FACULTY INNOVATION

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Sl. No.	Name of the Faculty	Name of the Prototype
1.	Dr.B.Ramasubramanian	Smart dustbin
2.	Dr.R.Ganesh Babu	Home security system with mobile notification
3.	Dr.K.Uma Maheswari	Obstacle avoiding smart car using arduino and ultrasonic sensors
4.	Dr.R.Ganesh Babu	Ups battery monitoring system with automatic battery changeover
5.	Mrs.N.Ramya	Water Alarm
6.	Mrs.P.Elavarasi	Plant monitoring system
7.	Mr.C.Anandhan	Laser security system
8.	Mr.S.Sivasakthi	Line follower robot using arduino UNO
9.	Mrs.K.Priyadharshini	Automatic solar tracker
10.	Mr.G.Parameswaran	Laser light security alert
11.	Mr.M.Vijay	Economic x - band waveguide design
12.	Mrs.M.Krishna Rani	Sound control circuit project clap switch
13.	Mrs.GA.Nivedaa	An automatic mobile recharger station
14.	Ms.K.Aiswarya	Smart Home Automation and Security System
15.	Mr.C.Anandhan	Water Level Detector
16.	Mrs.K.Priyadharshini	Coin Based Mobile Charger
17.	Mr.M.Vijay	IR Remote Controlled Robot With Microcontroller
18.	Ms.K.Aiswarya	Auto Turn Off Battery Charger
19.	Mrs.S.Kiruthiga	LPG Leakage Detector
20.	Mrs.GA.Nivedaa	Bio Battery

Sl. No.	Name of the Faculty	Name of the Prototype
21.	Ms.K.Aiswarya	Automatic Contact Less Switch
22.	Mr.C.Anandhan	Smart Water Cooler

Product Name : **Smart Dustbin**

Name of the Inventor : **Dr.B.Ramasubramanian**

Abstract:

We had planned to make a smart dustbin using Arduino and servo motor. In this project I will show how to make a smart dustbin where the lid of the dustbin is automatically open.

The components used are

1.Arduino

2.HC SRO4 ultrasonic sensor module

3.Towerpro SG90 servo motor

4. 5v power supply

5.Dustbin with hinged lid

First we have to code smart dustbin using Arduino. After that make all necessary connections in circuit diagram. after code to Arduino provide 5v power supply to circuit. Once the system is ON Arduino keeps monitoring any object near the ultrasonic sensor. If the sensor detects any object, Arduino calculates its distance and if it less than a certain predefined value, Arduino will active servo motor and with the support of extended arm, it will list the lid open. After certain time the lid will automatically closed.
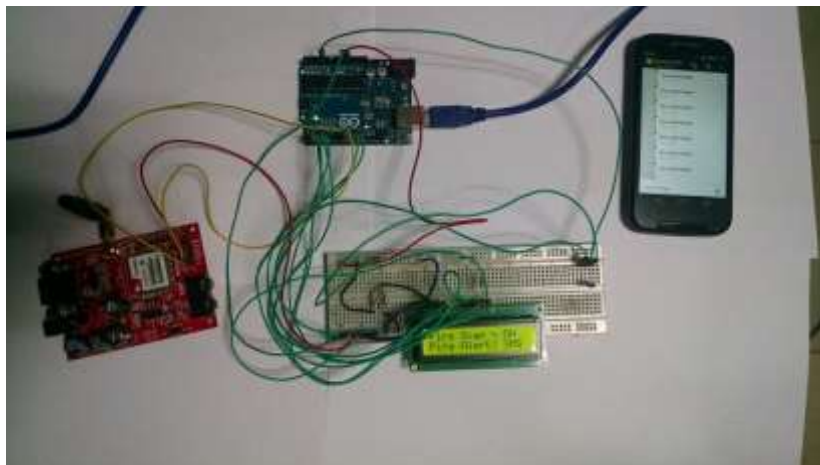
Product Name   : Home Security System With Mobile Notification

Name of the Inventor : Dr.R.Ganesh Babu

Abstract:

The main objective of our project is to create a simple security system at a low cost.

➢ PID detects the security breach.

➢ Arduino triggers the GSM module.

➢ GSM module makes a phone call.

Product Name   : Obstacle Avoiding Smart Car Using Arduino

 and Ultrasonic Sensors

Name of the Inventor : Dr.K.Uma Maheswari

Abstract:

Trajectory planning is one of the most important pivotal point in pick and place tasks done by robotic manipulators. In this we have presented a robot, which is compact, autonomous and fully functional. This robot or a smartcar is built to sense any obstacle in this path, to avoid it and resume its running in free path. Ultrasonic sensors were adapted to implement a real-time obstacle avoidance system for wheeled robots, so that the robot can continually detect surroundings, avoid obstacles and move toward the target area. This model has tremendous applications:
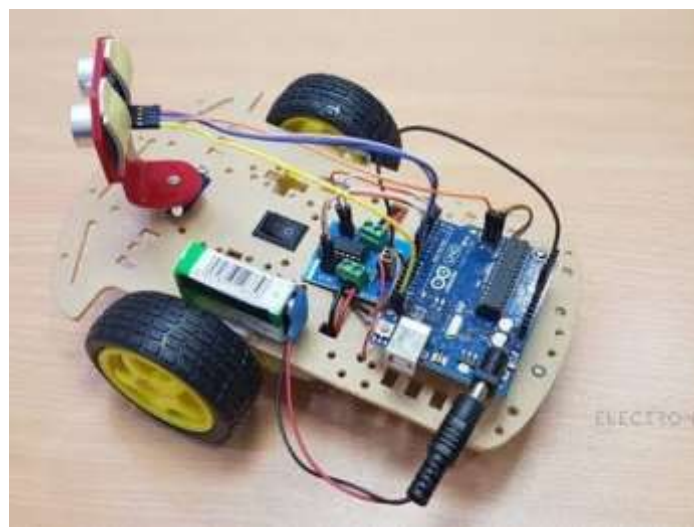
✓ The modification of this logic is used in vaccum cleaners.

✓ It will be very useful in parking system.

✓ It can also be used in assembling automobiles.

We use an Arduino UNO with a motor shield along with stepper motors to make the car. For sensing we use ultrasonic sensor. The Arduino UNO is coded with program and this detects the obstacles about 50cms in ideal testing conditions. In conclusion, through this project, we aim to construct a model of a Smartcar that is beneficial to the quotidian problems to the present generations.

Product Name   : UPS Battery Monitoring System With Automatic

Battery Changeover

Name of the Inventor : Dr.R.Ganesh Babu

Abstract:

Modern Industrial, energy generation and distribution, medical, telecom and transportation systems depand more and more on batteries. Battery monitors are designed to provide information about one's battery bank.

In our project we have made an analog battery monitoring system to monitor a 12V lead acid rechargeable battery also it is necessary to recharge the battery hence we have developed a charger circuit to perform charging the battery,battery is also used as source of an inverter.The inverter circuit converts dc voltage to ac voltage.

The main objective of this project is to increase the maintenance and utility of a rechargeable battery.
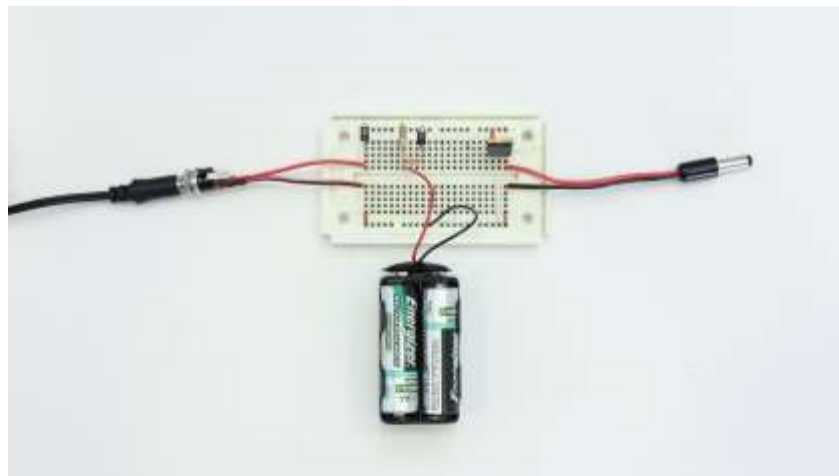
➢ The Battery Maintenance System (BMS) monitors the battery charge.

➢ The charging systems charges the battery.

➢ The inverter converts 12V dc to 220V AC supply.

In other words the project is a concise version of house hold inverter or ups system to monitor the status of the battery constantly. As soon as the voltage goes below a certain level which we will come to know from the BMS.Chargeing unit starts chargeing the battery,as soon as it is fully charged it will be cut off and the BMS starts it work again.

Product Name : Water Alarm

Name of the Inventor : Mrs.N.Ramya

Abstract:

This is the project helps you in designing a water level meter to check up on the amount of water in the tank. Three-fourths of the earth is water, out of which 97 per cent is saline (in oceans, seas and groundwater). The remaining 2.5 per cent to 2.75 per cent is fresh water, out of which 1.75 per cent to two per cent is frozen in glaciers, ice and snow. Fresh 2 groundwater and soil moisture constitutes only 0.7 per cent to 0.8 per cent. Less than 0.01 per cent, available as surface water in lakes, swamps and rivers, is available to us as drinking water. It is therefore imperative that systems are in place for managing this precious and scarce resource. Water-level indicators for water-storage tanks are mostly mechanical contraptions. Steel wires, pulleys and rails get rusted as these are in continuous contact with water and air, resulting in unreliable operation. Contactless sonar-level metres are there but their high cost is a deterrent. In this article, a sonar contactless, wireless water-level indicator, which can be fabricated for less than Rs. 2500, has been described. It is capable of measuring water levels upto four metres.

Product Name   : Plant Monitoring System

Name of the Inventor : Mrs.P.Elavarasi

Abstract:

Now a days its a challenge to improve development of Embedded System plant in respect of its growth and to reduce costs which Embedded System leads to an innovative idea of using an automated irrgating system which will further help in better management of water and human resources .An automated irrigation system have been developed using sensors technology with Arduino to effectively utilize water for irrigation purpose.The system has soil moisture sensor inserted into the soil of the plants and water level sensor placed in a water will be pumped to plants for irrigation.An algorithm has been build out with threshold values of soil moisture sensor to control the water quantity in soil and also a water level sensor had been implemented to measure the water level in tank.Human efforts can be reduced using this technique and increase saving of water by efficiently irrigating the plants.The design has been made with better resource management and low power consumption.This project bring into play a micro-controller which

is of 8051 family,this programmable micro-controller collects the input signals converted into values of moisture in the soil via soil moisture sensors.As the microcontroller starts obtaining the signals,it creates an output that forces a relay for running the water pumping motor
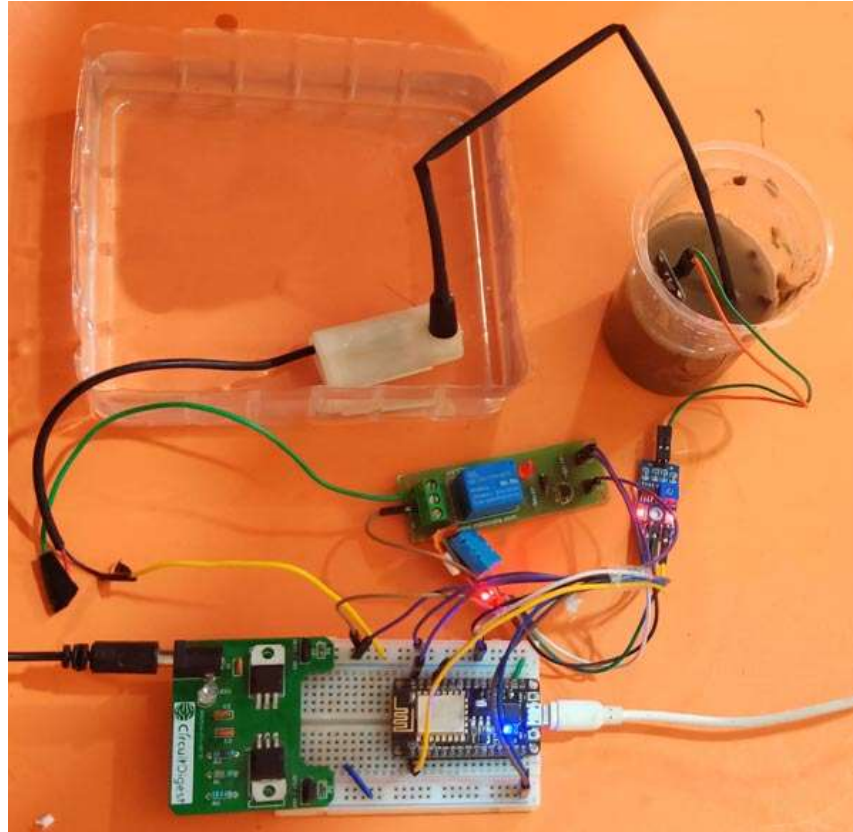
Product Name : Laser Security System

Name of the Inventor : Mr.C.Anandhan

Abstract:

A security alarm is a system designed to detect intrusion-unauthorized entry into a building or area. The word LASER stands for light on amplification by stimulated emission of radiation these are available in different types like semiconductor,infrared,GaAs laser diode. I generally security systems are used for protection here we are with a security system laser the main aim of the project is to construct a simple and cheap laser security system using 555 times and also explore it in all aspects.Laser door alarm is working on the interruption of laser beam.This laser point is used as the source of laser beam.
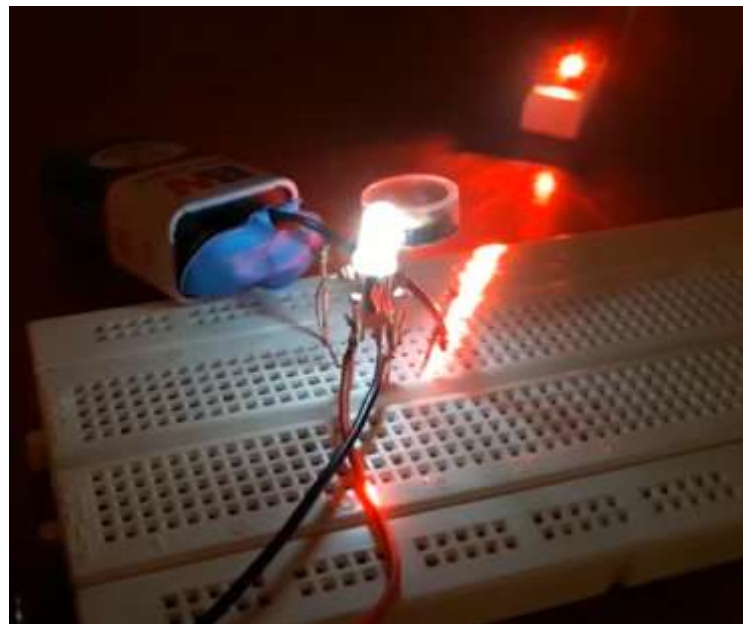
Product Name   : Line Follower Robot using Arduino UNO

Name of the Inventor : Mr.S.Sivasakthi

Abstract:

Line Following is one of the most important aspects of robotics. A Line Following Robot is an autonomous robot which is able to follow either a black line that is drawn on the surface consisting of a contrasting colour. It is designed to move automatically and follow the line. The robot uses arrays of optical sensors to identify the line, The array of four sensor makes its movement precise and flexible. The robot is driven by DC gear motors to control the movement of the wheels. The Arduino Uno interface is used to perform and implement algorithms to control the speed of the motors, steering the robot to travel along the line smoothly. This project aims to implement the algorithm and control the movement of the robot by proper tuning of the control parameters and thus achieve better performance. It can be used industrial automated equipment carriers, tour guides in museums and other similar applications, etc. The objective of this project is to move the vehicle automatically in desired path In a vehicle or a robot can guided by two sensors, which is used to detect the desired path of the robot. If any one sensor is sensed the vehicle will turn left or right automatically and follow the black line. At the path end we can use full black in all sides, so the vehicle can be stopped automatically. In this project, we have designed a simple Line Follower Robot using Arduino and some other components.
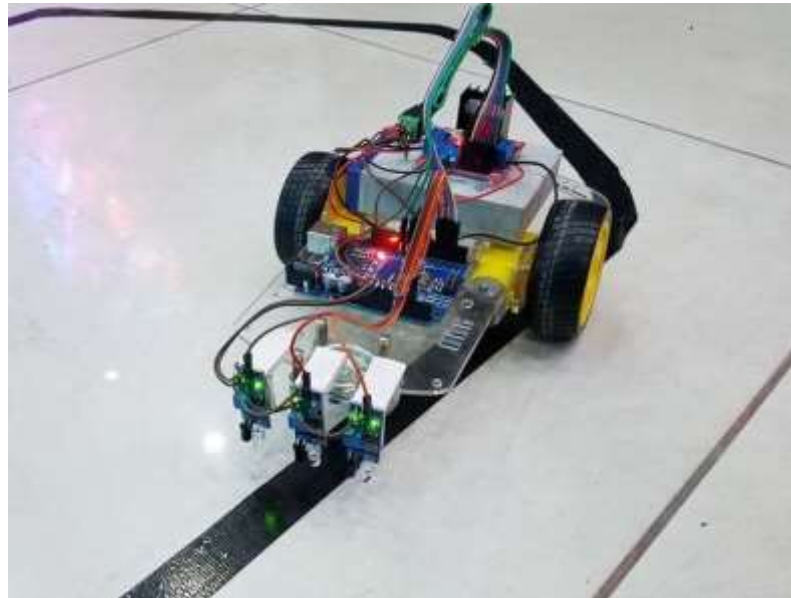
Product Name   : Automatic Solar Tracker

Name of the Inventor : Mrs.K.Priyadharshini

Abstract:

Solar panel has been used increasingly in recent years to convert solar energy to electrical energy. The solar panel can be used either as a stand-alone system or as a large solar system that is connected to the electricity grids.The earth receives 84 Terawatts of power and our world consumes about Terawatts of power per day. We are trying to consume more energy from the sun using solar panel. In order to maximize the conversion from solar to electrical energy, the solar panels have to be positioned perpendicular to the sun. Thus the tracking of the sun's location an positioning of the solar panel are important. The goal of this project is to design an automatic tracking system, which can locate position of the sun. The tracking system will move the solar panel so that it is positioned perpendicular to the sun for maximum energy conversion at all time. Photoresistors will be used as sensors in this system. The system will consist of aurdino uno, light sensing system,microcontroller, gear motor system and a solar panel. Our system will output up to 40% more energy than solar panels without tracking systems.
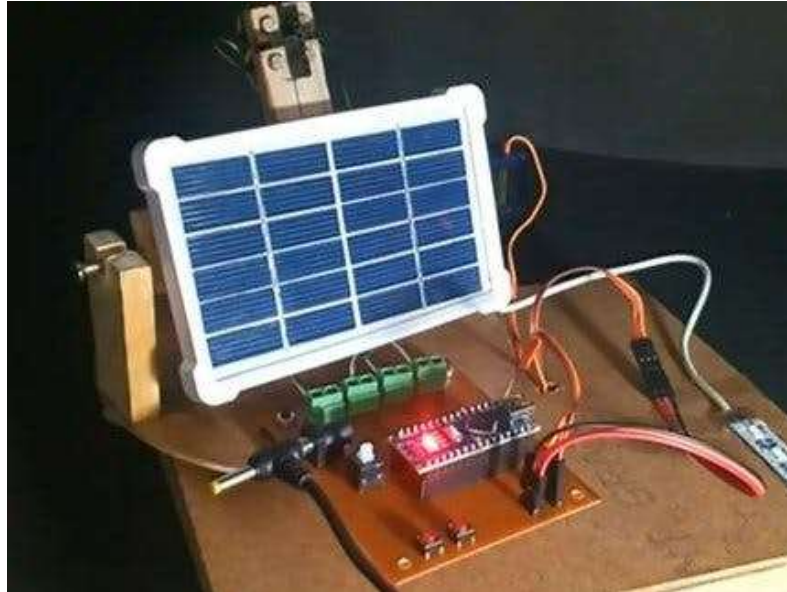
Product Name   : Laser Light Security Alert

Name of the Inventor : Mr.G.Parameswaran

Abstract:

Security is the most important factor today. Technology develops day by day in the world. The crime gang also improves their technology to perform their operation. Therefore, technology of security should modern with time to protect the crime works. We decided to make a security We know laser light goes through long distance without scattering effect. It is also visible at source and at incident point or otherwise invisible. These two properties help us to built up a modern security system, which may name as "laser light security alert".
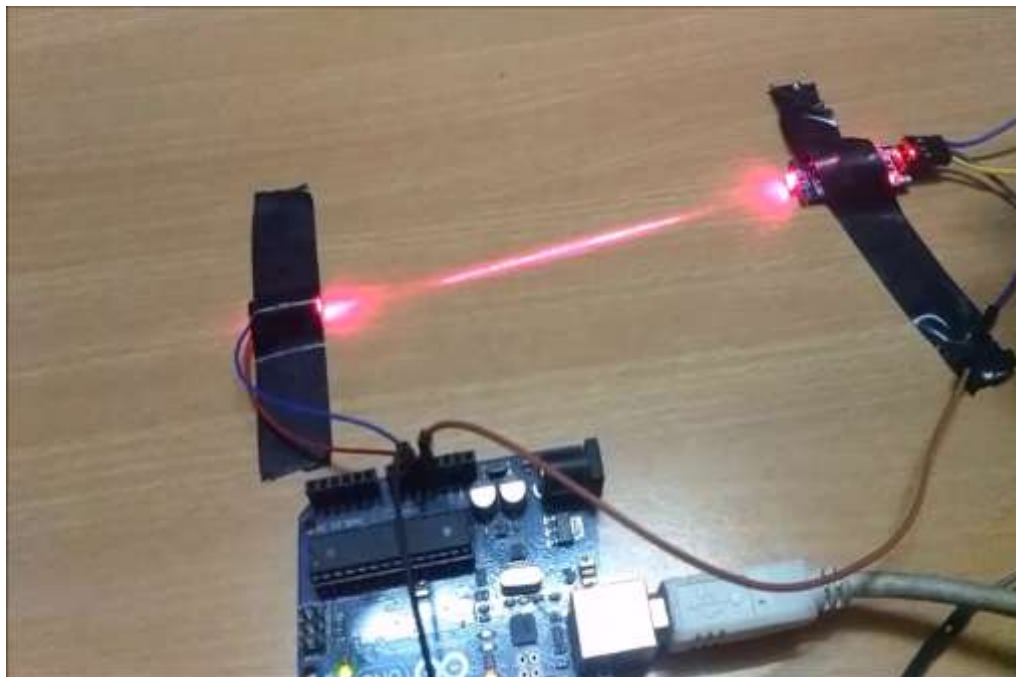
Product Name : Economic x - Band Waveguide Design

Name of the Inventor : Mr.M.Vijay

Abstract:

The main aim of our project is to design some simple and economical X-band rectangular waveguides. Because the biggest disadvantage of waveguide is its high cost. Hence the manufacturing volumes are normally low and waveguide materials such as gold, copper and silver are relatively expensive. Other disadvantages are unwieldy size and mass, particularly at lower frequencies. If our cell phone employed waveguide components, it would need wheels because it would be too heavy to lift. Another limitation of waveguide is that the current and voltage measurements are not possible with EM wave propagation. A dielectric waveguide employs a solid dielectric rod rather than a hollow pipe. An optical fiber is a dielectric guide designed to work at optical frequencies. Transmission lines such as microstrip, coplanar waveguide, and strip line or coaxial may also be considered to be a waveguides. In our project, low cost materials identified as good for EM wave propagation are chosen initially. Correct dimensions are considered in the X-band and the designs are carried out. The main reason for choosing X-band is that there are readily available test bench consisting of microwave sources necessary components and output meters. Depending on the frequency, waveguides can be constructed from either conductive or dielectric materials. Generally, the lower the frequency to be passed, the larger the waveguide is. Waveguides can also be less than a millimeter in width such as guides used in extremely high frequency (EHF) satellite communications (SATCOM) in the range of 30-300 GHz. Waveguides are used for transferring both power and communication signals, usually for short distances.

Product Name   : Sound Control Circuit Project Clap Switch

Name of the Inventor : Mrs.M.Krishna Rani

Abstract:

The basic principle applied in this circuit is "Sound Energy is being converted into Electrical energy" and a relay gets triggered from it and controls the load. This is a simple clap switch circuit project. This circuit can on/off a 220v supply.The sound of a clap is received by a small microphone in the circuit.The relay contact is connected to the powerline and hence turns on/off any electrical device connect at output socket. All electrical device is connected at the output socket.

Main Objective of Clap Switch:

1) It decreases the time between on and off of any appliance.

2) It is cost efficient and can be made with simple components.

3) It is extremely useful for the physically challenged people to easily on and off any appliance.
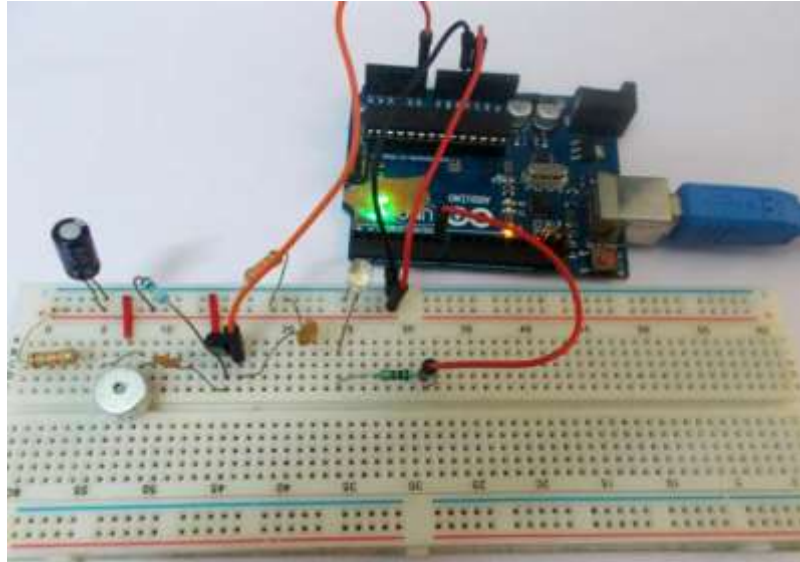
Product Name   : An Automatic Mobile Recharger Station

Name of the Inventor : Mrs.GA.Nivedaa

Abstract:

Now a days near about each man uses a mobile phone so the recharge this mobile phones is a most important task. We are trying to achieve a automatic mobile recharger machine which provides a 24 hour services without inter furnace or need of man. In our daily life we are recharge our mobile phone manually, that's why we should go to there shop / agencies, also these type of easy recharges are not available for 24hrs, also on long root or Expressways.

APPLICATIONS:-

• For automatic mobile recharge.

Methodology of this Project:

• GSM (Fbus Protocol)

• IR - 38KHZ

• Image Processing in Mat lab

• PC RS232 Communication

Product Name   : Smart Home Automation and Security System

Name of the Inventor : Ms.K.Aiswarya

Abstract:

Everything is getting automatic and smarter with the passing of days. It is time to make our homes smarter and automated. Our resource of pure water and

power are limited and most of the time we use these resources unconsciously in our household chores which leads us to a crucial future. So this is the time to utilize our resources thriftily. This system includes doors automation with password protected lock, temperature controlled fan, automated water pump, water tap and shower, light, anti-theft security and primary fire protection using various sensors like LDR, IR, pressure, smoke, heat & object sensors controlled by mainly microcontroller. Some features can be controlled by remote control system for more flexibility. The goal of this system is to make our life more easy and safe as well as to save our resource and power.

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Department of ECE

Product Name   : Water Level Detector

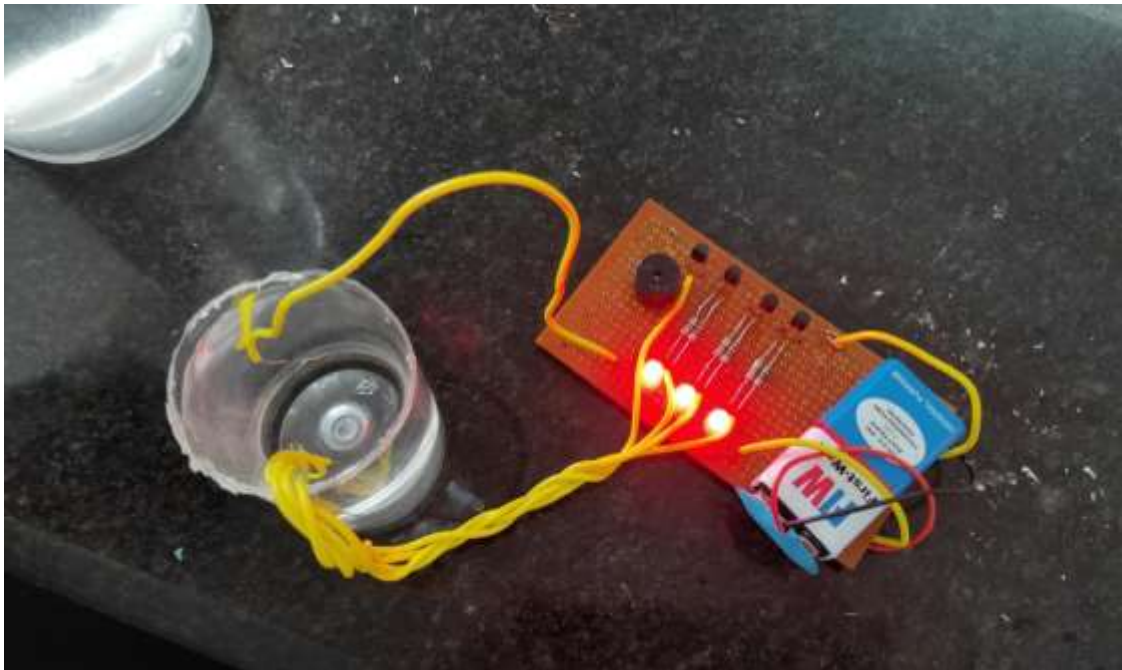Name of the Inventor : Mr.C.Anandhan

Abstract:

Water is very precious for the living beings and scarcity of the same is gradually increasing. Most of the cities in the county and that of the world are facing this problem. This is one of the motivations for the current work and to deploy techniques in order to save water and help the environment which in turn ensures water for the future. Hence, it is of utmost importance to preserve and save water. In many houses there exists unnecessary wastage of water due to overflow from overhead tanks etc. Automatic Water Level Controller can provide a solution to this problem. Present work does not use any microcontrollers etc. The operation of water level controller is based on the fact that water conducts electricity. As the water level rises or fall the sensing probes and circuits of the controller detect the

same. These signals are used to switch ON or switch OFF the pump motor as per requirements. This system is used to automate the process of water pumping to over-head tank storage and has the facility to select the level of water to pump. The logical situations using electronic circuit manage the system. The required amount or volume of water can be pumped to the over head tank by choosing level selector unlike waiting for the complete filling in the conventional circuits.

Product Name   : Coin Based Mobile Charger

Name of the Inventor : Mrs.K.Priyadharshini

Abstract:

With increased technological advancements, switches require updating with current times. To avoid the risk of contracting COVID-19, it has become important to not touch surfaces of buttons and keys that have been frequently used by other people. This calls for a need to innovate the switching technology for replacing a hand-operated switch, with a contactless switch. So today, we will design a no-touch switch that works entirely on hand gestures. Our smart contactless switch includes a sensor that is capable of detecting hand movements and translates them into commands for controlling lights, fans and various home appliances.
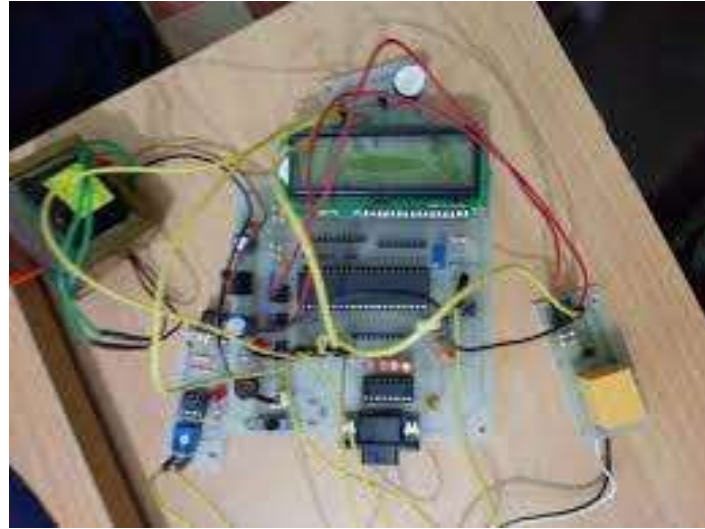
Product Name   : IR Remote Controlled Robot With
                            Microcontroller

Name of the Inventor : Mr.M.Vijay

Abstract:

This circuit mainly consists of 8051 microcontroller, two IR sensors, motors and motor driver IC (embedded in a module). The line follower robot needs mechanical arrangement of the chassis. I have used a 4WD Acrylic chassis. The two IR sensors are mounted on the fron of the robot facing with the diodes facing towards Earth. When robot is placed on the fixed path, it follows the path by detecting the line. The robot direction of motion depends on the two sensors outputs. When the two sensors are on the line of path, robot moves forward. If the

left sensor moves away from the line, robot moves towards right. Similarly, if right sensor moves away from the path, robot moves towards its left. Whenever robot moves away from its path it is detected by the IR sensor.

Product Name　　　　　: Auto Turn off Battery Charger

Name of the Inventor　: Ms.K.Aiswarya

Abstract:

The aim of this project is to introduce a technology for reducing the loss of power that is happening always without human intensions. The 'auto' referred here comprises of 'Automatic controlled battery charger. This auto turn-off battery charger for series-connected 4-cell AA batteries automatically disconnects from mains to stop charging when the batteries are fully charged. It can be used to charge partially discharged cells as well. The circuit is simple and can be divided into AC-to-DC converter, relay driver and charging sections.
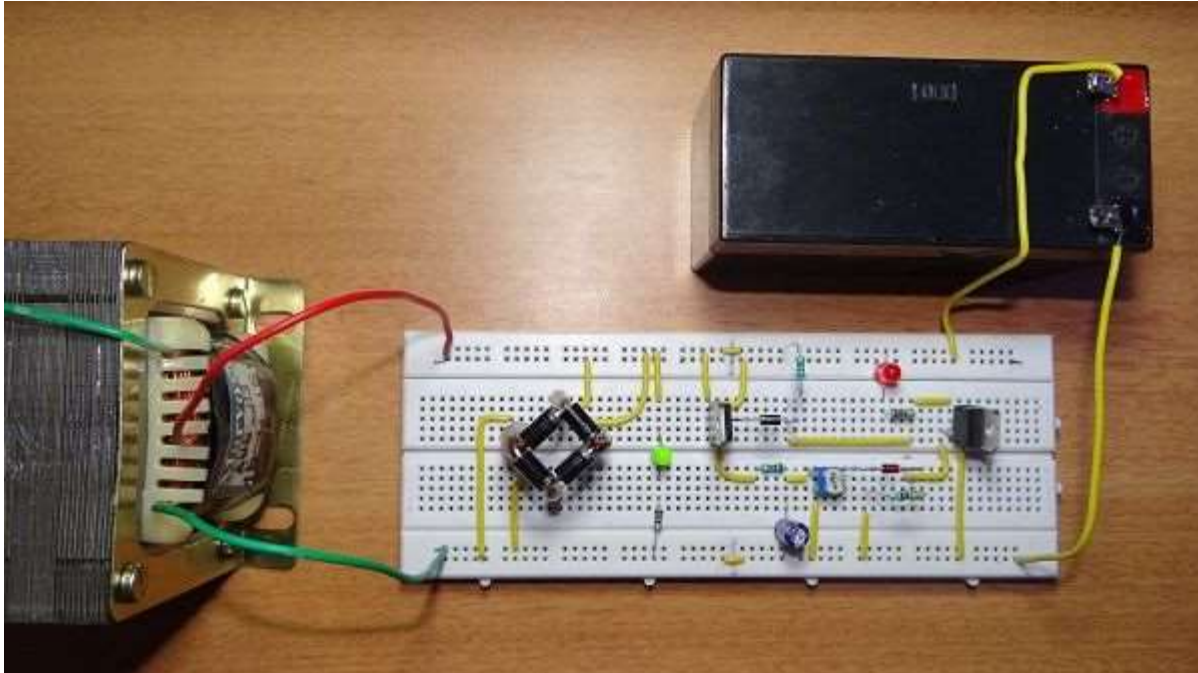
Product Name   : LPG Leakage Detector

Name of the Inventor   : Mrs.S.Kiruthiga

Abstract:

This project is to detect and control any leakage of LPG (Liquefied Petroleum Gas) based cars, small scale factories or in home appliances also. Gas leak detection is the process of identifying potentially hazardous gas leaks by means of various sensors. These sensors usually employ an audible alarm to alert people when a gas has been detected.

Product Name   : Bio Battery

Name of the Inventor : Mrs.GA.Nivedaa

Abstract:

About 10000 million liters of wastewater is generated in India every day and the cost of treatment is also high. Therefore, this method of treating wastewater and obtaining power at the same time will be a very useful one for rural India as well as urban areas which generate lot of waste water. The bio-battery can be a useful device for the people and can be used to power low power consuming devices like a small radio. We can produce electricity from domestic wastewater and at the

same time accomplish biological wastewater treatment. Bioreactors based on power generation is a new approach to waste treatment and power generation.

Product Name   : Automatic Contact Less Switch

Name of the Inventor : Ms.K.Aiswarya

Abstract:

With increased technological advancements, switches require updating with current times. To avoid the risk of contracting COVID-19, it has become important to not touch surfaces of buttons and keys that have been frequently used by other people. This calls for a need to innovate the switching technology for replacing a hand-operated switch, with a contactless switch. So today, we will design a no-touch switch that works entirely on hand gestures. Our smart contactless switch

includes a sensor that is capable of detecting hand movements and translates them into commands for controlling lights, fans and various home appliances.

Product Name   : Smart Water Cooler

Name of the Inventor : Mr.C.Anandhan

Abstract:

Smart Dispenser is an innovative water drinking machine solution. It offers a sophisticated system to help people whether for home usage or public usage. Conventional water dispenser offers users a hot, warm and cold water at any time, however, the machine will constantly do the heating and cooling over time. This procedure consumes more power yet less environmentally friendly. Using a user-designated timer setting still not guarantee can solve those problems since user behaviors usually change over time. By creating an

integrated system, Smart Dispenser aims to minimize the consumed energy by applying sensors through the dispenser and learn user behavior as well.