quick adaptation towards technology is highly difficult and needs times. The present project aim is to develop a simple flexible spraying machine which helps the former to spray the pesticides to the crops with less efforts and time. A pesticides reservoir is placed on the kart which is having wheel with pedal to move on the ground and special link is provided to connect the pedal and pressure inducer. When a person moves the cart the pedal starts to rotate so that pressure is created in the reservoir which pushes the pesticides and is come out through nozzles.

MODIFICATION OF HONDA ACTIVA TO RUN AS A HYBRID TWO WHEELER

K SAI SOMASHEKAR(1SG15ME048)
RAMESH P (1SG15ME076)
SRIDHAR N S (1SG15ME094)
SUKRUTH K (1SG15ME096)

GUIDE
PROF. A M MAHESHA
ASSOCIATE PROFESSOR



ABSTRACT

Today there is problem of depleting fossil fuel resources for vehicles. One of the solutions for such problems is the hybridization of the vehicle. Hybrid Vehicle is a combination of a conventional internal combustion engine and an electric propulsion system. It implies that hybrid vehicle can be driven on I C engine as well as on electric motor. The hybrid vehicle produces less emission compared to the other similar vehicle which is not hybridized. The significance of electric power is that it runs with lesser power loss, hence improving the overall fuel economy. Encouraging hybridization of vehicles can reduce of CO_2 emission and thus the fuel costs. The ICE will be active in initial pickup and electric motor acts as supportive propulsion drive. Hybrid technology offers the possibility to eliminate toxic emissions as well as the use of fossil resources, while providing a high functionality at low cost. Honda activa is modified as hybrid vehicle which uses two power sources namely petrol and electric. The back wheel of the vehicle is run by using energy from the engine which is as same the normal vehicle and to the front wheel the hub motor is attached which is run by the electric source i.e battery. The vehicle includes the two modes of operation one battery mode another one is engine mode .The battery mode is controlled by control system

DESIGN AND FABRICATION OF MULTINUT REMOVAL TOOL

PAWAN C ***(1SG15ME064)***
PRADEEP B N ***(1SG15ME066)***
PRAVEEN ***(1SG15ME068)***
RAVI KUDLAPPA ***(1SG15ME077)***
CHELUWADI

GUIDE
PROF. PRAMOD S V
ASSISTANT PROFESSOR

ABSTRACT

Vehicle is an important machine in human daily life. The problem occurs during car operation is with tyre puncture. The puncture tyre needed to be replaced with spare tyre. In order to replace, initially vehicle should be lifted and then every nut (generally 4) has to be removed individually which requires man power and also consumes more time. Hence the project is designed to overcome the above parameter i.e., Multi-nut Removal Tool with hydraulic jack using a single motor.

DESIGN AND FABRICATION OF HYBRID ROAD CLEANING MACHINE

Mr. AJITH S P ***(1SG15ME007)***
Mr. ANIL KUMAR C ***(1SG15ME011)***
Mr. DHARSHAN M J ***(1SG15ME026)***
Mr. LIKITH P S ***(1SG15ME050)***

GUIDE
MR. BASAVARAJ GANIGER
ASSISTANT PROFESSOR

ABSTRACT

A Hybrid Solar Cleaner is a device which helps human to clean road automatically. The Hybrid road cleaning machine has a wide range of applications. This device needs to be operated by one person and is also equipped with Bluetooth that will act as an assistant during the cleaning process. To overcome the rising issues of cleanliness in India the Hybrid road cleaner can play a vital role. This machine is an assembly of various rigid components, a chassis, some motors, micro controllers and various electro-mechanical devices whose working takes place on the basis of simple science. The electricity requirement of the world is increasing at an alarming rate due to industrial growth, increased and extensive use of electrical gadgets. Hence solar energy is the best alternative source. This project will reduce environmental pollution. This prototype is user friendly, cost efficient and environmentally friendly. In this report, our motive is to present a detailed qualitative study of cleaning system using the cleaner, the main focus being cleanliness with minimum utilization of resources available with us.

REMOTE OPERATED EQUIPMENT FOR CLEANING UP DEBRIS IN LAKES

PRAVEEN N S (1SG16ME428)
RAKESH KUMAR (1SG16ME432)
RUDRESH P (1SG15ME109)
SHREERAM A (1SG16ME439)

GUIDE
MR. P RAGHUTHAMA RAO
ASSOCIATE PROFESSOR

ABSTRACT

The most sacred river in the world and the national river of India "Ganga River" is the soul of India and is Holy River in India. If we look at current cleanliness and hygienic status of our national river it is very shocking we dump about 290 million liters of sewage in Ganga which is loaded with pollutants, toxins. We also dump tones of municipal solid waste. The government Of India took charge to clean rivers at Ahmedabad, Varanasi, etc. All of us know about the Ganga Abhiyan. Similarly, the villages and some cities in all states of India which have many small & big lakes and maximum villages does not use the water of lake for farming as well as drinking and daily uses due to the maximum amount of garbage present in the lake water by taking this into consideration. Our main motive is to clean the lake water for that purpose we are making efficient lake garbage collector by using electric powered equipment. In this we are using remotely operated equipment mounted on floating member and platform driven by an electric motor which is powered by rechargeable battery with the conveyor attached to it for collecting garbage from the lake. This project is conceived on the basis of literature study and research articles in different journal and has lot of more future scope. This project is designed to clean up polluted water bodies and is very useful for the society. For example there are 81 lakes in Bangalore in which most of the lakes are filled with debris which pollutes the lakes, therefore it has to be maintained continuously to be used further.

FABRICATION OF EIGHT-LEGGED ROBOTIC ROVER

Mr. AKSHAY D SHETTY (1SG15ME106)
Mr. YANDAPALLI GANESH (1SG15ME107)
Mr. M S SOMANNA (1SG15ME108)
Mr. RANJITH K S (1SG16ME445)

GUIDE
MR. RAM KUMAR M
ASSOCIATE PROFESSOR

ABSTRACT

A Rover is a robotic vehicle that propels itself across the surface of the planet Mars, used to explore the planet's surface and geology. The robotic rovers face certain challenges, one of them being the difficulty in mobility. The current drive mechanism of the rover consisting of rocker-bogie mechanism allows the rover to move over obstacles of sizes twice the diameter of the rover's wheels. But the Martian surface has lot of large rocks and boulders of sizes more than twice the diameter of the rover's wheels, acting as obstacles to the rover. The rover finds it difficult to climb over these obstacles with its current drive mechanism of rocker-bogie and also suffers in stability to a certain extent whiling traversing over uneven and sloped surfaces. The present project aims to explore and implement design improvements to overcome these difficulties. In the project we focus on designing and fabricating a rover that would be able to climb heights greater than what the present models are capable of. Also, the design would enable the rover to possess greater stability while traversing over uneven surfaces and terrains where there is a negative slope and it achieves this without compromising on the strength of the whole structure of the rover.

"POWER GENERATION USING PNEUMATIC MECHANISM AT SPEED BUMPER"

Mr. AYAN GUHA ROY (1SG15ME015)
Mr. HIMANSHU (1SG15ME038)
Mr. KUMAR ROHAN (1SG15ME047)
Mr. MD. REHAN NASIM (1SG15ME054)

GUIDE
MR. R.G. DESHPANDE
ASSOCIATE PROFESSOR

ABSTRACT

The extensive usage of energy has resulted in an energy crisis, and there is a need to develop methods of optimal utilization, which will not only ease the crisis but also preserve the environment. The focus now is shifting more and more towards the conventional energy which are essentially non-polluting. The existing sources of energy such as oil, coal just to mention a few, may not be adequate to meet the ever increasing energy demands. Apart from this there has been a wide attention of researchers in design and development of renewable energy conversion systems. Development of renewable energy conversion systems has emerged in recent times as a vital component of the power industrial revolution. Our approach is to design a mechanism to generate power from speed bumper, because the number of vehicles passing over the speed bumper on roads is increasing day by day. This system is to extract the kinetic energy of vehicle flow in the streets & to generate power from speed bumper through pneumatic mechanism. This method of power generation is one of the most recent forms of energy generation concepts. It is more efficient than other existing models, which enables to provide conventional energy, both in terms of balancing electricity supply and demand of energy across the global. It is flexible, interactive and efficient too.

"FABRICATION OF CATTLE FOOD MAKING MACHINE BY USING FRUIT AND VEGETABLE WASTE"

Mr. RAVISHANKAR G ***(1SG15ME078)***
Mr. SADANANDA LAXMINARAYA HEGDE ***(1SG15ME081)***
Mr. SHUBHAM MAJHI ***(1SG15ME092)***
Mr. KESHAVAPRASHANTH S ***(1SG16ME411)***

GUIDE
MR. RAMESH N G
ASSISTANT PROFESSOR

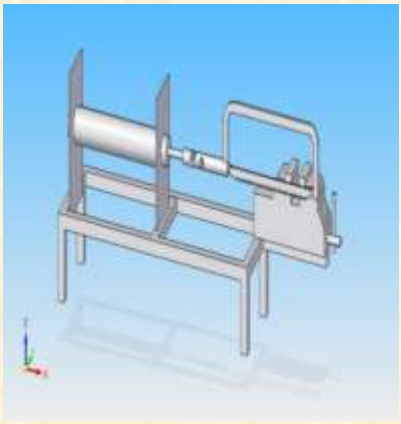
ABSTRACT

Food processing is done to increase the life of food and also the nutrients in it. Long years ago, there are some conventional food preserving techniques which are time consuming, complicated and risky. But now days drying methods are used to preserve some food content. In this sun heating is most common method to remove moisture content of food. Food processing Industries are the one of rising industries but the waste generation is also more. Generally, the waste is barrack into ground. To avoid this wastage, we can convert it into Cattle food. Drinking juice never made us realize that how much fruit pulp is getting wasted. If we can utilize that pulp for some other purpose by decreasing its moisture content which is responsible for decaying of things it would be of great benefit. It deals with heating of pulp to reduce its moisture content and then grinding it to make Cattle food. This machine not only reduces the moisture but also helps in storing of pulp. Further, the dried pulp is finely grinded. This pulp then can be readily utilized in the form of Cattle food and help saving useful pulp from getting wasted.

DESIGN & FABRICATION OF PNEUMATIC HACKSAW CUTTING MACHINE

AKSHAY S R *(1SG16ME400)*
HEMANTH JUMAR T *(1SG16ME408)*
MADHU D B *(1SG16ME413)*
RAJESHA K H *(1SG16ME431)*

GUIDE
NATARAJ H N
ASSISTANT PROFESSOR



ABSTRACT

The objective of this work is to automate the conventional power hacksaw Machine in order to achieve high productivity of work pieces than the power Hacksaw machine using pneumatic power. Pneumatic is a huge topic of science and Engineering dealing with the mechanical properties of air. In our project we take this pneumatic and a hacksaw for cutting purpose, The pneumatic reciprocating high-speed hacksaw machine has an advantage of Working in high pressure, the hacksaw used in this is reciprocate such that required Shape can be cutted according to the requirement. The hacksaw is the metal cutting machine tool designed to cut metal by Applying pneumatic pressure. Hacksaws are used to cut thin and soft metals the Operation of the unit is simplified to a few simple operations involving a cylinder Block and piston arrangement.

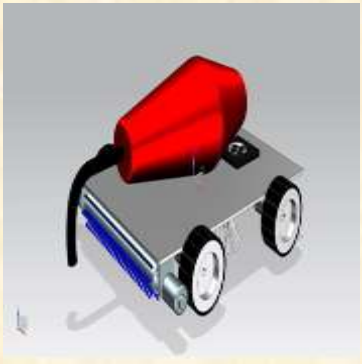
"FABRICATION OF FLOOR CLEANING MACHINE"

Mr. AMITH R	*1SG15ME010*
Mr. CHETHAN I P	*1SG15ME020*
Mr. DHANRAJ M	*1SG15ME025*
Mr. DILIP M	*1SG15ME028*

GUIDE
MS. PRATHIMA C N
ASSISTANT PROFESSOR

ABSTRACT

Automatic floor cleaner is a system that enables cleaning of the floor by the help of highly stabilized and rapidly functionalized electronic and mechanical control system. Our work is to make automatic floor cleaner for large floor in household purposes and office floors reducing human labor. The Cleaning purpose is specifically carried out by continuous relative motion between a scrubber and the floor surface. During the cleaning and moving operation of vehicle a propulsion mechanism such as driven wheels and guide wheels for dry tracking on the floor surface to be cleaned, suction of dust particles is carried by vacuum pump, scrubbing action is done by the scrubber directing water towards rear end. Preferably, a sweeper mechanism is mounted on the body forwarded by propulsion mechanism and operated with control system for advance sweeping of floor surface. In industries floor cleaning machine is very cost effective as compared to manual labour involved. The flexibility, time saving and efficiency make the cleaner a clean choice for cleaning the floor. So, it necessitates the need of some safer and efficient cleaning system, which could provide cleaning, both on ground as well as on vertical surfaces, with a control from much larger distance. So here we propose a simple but effective cleaning setup with promising outputs addressing to the above stimulating cause.



"DESIGN AND FABRICATION OF REMOTE CONTROLLED SOLAR LAWN MOWER"

Mr. AKSHAY S ***1SG15ME008***
Mr. DHANANJAYA V ***1SG15ME024***
Mr. GALVIN IGNATIUS MENEZES ***1SG15ME033***

GUIDE
MR. ANIL KUMAR P R
ASSISTANT PROFESSOR

ABSTRACT

A remote controlled lawn mower is a device which reduces the work load on humans for trimming lawn. Rapid growth of various high-tech tools and equipment makes our job done comfortable and sophisticated.

This project considers the implementation of a robot which can be operated wirelessly with the help of a remote.

Every action of the lawn mower is controlled by a microcontroller. The project also aims at fabricating a lawn mower in which, the lawn mowing motor runs through solar energy.

The electricity requirement of the world is increasing at an alarming rate due to industrial growth, which in turn leads to increased and extensive use of electrical gadgets. Solar energy is the best alternative source, which is both renewable, and an eco-friendly source of energy. This project will reduce environmental and noise pollution caused by conventional lawn mowers. This prototype is user friendly, cost efficient and environmental friendly.

"FABRICATION OF AGRO-BASED SOLAR VEHICLE"

Mr. CHANDRUCHUD S (1SG14ME025)
Mr. DINESHKUMAR K (1SG15ME030)
Mr. DIVYA CN (1SG15ME031)
Mr. JOHN PATRICK G (1SG15ME043)

GUIDE
MR. HEMANTH KUMAR H R
ASSISTANT PROFESSOR

ABSTRACT

The present world is mainly dependent on fossil fuels for the working of an automobile. But these fossil fuels are exhaustible and are almost near to extinct. Hence there is a necessary for the usage of renewable energy. Solar energy is one of the most dependable and efficient source of renewable energy. This energy is also nature friendly and free of cost. Therefore, it is important to start applying it in various places in the present world.

The present project aims to explore and implement the methods which are very much effective. This triggers the need for the use of solar energy in the place of fossil fuels in an effective manner. The vehicle is operated by a solar panel which helps in convening solar energy to electrical energy and stored in an eco-friendly battery which is later used to run the motor.

This Agricultural vehicle is an agricultural machine of a considerable power and great harvesting capacity. This multipurpose system gives an advance method to sow, plow, and cut the crops with minimum man power and labor making it an efficient vehicle. The machine will cultivate the farm by considering particular rows and specific column at fixed distance depending on crop. Moreover the vehicle can be controlled manually by driving the vehicle using seating arrangement.

A chassis is fixed to the wheels and the solar panels are placed over the seats by the help of a support extended from the chassis. This agricultural vehicle will be running with batteries. The motor converts the electric energy stored in the battery to mechanical energy. The rare axle is connected to the motor by means of chain drive which transfers energy from the motor to the wheels and hence results in the motion of the vehicle.

"EVALUATION OF BIOFUEL BLENDED WITH PREPARED ETHANOL, N-BUTANOL AND PETROL BASED ON PERFORMANCE AND POLLUTION LEVEL TESTS ON AN SI ENGINE"

Mr. AJEYA V (1SG15ME006)
Mr. ANIRUDH R K (1SG15ME012)
Mr. DAYANANDA M (1SG15ME021)
Mr. MADAN KUMAR L (1SG15ME052)

GUIDE
PROF. P RAGHUTHAMA RAO
ASSOCIATE PROFESSOR

ABSTARCT

Increasing global concern due to air pollution has generated much interest in the environmental friendly alternative fuels. Alternative fuels for internal combustion engines are also becoming important because of diminishing petroleum reserves and increasing air pollution. Developing renewable alternative fuel for IC engine has become an important part of energy policy of governments worldwide, because of scarcity of petroleum and global warming. Among the various alcohols, ethanol is known as the most suited renewable, bio-based and eco-friendly fuel for spark-ignition (SI) engines. The most attractive properties of ethanol as an SI engine fuel are that it can be produced from renewable energy sources such as sugarcane, cassava, corn, barley and many types of waste biomass materials. In addition, ethanol has higher evaporation heat, octane number and flammability temperature therefore it has positive influence on engine performance and reduces exhaust emissions.

This present experiment investigated the influence of ethanol and N-butanol addition on the performance, combustion and exhaust emission characteristics of a spark direct injection engine. From the experimental results it is noticed that, at maximum engine speed, about 2.03 % of brake power, 9.90 % of brake thermal efficiency, 2.58 % of cylinder pressure and 2.17 % of heat release rate is increased with E10+B10+P80 fuel blend when compared to pure petrol. However, 10.52 % of BSFC, 12.06 % of HC, 15.35 % of CO and 1.87% of NOx emissions decreased with E10+B10+P80 fuel blend when compared to pure petrol at maximum engine speed. On the whole, Ethanol's physical and chemical properties show that it can be used as an alternative fuel or additive in SI engine. Ethanol-N-butanol-Petrol blends have shown improved performance and emission characteristics. Further both blends also revealed lowered emissions like HC, CO and NOx when compared to pure petrol.

"FABRICATION OF AUTOMATED SOLAR POWERED WHEEL CHAIR"

Mr. ARJUN S (1SG15ME013)
Mr. BHARATH V (1SG15ME017)
Mr. MITHUN RAGHUNANDAN (1SG15ME055)
Mr. RAHUL N DIXIT (1SG15ME072)

GUIDE:
MR. BASAVARAJ GANIGER
ASSISTANT PROFESSOR

ABSTRACT

First wheelchair model evolved long back in 18th century, but rapid development in this field initiated only from mid-20th century. Since then, many varieties of models had been designed, extending into broad range of products. Wheelchairs are an essential assistive device for many individuals with injury or disability. Wheelchairs have been used for transporting disabled as well as patients for quite a long time. Wheelchairs have been driven by manual efforts. Manual wheelchairs provide a relatively low-cost solution to the mobility needs of such individuals. But manual wheelchairs involves the risk of user fatigue and requires a person to push it from behind in order to transport which is difficult for a disabled person. As an alternate for the manual wheel chair, electric powered wheel chairs were produced. These wheelchairs have proved to be very effective as it involved less work to transport in them. However, these wheelchairs are priced very high and making it unaffordable to the public.

The present project aims to explore and implement the methods which are effective. This triggers the need for an automated solar wheel chair that will help the disabled person to transport easily with comfort.

In this project we focus on fabricating an electric wheelchair that runs autonomously Using auto guided vehicle concept. The wheelchair runs on solar energy whilst keeping the fabrication and manufacturing cost of the wheelchair low so as to make it affordable and economical.

"DESIGN AND FABRICATION OF HYDRO WHEEL PUMP"

Mr. DARSHAN. M E (1SG16ME404)
Mr. HALASWAMY. C M (1SG16ME407)
Mr. SHARATH. C G (1SG16ME437)
Mr. YASHAVANTH. A S (1SG16ME444)

GUIDE
MR. PRAMOD S.V
ASSISTANT PROFESSOR

ABSTRACT

Water is used in almost anything and everything that humans do. From household activities to industries or irrigation continues water supply is favorable. Water is pumped to agriculture field using various pumps using electricity and other fuels are not available in every time and due to this problem the formers may lead to loss in the crops and crops outcome will be reduced to this reason. India is a developing country and faces lot of problems related to pump water from river and canal. With the prices of fuels rising around the world, it is becoming more difficult to pump water by piston pump. In this situation, the common man bears the brunt to run his household affordable rates. Our aims at simplifying this problem and pump water at small scale with easiest of economical and green technique.

Now a day's pump is use for much purpose. For this study we are focusing on pump for agriculture purpose. In rural areas formers are facing problem of cut-off electricity. During study we found that the Hydro wheel pump is an effective method for pumping water or similar liquid without use of electricity and fuel supply. Also it is totally eco-friendly method. The design model is successfully giving the positive result.

Energy of flowing water and thus omits the use of any kind of fuel. A water wheel consists of a large wheel basically made of wood or metal and it consists of a number of blades arranged on the outer rim forming the driving surface. Water wheels have been used basically for agriculture purpose for lifting the water to a required place without any fuel or electricity. The hydro wheel pump has potential to pump an alternative solution to this problem could be a simple water wheel pump. The water wheel rotates with water for agriculture and domestic purpose as it extracts water above 50 ft head. Hydro wheel pump is direct replacement of small standard piston pump and just as efficient at pumping a set volume per day.

"DESIGN AND FABRICATION OF SWITCHABLE STEERING MECHANISM"

Mr. NAGARJUN S TAKKALAKI 1SG15ME058
Mr. NAGARJUN M 1SG15ME059
Mr. NISCHITH A G 1SG15ME060
Mr. RAHUL V 1SG15ME073

GUIDE:
MR. SIVA MURALI MOHAN REDDY
ASSISTANT PROFESSOR

ABSTRACT

In modem era, almost every vehicle is still using the two wheel steering system to control the direction of the vehicle whether it is front wheel drive or rear wheel drive. The problem with two wheel steering is that two wheel steering doesn't provide complete vehicle stability during lane changing or cornering at high speeds. Since safety is given the first priority, four wheel steering vehicles are being used increasingly due to high performance and stability that they bring to the vehicles. In this report, the performance of switchable four wheels steering model is considered which can be optimally controlled during a lane change manoeuvre or tight cornering.

Coordinated four wheel steering help in parking and low-speed manoeuvres efficiently due to the rear wheels turning contradictory to front wheels and this helps in achieving a smaller radius of turning. At higher speeds, all the four wheels steer in the same direction in order to achieve more stability and less body lean during fast lane changing.

By combining the three modes of steering and selecting the required mode of steering for the specific conditions, stability and safety can be ensured.

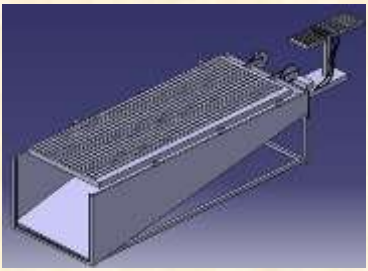
SAND FILTER AND SEPERATOR

AFTAB AHMED MADAR WALA (1SG15ME004)
ASHISH SHARMA (1SG15ME014)
GYANENDRA KUMAR GUPTA (1SG15ME034)
KISHAN SHARMA (1SG15ME044)

GUIDE:
MR. JAGANNATH G.R.
ASSOCIATE PROFESSOR

ABSTRACT

A sieve is a device for separating wanted elements from unwanted materials or for characterizing the particle size distribution of a sample, typically using a woven screen such as mesh or net. This project focuses in design, fabrication of the mechanical part of machine and the system of the sieve machine. To achieve this project objective, this sieve machine body structure and mechanical system needs to concern some other criteria such as strength, safety and ergonomic design.



A demonstration of design and fabrication of solar based sand sieving system is done. This system puts forward a fully automated sand filtering and separator that automatically filters the sand poured on it. For this a motorized shaft is mounted horizontally on the mounts. The shaft is connected to a filter frame with a mesh below and enclosed frame on sides which operates the motor when switched on.

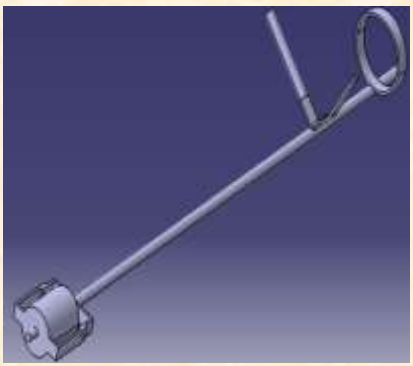
"DESIGN AND FABRICATION OF GARDENING EDGE TRIMMER"

NAGARAJ V BHAT (1SG16ME423)
NIVEDITHA SHREE N (1SG16ME424)
SHRAVANI S (1SG16ME438)
VIJAY M R (1SG16ME442)

GUIDE:
PROF. CHETHAN B P
ASST. PROFESSOR

ABSTRACT

An edge trimmer is gardening or agricultural tool which uses a blade for cutting grass, trim weeds, small trees and other plants on steep or irregular terrain. It consists of a cutting blade at the end of a long shaft with a handle. Various blades or trimmer heads can be attached to the machine for specific applications. Edge trimmers provide solutions for removal of long grass or weeds through dense vegetation. Using edge trimmers shaping of bushes and small trees can also be done. Garden grass needs to be trimmed periodically as it grows taller and wider which makes the garden untidy. The effective use of hand held grass cutters for shaping the trees are time consuming, less efficient and creates fatigue for human operators. Hence mechanized grass trimmer needs to be designed for effective and accurate working which is time saving and makes the work easy. The aim of our project is to design a gardening edge trimmer with flexible movements, modified features and reduced cost.



The project is carried out with reference to existing grass trimmer. It is realized that there are many areas where performance specifications of new model can be improved.

"FABRICATION OF SPOT WELDING MACHINE"

JAI KRISHNA J 1SG16ME410
MAHESH G K 1SG16ME415
MANJUNATH B G 1SG16ME418
MANOJ KUMAR J 1SG16ME420

GUIDE:
MR. ARUN KUMAR R
ASSISTANT PROFESSOR

ABSTRACT

Resistance spot welding is an extensively used welding process for joining thin metal sheets in automobile, rail and aircraft industries. Research on resistance spot weld ability of stainless steel attracts more and more attention with the increasing usage of various types of stainless steel in industries. In this paper, a review of research works done on resistance spot welding of of stainless steel is presented. Most of the reported works on resistance spot welding of stainless steel have been on austenitic stainless steel, the most used variety of stainless steel. Though less, research works have been reported on other varieties of stainless steel also. The areas chosen for most of the works by researchers in the past have been found as process modeling and finite element analysis, dissimilar metal welding, failure mode analysis, parametric optimization and characterization of resistance spot welds. It is felt that the information presented in this report may definitely give the fresh researchers, a bird's eye view of the research work done in the past, in this field , and is expected to provide them the right direction for the future research work, in this area. The influence of three major areas such as mechanical, electrical and thermal coupled with the ever growing demand for stainless steel as a manufacturing material provides ample scope for fresh researchers for in depth studies in this field.