

<b>SL NO</b>	<b>PROJECT TITLE</b>
<b>TG-601</b>	<b>RFID Based Door Access Control</b>
<b>TG-602</b>	<b>IOT Weather Reporting System</b>
<b>TG-603</b>	<b>Cell Phone Operated Land Rover</b>
<b>TG-604</b>	<b>IOT Air &amp; Sound Pollution Monitoring System</b>
<b>TG-605</b>	<b>Automatic Room Light Controller with Bidirectional Visitor Counter</b>
<b>TG-606</b>	<b>Energy Meter Monitoring Over IOT</b>
<b>TG-607</b>	<b>IOT Based Person/Wheelchair Fall Detection</b>
<b>TG-608</b>	<b>Fingerprint Based Bank Locker System</b>
<b>TG-609</b>	<b>Fingerprint Vehicle Starter Project</b>
<b>TG-610</b>	<b>IOT Patient Health Monitoring Project</b>
<b>TG-611</b>	<b>Hybrid Inverter with Solar Battery Charging</b>
<b>TG-612</b>	<b>IOT Heart Attack Detection &amp; Heart Rate Monitor</b>
<b>TG-613</b>	<b>Anti collision system for trains</b>
<b>TG-614</b>	<b>IOT Based Toll Booth Manager System</b>
<b>TG-615</b>	<b>Monitor and Control of Greenhouse Environment</b>
<b>TG-616</b>	<b>IOT Based ICU Patient Monitoring System</b>
<b>TG-617</b>	<b>Design of an Intelligent Auto Traffic Signal Controller with Emergency Override</b>
<b>TG-618</b>	<b>IOT Irrigation Monitoring &amp; Controller System</b>
<b>TG-619</b>	<b>Design and Implementation of Accelerometer Based Wireless Gesture Controlled Rover</b>
<b>TG-620</b>	<b>IOT Garbage Monitoring System</b>
<b>TG-621</b>	<b>Drowsy Driver Sleeping Device and Driver Alert System</b>

<b>TG-622</b>	<b>IOT Liquid Level Monitoring System</b>
<b>TG-623</b>	<b>Prepaid Energy Meter with Theft Detection</b>
<b>TG-624</b>	<b>IOT Based Fire Department Alerting System</b>
<b>TG-625</b>	<b>Smart Solar Grass Cutter with Lawn Coverage</b>
<b>TG-626</b>	<b>IOT Solar Power Monitoring System</b>
<b>TG-627</b>	<b>Interactive Voice Response System for Educational Institution</b>
<b>TG-628</b>	<b>IOT Electronic Door Opener</b>
<b>TG-629</b>	<b>E – Street: LED Powered Intelligent Street Lighting System with Automatic Brightness Adjustment Based On Climatic Conditions and Vehicle Movements</b>
<b>TG-630</b>	<b>IOT Liquid Level Monitoring System</b>
<b>TG-631</b>	<b>Home and Industrial Safety Using Fire and Gas Detection System</b>
<b>TG-632</b>	<b>Smart Trolley in Mega Mall</b>
<b>TG-633</b>	<b>Android Based Robot Implementation For Pick and Retain of Objects</b>
<b>TG-634</b>	<b>Real Time Vehicle Locking and Tracking System using GSM and GPS Technology-An Anti-theft System</b>
<b>TG-635</b>	<b>Zig Bee Based E-Menu Ordering System</b>
<b>TG-636</b>	<b>Secure Fingerprint Bank Locker with Image Capture</b>
<b>TG-637</b>	<b>Machine Overheat Detection with Alert</b>
<b>TG-638</b>	<b>RFID Based Bus Ticketing System</b>
<b>TG-639</b>	<b>Automated Elevator with Overload Alert</b>
<b>TG-640</b>	<b>GSM Based Weather Reporting (Temperature/Light/Humidity)</b>
<b>TG-641</b>	<b>Petrol Bunk Automation with Prepaid Cards and GSM Communication</b>
<b>TG-642</b>	<b>Intelligent Rain Sensing using Automatic Wiper System</b>

<b>TG-643</b>	<b>E-Tracking System for Municipal Solid Waste Management Using RFID Technology</b>
<b>TG-644</b>	<b>RFID Based Library Management System</b>
<b>TG-645</b>	<b>Metal Detector Robotic Vehicle</b>
<b>TG-646</b>	<b>Fingerprint Based Exam Hall Authentication</b>
<b>TG-647</b>	<b>Automatic Railway Gate Controller (Using 8051)</b>
<b>TG-648</b>	<b>Wireless Red Signal Alerting For Trains</b>
<b>TG-649</b>	<b>Biometric Attendance System Circuit</b>
<b>TG-650</b>	<b>Finger Print Voting System</b>
<b>TG-651</b>	<b>Blue Nanny – Child Monitoring System</b>
<b>TG-652</b>	<b>Fingerprint Authenticated Device Switcher</b>
<b>TG-653</b>	<b>Rain Sensing Automatic Car Wiper</b>
<b>TG-654</b>	<b>Automated RF plus IR Based Paid Parking Manager System</b>
<b>TG-655</b>	<b>Billing System Based On RFID</b>
<b>TG-656</b>	<b>GSM Patient Health Monitoring</b>
<b>TG-657</b>	<b>Ultrasonic Blind Walking Stick</b>
<b>TG-658</b>	<b>Postage Stamp Value Calculator</b>
<b>TG-659</b>	<b>Solar Street Lights with Auto Intensity Controller</b>
<b>TG-660</b>	<b>Vehicle Movement Based Street Lights Project</b>
<b>TG-661</b>	<b>TV Remote Controlled Home Appliances Project</b>
<b>TG-662</b>	<b>Digitally Controlled Home Automation Project</b>
<b>TG-663</b>	<b>Wireless PC Communication System</b>
<b>TG-664</b>	<b>Car Speed Checker with LCD Display</b>

<b>TG-665</b>	<b>Paid Car Parking Project Based on RFID</b>
<b>TG-666</b>	<b>Device Load Monitor with Programmable Meter For Energy Audit</b>
<b>TG-667</b>	<b>TV Remote Controlled Robotic Vehicle Project</b>
<b>TG-668</b>	<b>SMS Controlled Railway Level Gate Control with Programmable Numbers</b>
<b>TG-669</b>	<b>Energy Management System with Programmable Numbers using GSM</b>
<b>TG-670</b>	<b>Monthly Electricity Billing Display with Bill SMS Feature</b>
<b>TG-671</b>	<b>Shuttling Metro Train between Stations Project</b>
<b>TG-672</b>	<b>GPS + GSM Based Advanced Vehicle Tracking System Project</b>
<b>TG-673</b>	<b>Android Controlled Pick And Place Robotic Arm Vehicle Project</b>
<b>TG-674</b>	<b>Android Controlled Fire Fighter Robot</b>
<b>TG-675</b>	<b>Motion Based Automatic Door Opener</b>
<b>TG-676</b>	<b>Attendance System Based On RFID Project</b>
<b>TG-677</b>	<b>Home Appliance Control Using Android Application Project</b>
<b>TG-678</b>	<b>Security Access Control Using RFID Project</b>
<b>TG-679</b>	<b>XBEE Transformer/Generator Health Monitor Project</b>
<b>TG-680</b>	<b>Android Controlled Remote AC Power Control</b>
<b>TG-681</b>	<b>Android Controlled Railway Level Gate Control</b>
<b>TG-682</b>	<b>RF Controlled Robotic Vehicle with Metal Detection Project</b>
<b>TG-683</b>	<b>CNG/LPG Gas Leakage Detection &amp; Accident Prevention System</b>
<b>TG-684</b>	<b>SMS Voting System Project</b>
<b>TG-685</b>	<b>Android Controlled Robotic Arm</b>
<b>TG-686</b>	<b>Fire plus Hazardous Gas Detection and Instant SMS Alerting System</b>

<b>TG-687</b>	<b>RTC Based Pump Switcher</b>
<b>TG-688</b>	<b>Automatic Unauthorized Parking Detector with SMS Notification To Owner</b>
<b>TG-689</b>	<b>Dam Operation Based On Water Level</b>
<b>TG-690</b>	<b>Accurate Room Temperature Controller Project</b>
<b>TG-691</b>	<b>Home Automation Using Android</b>
<b>TG-692</b>	<b>Vehicle Theft Detection/Notification with Remote Engine Locking</b>
<b>TG-693</b>	<b>GSM based Industry Protection System</b>
<b>TG-694</b>	<b>Fully Automated Solar Grass Cutter</b>
<b>TG-695</b>	<b>IR Wireless Underwater Communication System</b>



<b>TG-601</b>	<p><b>RFID Based Door Access Control</b></p> <p>The conception of entrance control is brought about by mean of a card, a parallel card reader and a control board is amalgamated with the server. This is a proximity card with a unique ID number incorporated in it. The card reader interprets the data and sends it to the control board, which is a microcontroller. This microcontroller tests the legality of the data with the incorporated server, which abides the database. The attached server is uploaded with the details of the worker for that unique ID number. The control board confirms whether the person is permitted to enter the precise door or not. If the worker is genuine, then the person is permitted to enter the door.</p>
<b>TG-602</b>	<p><b>IOT Weather Reporting System</b></p> <p>Here we propose a smart weather reporting system over the internet. Our proposed system allows for weather parameter reporting over the internet. It allows the people to directly check the weather stats online without the need of a weather forecasting agency. System uses temperature, humidity as well as rain sensor to monitor weather and provide live reporting of the weather statistics. The system constantly monitors temperature using temperature sensor, humidity using humidity sensor and also for rain. The system constantly transmits this data to the microcontroller, which now processes this data and keeps on transmitting it to the online web server over a Wi-Fi connection. This data is live updated to be viewed on the online server system. Also system allows user to set alerts for particular instances, the system provides alerts to user if the weather parameters cross those values. Thus the IOT based weather reporting system provides an efficient internet based weather reporting system for users.</p>
<b>TG-603</b>	<p><b>Cell Phone Operated Land Rover</b></p> <p>Traditionally, wireless controlled robots make use of RF (radio frequency) circuits, which have its own disadvantages of restricted operational range, limited frequency range and limited control. This project introduces the use of mobile phone for robotic</p>

	<p>control. This technology is more controller friendly as it doesn't interfere with other controllers and can use up to twelve controls. It also has the advantages of robust control and provides working range as large as the coverage area of the service provider. The look and capabilities of these robots vary, but they share mechanically movable structures under some form of control. The robots are controlled in three phases namely reception, processing and action. Here preceptors are sensors mounted on the robot and the processing is done by on-board microcontroller or processor. This robot works either with the help of motors or with some other actuators.</p> <p>The robot is controlled by making a call on the mobile phone attached with the robot. In the course of the call if any button is pressed a 'dual-tone multiple-frequency' (DTMF) tone is heard at the other end of the call. The cell phone mounted on the robot perceives this tone and then the robot processes it by the ATmega16 micro-controller with the help of DTMF decoder MT8870.</p>
<b>TG-604</b>	<p><b>IOT Air &amp; Sound Pollution Monitoring System</b></p> <p>Air and sound pollution is a growing issue these days. It is necessary to monitor air quality and keep it under control for a better future and healthy living for all. Here we propose an air quality as well as sound pollution monitoring system that allows us to monitor and check live air quality as well as sound pollution in particular areas through IOT. System uses air sensors to sense presence of harmful gases/compounds in the air and constantly transmit this data to microcontroller. Also system keeps measuring sound level and reports it to the online server over IOT. The sensors interact with microcontroller which processes this data and transmits it over internet. This allows authorities to monitor air pollution in different areas and take action against it. Also authorities can keep a watch on the noise pollution near schools, hospitals and no honking areas, and if system detects air quality and noise issues it alerts authorities so they can take measures to control the issue.</p>
<b>TG-605</b>	<p><b>Automatic Room Light Controller with Bidirectional Visitor Counter</b></p> <p>The main aim of this project is to create a controller based model to calculate amount of human beings tripping any particular space and as a result illuminate the space. At this juncture we can make use of sensor and can make out amount of persons present in</p>

	<p>the space at the moment. In present world, there is a constant require for mechanical appliances with the boost in standard of living; there is an intellect of importance for creating circuits that would lessen the complications of life. Also if at all one desires to make out the amount of individuals present in the room so as not to enclose overcrowding. This circuit is an extremely helpful circuit.</p>
<p><b>TG-606</b></p>	<p><b>Energy Meter Monitoring Over IOT</b></p> <p>Monitoring and keeping tracking of your electricity consumption for verification is a tedious task today since you need to go to meter reading room and take down readings. Well it is important to know if you are charged accordingly so the need is quite certain. Well we automate the system by allowing users to monitor energy meter readings over the internet. Our proposed system uses energy meter with microcontroller system to monitor energy usage using a meter. The meter is used to monitor units consumed and transmit the units as well as cost charged over the internet using Wi-Fi connection. This allows user to easily check the energy usage along with the cost charged online using a simple web application. Thus the energy meter monitoring system allows user to effectively monitor electricity meter readings and check the billing online with ease.</p>
<p><b>TG-607</b></p>	<p><b>IOT Based Person/Wheelchair Fall Detection</b></p> <p>When it comes to old age, it becomes necessary to monitor our old ones for their health and safety. Due to weakness and weak joints they have a great risk of falling down. Now it is important to know if an old age person has fallen so that he/she can be helped on time. Also people on wheelchair need to be checked for fall detection. For this purpose we propose a smart fall detection system. The system uses accelerometer and gyro sensor to detect person movements, It can be mounted on persons hand or wheelchair for detection. The sensor is connected to a microcontroller in order to constantly transmit the acceleration data. Now the system keeps monitoring for fall detection and abrupt movement changes in person. A sudden abrupt change with jerk in the system is treated as a fall. Now in case the person did not fall and alarm was false, the system allows to snooze the alert if person presses snooze button in 5 seconds. If person does not press the snooze, system detects person has fallen and</p>

	<p>automatically triggers alert through Wi-Fi connection to alert the loved ones of the person about the situation instantly.</p>
<b>TG-608</b>	<p><b>Fingerprint Based Bank Locker System</b></p> <p>The fingerprint based bank locker system is an enhancement to the traditional bank locker system that uses keys. Now keys can easily be copied and made by thief's who know about it. Also the keys must be taken care of and can also be lost due to some negligence. Well fingerprint based bank locker system is here to solve all these issues. The fingerprinted authenticated bank locker system is safe as well as easy to use and maintain. No key handling no need to worry about key getting lost. The system uses fingerprint sensing to read fingerprints and first store registered fingerprints against the bank locker record. Now next time a person scans finger the sensor reads it and compares it with past records. Now if match is found with existing prints, it sends the match signal to the microcontroller and the controller displays this data on the LCD display. Also the controller drives the driver motor to open the bank locker door and opens it for authorized customers. The door of locker won't open for unauthorized customers.</p>
<b>TG-609</b>	<p><b>Fingerprint Vehicle Starter Project</b></p> <p>Vehicle security is an important issue these days due to the rising number of vehicle thefts. Also one more issue with vehicles is handling its keys. Keys need to be carried and misplacing keys or losing them will cause a serious issue. Here we propose a solution to this problem by using a fingerprint authenticated vehicle starter system. The system provides a secure and hassle free way to start/stop vehicle engine. User just needs to scan finger to start the car, no need to carry any key. The system only allows authorized users to start the vehicle. Users can first register into the system by scanning fingerprints. The system allows multiple users to register as authorized users. When into monitoring mode, the system checks for users to scan. On scanning, the system checks if user is authorized user and starts vehicle for authorized users only. Here we use an ATMEGA 32 microcontroller. The fingerprint sensor is connected to the microcontroller and also we have an LCD display along with push buttons and starter</p>

	<p>motor. The motor is used to demonstrate as vehicle starter. This system automates as well as vehicle security using fingerprint based system.</p>
<b>TG-610</b>	<p><b>IOT Patient Health Monitoring Project</b></p> <p>Monitoring your beloved ones becomes a difficult task in the modern day life. Keeping track of the health status of the patient at home is a difficult task. Especially old age patients should be periodically monitored and their loved ones need to be informed about their health status from time to time while at work. So we propose an innovative system that automated this task with ease. Our system puts forward a smart patient health tracking system that uses Sensors to track patient health and uses internet to inform their loved ones in case of any issues. Our system uses temperature as well as heartbeat sensing to keep track of patient health. The sensors are connected to a microcontroller to track the status which is in turn interfaced to an lcd display as well as wifi connection in order to transmit alerts. If system detects any abrupt changes in patient heartbeat or body temperature, the system automatically alerts the user about the patient's status over IOT and also shows details of heartbeat and temperature of patient live over the internet. Thus IOT based patient health tracking system effectively uses internet to monitor patient health stats and save lives on time.</p>
<b>TG-611</b>	<p><b>Hybrid Inverter with Solar Battery Charging</b></p> <p>Inverters are widely used in the domestic as well as industrial environments to serve as second line of source in case of power cut from the electricity utility grids. However, due to low capacity of the battery the inverter dies out with the use of heavy load appliances. This project is designed in such a way that it overcomes this limitation by the use of solar energy. Hybrid Inverter with Solar Battery Charging System consists of an inverter powered by a 12V Battery. This inverter generates up to 110V AC with the help of driver circuitry and a heavy load transformer. This battery gets charged from two sources, first being the mains power supply itself. If the mains power supply is available, the relay switches to the connection using mains power supply to supply to the load. This power supply also charges the battery for using it as back up the next time there is power outage. The use of solar panel to charge the battery gives an</p>

	<p>additional advantage of surplus power in case the power outage of mains is prolonging. Thus this inverter can last for longer duration's and provide uninterrupted power supply to the user.</p>
<b>TG-612</b>	<p><b>IOT Heart Attack Detection &amp; Heart Rate Monitor</b></p> <p>These days we have an increased number of heart diseases including increased risk of heart attacks. Our proposed system users sensors that allow to detect heart rate of a person using heartbeat sensing even if the person is at home. The sensor is then interfaced to a microcontroller that allows checking heart rate readings and transmitting them over internet. The user may set the high as well as low levels of heart beat limit. After setting these limits, the system starts monitoring and as soon as patient heart beat goes above a certain limit, the system sends an alert to the controller which then transmits this over the internet and alerts the doctors as well as concerned users. Also the system alerts for lower heartbeats. Whenever the user logs on for monitoring, the system also displays the live heart rate of the patient. Thus concerned ones may monitor heart rate as well get an alert of heart attack to the patient immediately from anywhere and the person can be saved on time.</p>
<b>TG-613</b>	<p><b>Anti collision system for trains</b></p> <p>These days a number of new systems are invented to evade the train collisions. This project is one such way to confine the train collisions. In this project, the microcontroller is united with the GPS modem, GSM modem or cellular phone. GPS modem will discover the current locations of the train through satellite. The keyboard &amp; display screen are also used with the controller for the convenience of the user. GSM cell phone is employed to provide appropriate information via SMS to the drivers of the train as well as to the controlling booths. With the help of this project, the train drivers can obtain apt signal information and the collisions can be evaded. In this project microcontroller is attached with a display (LCD screen), Keyboard, Memory card and a GPS recipient. Particular train have GPS recipient with a microcontroller together with a GSM Mobile or Modem</p>

<b>TG-614</b>	<p><b>IOT Based Toll Booth Manager System</b></p> <p>Managing multiple toll booths is a very complicated task. We here propose a smart card based toll booth system that is monitored over IOT. The Internet server maintains all the data of user accounts and also their balance. All vehicle owners would possess an RFID based card that stores their account number. Our system at toll booths will monitor the cards scanned when a car arrives at the toll booth. The system now connects to the online server to check if the card is valid and if valid what is the balance. If user balance is sufficient, the user balance is deducted online and web system sends signal back to the card scanner system that the user has been billed. On receiving this signal the system operates a motor to open the toll gate for that car. The system is controlled by a microcontroller to achieve this purpose. The microcontroller uses Wi-Fi connection to connect to the internet through which system interacts with web server to perform the online verification process. Also system allows storing data of all the vehicles passed at particular time intervals for later reference and surveillance. This system thus automates the entire toll booth collection and monitoring process with ease using RFID plus IOT based system.</p>
<b>TG-615</b>	<p><b>Monitor and Control of Greenhouse Environment</b></p> <p>Suitable ecological surroundings are essential for optimal plant development, better crop productivity, and resourceful use of water and other resources. Automate the data acquirement procedure of the soil situation and different climatic factors that rule plant development permits information to be assembled at high rate of recurrence with fewer labor necessities. The present systems make use of PC or SMS based mechanisms for keeping the consumer endlessly well-versed of the circumstances within the greenhouse; but are too expensive, large, hard to uphold and less admired by the scientifically uneducated workers. The aim of this greenhouse project is to intend an uncomplicated, simple to set up, microcontroller based circuit to observe and record the amount of humidity, soil moisture, temperature, and sunlight of the natural atmosphere that are incessantly altered and managed in order to optimize them to attain maximum</p>

	<p>seed growth and hence productivity. The microcontroller employed is a low powered one &amp; comprise a price efficient chip produced by ATMEL &amp; has 8K bytes of flash memory.</p> <p>A research experience other than a structured lecture or lab lessons is a valuable enlightening experience, both challenging and gratifying. It facilitates an electronic &amp; electrical student to work intimately with the science &amp; nature to innovate new technologies which are in favor of man-kind. Remember, engineering project is the key to a successful career start. You should always choose such a project which can actually add some value to your career. When the project chosen is not of your interest, you'll not be able to finish it capably. For this reason, make certain to decide a project that is of your interests</p>
<p><b>TG-616</b></p>	<p><b>IOT Based ICU Patient Monitoring System</b></p> <p>Intensive Care Unit or ICU is where the patients who are critically ill are admitted for treatment. For such critical conditions the Doctors need to have an all-time update patient's health related parameters like their blood pressure, heart pulse and temperature. To do manually, this is too tedious a task and also for multiple patients it becomes close to impossible. For this type of situations this IOT based system can bring about an automation that can keep the Doctors updated all time over the network.</p> <p>IOT Based ICU Patient Monitoring System is a Raspberry Pi based system which collects patient's information with the help of few sensors. It uses Wi-Fi module to communicate this information to the internet. There is this Blood pressure and heart beat monitor module electrically connected to the system and physically to be worn by the user. On the press of button, the sensor senses the blood pressure in systolic and diastolic along with the heart beat and sends it to the central controller. The Temperature sensor senses the temperature of its ambience, so when this sensor is in close proximity of the user it reports the users' body temperature. Thus, the doctor can get access to these vital parameters pertaining to the patients' health over the IOT Gecko web interface from anywhere over the world. In this way IOT Based ICU Patient Monitoring System is an enhanced system that helps in monitoring ICU Patients without any manual intervention.</p>

<b>TG-617</b>	<p><b>Design of an Intelligent Auto Traffic Signal Controller with Emergency Override</b></p> <p>The main objective of this project is to design an intelligent auto traffic signal control system. Traffic congestion is one of the major issues to be considered. Generally Vehicular traffic intersects at the junctions of the road and is controlled by the traffic signals. Traffic signals need a good coordination and control to ensure the smooth and safe flow of the vehicular traffic. During the rush hours, the traffic on the roads is at its peak. Also, there is a possibility for the emergency vehicles to stuck in the traffic jam. Therefore; there is a need for the dynamic control of the traffic during rush hours. Hence, I propose a smart traffic signal controller. The proposed system tries to minimize the possibilities of traffic jams, caused by the traffic lights, to some extent by clearing the road with higher density of vehicles and also provides the clearance for the emergency vehicle if any. The system is based on the PIC 16F877A micro controller, IR sensors and Radio Frequency Identification (RFID) technology. The code for this project is compiled in high tech C compiler and the simulated with Proteus software.</p>
<b>TG-618</b>	<p><b>IOT Irrigation Monitoring &amp; Controller System</b></p> <p>Farmers usually work on large portions of land to grow different types of crops. It is not always possible for one person to be able to keep track of the entire farmland all the time. Sometimes it may happen that a given patch of land receives more water leading to water-logging, or it might receive far less or no water at all leading to dry soil. In either of the cases, the crops can get damaged and farmer may suffer losses. So in order to solve this problem, we propose an “IOT Irrigation Monitoring and Control Project”. This is a very useful project wherein, the user can monitor and control the supply of water from a remote location. This system makes use of a concept called IOT (Internet of Things). So for our project, we connect our system to the internet using a Wi-Fi module. We use an Arduino Uno board to send the control signals and to connect to our desired website. On the website, two things are displayed:</p> <p>a) Motor status b) Moisture level</p>

	<p>The circuit keeps checking the moisture content of the soil by means of a moisture sensor, and updates the “Moisture level” on the website. The user can then check the current moisture level from a remote location and control the water supply. For this, the user only has to toggle the “Motor status” from ‘ON-OFF’ or ‘OFF-ON’; and the “water pump” will be ‘turned ON’ or ‘turned OFF’ accordingly. Thus the ‘soil-moisture’ gets monitored and the ‘water supply’ can be controlled just by the toggling the “Motor status”. So the user doesn’t have to worry about his crops or plants getting damaged due to ‘water-logging’ or ‘drought’.</p> <p>This system can also be useful for people having small gardens, while it may not be possible for a person to be continuously present at his/her garden but one can use this project to keep a track of ‘soil-moisture’ and ensure proper water supply even from a distance.</p>
<p><b>TG-619</b></p>	<p><b>Design and Implementation of Accelerometer Based Wireless Gesture Controlled Rover</b></p> <p>Presenting here is an accelerometer based gesture controlled rover using PIC16F877, one of the most basic microcontrollers. The robot can be moved in any direction just by making simple gestures, and the systems sensitivity to gestures can be easily adjusted as per our liking. The movement of gesture transmitter section is sensed by accelerometer and voltage level corresponds to movement of robot along X and Y axes are compared by a comparator, following which corresponding instructions are transmitted through the RF transmitter to control robot. The robot receives the instructions. The microcontroller drives motors corresponding to instructions received and displays the related message on LCD.</p>
<p><b>TG-620</b></p>	<p><b>IOT Garbage Monitoring System</b></p> <p>This project IOT Garbage Monitoring system is a very innovative system which will help to keep the cities clean. This system monitors the garbage bins and informs about the level of garbage collected in the garbage bins via a web page. For this the system uses ultrasonic sensors placed over the bins to detect the garbage level and compare it</p>

	<p>with the garbage bins depth. The system makes use of AVR family microcontroller, LCD screen, Wi-Fi modem for sending data and a buzzer. The system is powered by a 12V transformer. The LCD screen is used to display the status of the level of garbage collected in the bins. Whereas a web page is built to show the status to the user monitoring it. The web page gives a graphical view of the garbage bins and highlights the garbage collected in color in order to show the level of garbage collected. The LCD screen shows the status of the garbage level. The system puts on the buzzer when the level of garbage collected crosses the set limit. Thus this system helps to keep the city clean by informing about the garbage levels of the bins by providing graphical image of the bins via IOT Gecko web development platform.</p>
<p><b>TG-621</b></p>	<p><b>Drowsy Driver Sleeping Device and Driver Alert System</b></p> <p>There has been a very large increase in road accident due to drowsiness of driver while driving which leads to enormous fatal accidents .The driver lose his control when he falls sleep which leads to accident .This is because when the driver is not able to control his vehicle at very high speed on the road. This project can generate a model which can prevent such accidents. Temperature sensor and smoke sensor are used for further safety system in the vehicle.</p>
<p><b>TG-622</b></p>	<p><b>IOT Liquid Level Monitoring System</b></p> <p>This project IOT Liquid Level Monitoring system is a very innovative system which will inform the users about the level of liquid and will prevent it from overflowing. To demonstrate this system makes use of 4 containers. For this the system uses ultrasonic sensors placed over the containers to detect the liquid level and compare it with the container’s depth. The system makes use of AVR family microcontroller, LCD screen, Wi-Fi modem for sending data and a buzzer. The system is powered by a 12V transformer. The LCD screen is used to display the status of the level of liquid in the containers. Whereas a web page is built to show the status to the user monitoring it. The web page gives a graphical view of the containers and highlights the liquid level in color in order to show the level of liquid. The LCD screen shows the status of the</p>

	<p>liquid level. The system puts on the buzzer when the level of liquid collected crosses the set limit. Thus this system helps to prevent the wastage of water by informing about the liquid levels of the containers by providing graphical image of the containers via a web page.</p>
<p><b>TG-623</b></p>	<p><b>Prepaid Energy Meter with Theft Detection</b></p> <p>The Prepaid Energy Meter with Theft Detection System mainly works for detecting internal as well as external energy theft. Internal energy theft occurs after the energy reaches to energy meter while external energy theft occurs before the energy reaches to energy meter. The system works for theft detection and also allows user to use prepaid energy meter functionality. Using this functionality user will able to pay in advance and use the exact amount of energy. The system starts with GSM modem Connection and first configures the user number and gives authority to that number. When the external or internal theft occurs in system, the system immediately inform authority or user with message also system will able to send message when the prepaid balance is low or Zero. The system is made up of AVR Microcontroller, current sensors, GSM modem, LCD display, energy meter and loads.</p>
<p><b>TG-624</b></p>	<p><b>IOT Based Fire Department Alerting System</b></p> <p>Fires are one of the most widespread causes of deaths by accident. Instant alerting to the fire department is necessary to ensure immediate action. Every minute can save many lives in such situations. So here we propose an IOT based automatic fire department alerting system that instantly and automatically alerts the fire department and informs about the situation so that immediate action can be taken. The system uses Fire sensor along with PIR sensor to efficiently detect fires and alert fire department over IOT. We use an Arduino Uno in order to check if a sensor is triggered. Then it reconfirms if it really is a fire outbreak using temperature sensors in order to confirm of fire outbreak. The system now uses a Wi-Fi connection to access IOT server and transmit data about this incident over internet. We here use IOTGecko platform to develop the web based IOT interface. As soon as IOTGecko system receives the sensor</p>

	<p>data it checks the device id data was sent from and displays device id(which will be named after area/flat id). The system now displays the fire incident with alarm buzzer in the fire department over internet so that the fire department personnel are alerted about the incident to take necessary action.</p>
<b>TG-625</b>	<p><b>Smart Solar Grass Cutter with Lawn Coverage</b></p> <p>The smart grass cutter system puts forth a completely automated lawn mover mechanism. The robotic vehicle is equipped with a grass cutter blade that allows for grass cutting at high RPM. The system has a smart functionality that allows it to cover the complete area of a lawn or garden by detecting corners using ultrasonic sensor and moving in a zigzag manner in order to cover the entire area. This efficient system uses a microcontroller based circuit in order to achieve this functionality. It is a battery operated system that uses 2 batteries. One battery is used to run the vehicle movement DC motors and the other one is used to power the grass cutter motor. Also the system uses a solar panel to demonstrate the charging of vehicle movement battery. The microcontroller operates the vehicle movement dc motors as well as the grass cutter at the same time as monitoring the ultrasonic sensors. The microcontroller smartly operates the dc motors using the motor driver IC to achieve desired movement based on ultrasonic inputs. The system also uses a gyro sensor in order to achieve perfect 180 degree turns in order to achieve complete lawn/garden coverage. Thus this system allows for fully automated grass cutting system without the need for any human intervention.</p>
<b>TG-626</b>	<p><b>IOT Solar Power Monitoring System</b></p> <p>Solar power plants need to be monitored for optimum power output. This helps retrieve efficient power output from power plants while monitoring for faulty solar panels, connections, dust accumulated on panels lowering output and other such issues affecting solar performance. So here we propose an automated IOT based solar power monitoring system that allows for automated solar power monitoring from anywhere over the internet. We use Arduino based system to monitor a 10Watt solar panel parameters. Our system constantly monitors the solar panel and transmits the power</p>

	<p>output to IOT system over the internet. Here we use IOT Gecko to transmit solar power parameters over the internet to IOT Gecko server. It now displays these parameters to the user using an effective GUI and also alerts user when the output falls below specific limits. This makes remotely monitoring of solar plants very easy and ensures best power output.</p>
<b>TG-627</b>	<p><b>Interactive Voice Response System for Educational Institution</b></p> <p>The interactive voice response (IVR) system serves as a bridge between people and computer databases by connecting the telephone network with the database. the telephone user can access the information from anywhere at any time simply by dialing a specified number and following an on-line instruction when a connection has been established. The ivr system uses pre-recorded or computer generated voice responses to provide information in response to an input from a telephone caller. the input may be given by means of touch-tone or dual tone multi-frequency (DTMF) signal, which is generated when a caller presses a key of his/her telephone set, and the sequence of messages to be played is determined dynamically according to an internal menu structure (maintained within the IVR application program) and the user input. The IVRS system which will be designed will provide an ideal platform for the operation of start-ups and existing small concerns. it will be a highly economical and efficient way to replace the dialogic card which is very costly and requires a high maintenance and regular up gradation. The IVRS system which will be designed will consist of simple components like microcontroller and some basic application chips interfaced to a pc which will have small software running in the backend while the other jobs are performed on the front end.</p>
<b>TG-628</b>	<p><b>IOT Electronic Door Opener</b></p> <p>There has been a need of controlling Electronic doors remotely for automation and security purposes. This project tries to fulfill the same using the IoT technology implementation over the electronic door lock making it a super advanced door opener cum locking system. The objective of achieving automation and security is simultaneously achieved using web connectivity of the project with IoT Gecko website. IOT Based Electronic Door Opener Project is controlled by ATmega family</p>

	<p>microcontroller. The project communicates over internet using Wi-Fi module. We use a demo model of door as shown in the video. On the IOTGecko website once the authorized person logs in he/she gets a direct access of the door to open or close it, no matter how far the door is physically from him/her. When a command of opening the door is received from the web interface the controller instructs the relevant drivers to start the motor of the door in a particular direction till the door fully opens and then stop. Likewise, when the system receives the command to close the door the controller instructs the drivers of the motor rotate in counter direction till the door fully closes. In this way the automation and security is achieved using this project which gives access of the door authorized person even though they are physically present at some remote location from the door.</p>
TG-629	<p><b>E – Street: LED Powered Intelligent Street Lighting System with Automatic Brightness Adjustment Based On Climatic Conditions and Vehicle Movements</b></p> <p>Monitoring of street lights and controlling is of utmost importance in developing country like India to reduce the power consumption. The paper presents a remote streetlight monitoring and controlling system based on LED and wireless sensor network. The system can be set to run in automatic mode, which control streetlight. This control can make a reasonable adjustment according to the seasonal variation. Also this system can run in controlled mode. In this mode, we can take the initiative to control streetlights through PC monitor terminal. This street light system also includes a time cut-out function, and an automatic control pattern for even more electricity conserving, namely when vehicles pass by, the light will turn on automatically, later turn off. This design can save a great amount of electricity compared to streetlamps that keep a light during nights. The design implements traffic flow magnitude statistics without adding any hardware, facilitating transportation condition information collecting. Furthermore, this system has auto-alarm function which will set off if any light is damaged and will show the serial number of the damaged light, thus it is easy to be found and repaired the damaged light. The system can be widely applied in all places which need timely control such as streets, stations, mining, schools, and electricity sectors and so on. In addition, the system integrates a digital temperature and</p>

	humidity sensor, not only monitoring the streetlight but also temperature and humidity.
<b>TG-630</b>	<p><b>IOT Liquid Level Monitoring System</b></p> <p>This project IOT Liquid Level Monitoring system is a very innovative system which will inform the users about the level of liquid and will prevent it from overflowing. To demonstrate this system makes use of 4 containers. For this the system uses ultrasonic sensors placed over the containers to detect the liquid level and compare it with the container's depth. The system makes use of AVR family microcontroller, LCD screen, Wi-Fi modem for sending data and a buzzer. The system is powered by a 12V transformer. The LCD screen is used to display the status of the level of liquid in the containers. Whereas a web page is built to show the status to the user monitoring it. The web page gives a graphical view of the containers and highlights the liquid level in color in order to show the level of liquid. The LCD screen shows the status of the liquid level. The system puts on the buzzer when the level of liquid collected crosses the set limit. Thus this system helps to prevent the wastage of water by informing about the liquid levels of the containers by providing graphical image of the containers via a web page.</p>
<b>TG-631</b>	<p><b>Home and Industrial Safety Using Fire and Gas Detection System</b></p> <p>Gas leakages and fire outbreaks in industries as well as houses have lead to wide destruction and losses in the past. Gas leakages and fire outbreaks both spread widely and lead to even greater loss of life and property if proper action is not taken on time. So here we propose a system that detects gas as well as fire outbreaks and alert us accordingly so that proper action may be taken to control it. For this we system we use a gas sensor along with a temperature sensor interfaced to the microcontroller. The microcontroller is also in turn connected to an LCD screen and a buzzer to show the alerting part. As soon as a fire starts the rise in temperature is recorded by out temperature sensor. When temperature rises beyond a certain limit it sends a signal to the microcontroller the microcontroller processes the signal and displays the fire alert status on LCD screen and also sounds the buzzer. Now the gas monitor too constantly</p>

	<p>monitors for any gas leakage. As soon as any gas is detected at the sensor it sends a signal to the microcontroller. The microcontroller now processes this data and sounds the buzzer and also displays the gas alert message on the LCD screen.</p>
<p><b>TG-632</b></p>	<p><b>Smart Trolley in Mega Mall</b></p> <p>Microcontroller based design, has acquired the status of most happening field in electronics. This is highly specialized field that has the power of integrating thousands of transistors on single silicon chip. Nowadays, in mall for purchasing variety of items it requires trolley. Every time customer has to pull the trolley from rack to rack for collecting items and at the same time customer has to do calculation of those items and need to compare it with his budget in pocket. After this procedure, customer has to wait in queue for billing. So, to avoid headache like pulling trolley, waiting in billing queue, thinking about budget, We are introducing new concept that is “SMART TROLLEY IN MEGA MALL”. In modern era, for automation of mall we are developing a microcontroller based TROLLEY which is totally automatic. It follows the customer while purchasing items and it maintains safe distance between customer and itself. Only customer has to hold the barcode side of the product wrapper in front of barcode scanner. Then corresponding data regarding product will be displayed on display. By using this trolley, customer can buy large number of product in very less time with less effort. At the billing counter, computer can be easily interfaced for verification and bill print out.</p>
<p><b>TG-633</b></p>	<p><b>Android Based Robot Implementation For Pick and Retain of Objects</b></p> <p>Now-a-days it is complicated about terrorists and their bomb attacks. Even though we found a bomb it is much more complicated to remove the bomb safely. Many lives are depending on the bomb diffusion. Our project helps in diffusion of bombs with safe distance from the bomb. Bomb diffusion is controlled with the help of wireless communication using android phones. By our project we can diffuse the bomb from safe distance and it can save more lives. We can send the few commands to the robot situated at the bomb. We can control two motors situated at the wheels for direction</p>

	<p>control and other two motors at robot hand. With these four motors we can control all the directions of the robot and at the same time we can pick any object at any direction.</p>
<b>TG-634</b>	<p><b>Real Time Vehicle Locking and Tracking System using GSM and GPS Technology-An Anti-theft System</b></p> <p>This project deals with the design &amp; development of a theft control system for an automobile, which is being used to prevent/control the theft of a vehicle. The developed system makes use of an embedded system based on Global System for Mobile communication (GSM) technology. The designed &amp; developed system is installed in the vehicle. An interfacing mobile is also connected to the microcontroller, which is in turn, connected to the engine. Once, the vehicle is being stolen, the information is being used by the vehicle owner for further processing. The information is passed onto the central processing insurance system which is in the form of the SMS, the microcontroller unit reads the SMS and sends it to the Global Positioning System (GPS) module and using the triangulation method, GPS module feeds the exact location in the form of latitude and longitude to the user's mobile. By reading the signals received by the mobile, one can control the ignition of the engine; say to lock it or to stop the engine immediately. The main concept in this design is introducing the mobile communication into an embedded system. The designed unit is very simple &amp; low cost. The entire designed unit is on a single chip.</p>
<b>TG-635</b>	<p><b>Zig-Bee Based E-Menu Ordering System</b></p> <p>The system is developed to be useful in all kinds of restaurants who maintain a menu system. And also it should be affordable to even small restaurants. The Zig-Bee technologies are used as wireless communication standard in this project. The system will consists of two sections, one is a hand held device placed on every table in the restaurant and another section should be placed at billing section and supply section. The system also having a touch screen and graphical LCD interface for providing a smarter user interface menu ordering. The proposed system is intended to use by all kinds of restaurants for all classes of people. The graphical LCD used in it enables the</p>

	<p>feature of menu display with the graphical representation that will be easy to understand by illiterate people also.</p>
<b>TG-636</b>	<p><b>Secure Fingerprint Bank Locker with Image Capture</b></p> <p>As today fingerprint based system provides high accuracy in terms of security. Also there is a high demand for integration of fingerprint matching techniques for making secure authentication systems. Therefore we have introduced this bank locker system which integrates fingerprint reader in it so as to provide a good level of security. The main goal of fingerprint bank locker with image capture project is to provide security with no manual security flaws. It is easy to use and requires no special training or equipment. This system needs fingerprint authentication while operating the bank locker as well as captures the images of person who is handling the locker and saves it in memory card which can be later viewed with card reader to the bank authorized person. The functionality of system is that it will scan the fingerprint and if it matches with registered fingerprint the bank locker opens and also captures the image of user. The system uses an ATMEGA 328 microcontroller for this purpose.</p> <p>The microcontroller processes data sent by the fingerprint reader to check if user is registered, unregistered users are not allowed access. Controller operates the motors to open the locker door on encountering registered valid users. If the fingerprint does not matches with register fingerprint of user it will shows the error message as unauthorized user and immediately saves the picture in memory card. So, the system is very beneficial for stopping the bank locker robbery by providing security.</p>
<b>TG-637</b>	<p><b>Machine Overheat Detection with Alert</b></p> <p>This proposed system is used to detect temperature of devices that are overheated. This project is very beneficial especially in places like factories or industries consisting of big machines where it is very necessary to take some action in case the machine is overheated. The system uses a digital temperature sensor in order to detect temperature and pass on the data to the microcontroller. The 8051 microcontroller processes data</p>

	<p>and sends the temperature to be displayed on LCD screen. The display consists of 7 segment display unit to display up to 3 numbers. It consists of 4 push buttons for setting the high and low temperatures. Pressing set button allows user to increment and decrement the temperature of the system. The system uses 12V transformer to supply power to the system. We can set a limit to the temperature and in case if the system exceeds the temperature limit, an alarm rings to indicate that the system has exceeded the set temperature.</p>
<b>TG-638</b>	<p><b>RFID Based Bus Ticketing System</b></p> <p>This paper presents an automated system for ticketing in the Public Transport System (PTS) which is based on passenger identification. This is a user friendly system, which will automatically identify the passenger and deduct the passenger's fare according to the distance travelled. The Radio Frequency Identification (RFID) card and GPS are used to make the identification of passenger and transaction very precise. The cards being reusable, they are much more convenient compared to the paper based ticketing system. RFID cards are distributed among the public. The unique ID in the RFID cards are stored in a database in the internet along with personal data and creates accounts for each person. By accessing this database, it is thus possible to identify the traveler, check his account and deduct the fare from his/her account. Creating database facilitates efficient filtering of anti-social elements and gives firm assurance to both passenger and PTS about the transaction. Fare calculation is done with the help of GPS module and internet. So a change in fare does not create any confusion as fare calculation is done by evaluating position by GPS module and rate through internet. System thus reduces human errors and efforts. The RFID reader used is MFRC522. Minicomputer Raspberry Pi is used as control unit and programming is done using Python. GPS module 02 is used for the purpose of distance measuring. Servo motors and LCD are used for controlling and monitoring respectively.</p>
<b>TG-639</b>	<p><b>Automated Elevator with Overload Alert</b></p> <p>This system helps to indicate limit of an elevator, which is how many people can be</p>

	<p>inside an elevator at a particular time. The system displays the number of people inside an elevator with the help of 7 segment display. Each pair consists of 2 sensor pairs placed at a certain distance from one another in the opposite direction. The system includes Infra-Red Sensor pairs which are placed near the elevator door. These sensors senses when a person enters an elevator. It opens the door of the elevator and simultaneously increments the counter for the number of people entering the elevator. The IR transmitter is used to transmit IR rays straight to the receiver which receives the input and feeds this to an 8051 Microcontroller. The microcontroller process this input received. At this time the system also counts the number of people present and increments a counter on each arrival and decrements when a person exits from the elevator. The system even includes a buzzer for demonstrating an alarm. The buzzer starts ringing as soon as more number of people enters the elevator than the limit of the elevator which is already set and the buzzer stops ringing only when the people inside the elevator come outside the elevator. This will cause the counter to be decremented and the buzzer stops ringing as soon as the counter is less or equal to the limit of the elevator set.</p>
<p><b>TG-640</b></p>	<p><b>GSM Based Weather Reporting (Temperature/Light/Humidity)</b></p> <p>Here we propose a GSM based weather sensing and reporting project. The system senses temperature, as well as light and humidity and conveys this to the user wirelessly. Our system uses temperature sensor to detect and record current temperature. It uses a light sensor in order to detect current lighting conditions. Also a humidity sensor is used to detect current humidity conditions. All this data from sensors is conveyed to the microcontroller. The microcontroller now processes this data and passes is on to a GSM modem interfaced to it. The GSM modem now encodes this data as SMS message and sends this message to programmed user. Thus this puts forward a wireless GSM based weather monitoring system where the person does not need to be near the equipment to constantly monitor weather reports. The data is automatically sent to the user via a SMS.</p>

<p><b>TG-641</b></p>	<p><b>Petrol Bunk Automation with Prepaid Cards and GSM Communication</b></p> <p>Automated have added to the new look of the petrol bunks. A drastic change which has taken the city by storm is the petrol machines that have invoked a new look with automated systems invading this area also. No one can get updated details on the mobile using the cutting edge GSM Technology. This makes the customers know the exact quantity of petrol that has to be filled in, getting over the perennial problem of forgoing small change which most of the times the attendants at the bunks pocket for themselves. The traditional archaic pumps have now been replaced by more advanced EMP Petrol Pumps for proper filling of fuel. This not only ensures accuracy, but also saves a lot of time for customers and avoids misconceptions and arguments. To demonstrate this as a project we have developed a PIC Micro controller based Petrol bunk automation system.</p>
<p><b>TG-642</b></p>	<p><b>Intelligent Rain Sensing using Automatic Wiper System</b></p> <p>Over the past two decades, the automotive industry has aggressively researched ways to exploit modern computing and electronic advances in the development of safety, reliability, and entertainment technologies for vehicles. With drivers exposed to an ever increasing number of distractions, automatic rain-sensing wiper systems become an even more appealing feature, as they work to minimize the time the driver must take his/her hands off the wheel. Most traditional systems offer intermittent as well as variable speed operation. The traditional wiper system however requires driver constant attention in adjusting the wiper speed .Traditional windshield wiper speed constantly varies according to time and vehicle’s speed. Because the manual adjustment of the wiper distracts driver's attention, which may be a direct cause accidents. This is review paper for automatic wiper in various method and also explain the basic skeleton for adjust speed of wiper automatically cording to the amount of water on the windshield and in addition with also in advance removal of moisture inside the car while raining. The system activates the wiper to operate in full automatic mode and detect moister using CAN technology.</p>

<b>TG-643</b>	<p><b>E-Tracking System for Municipal Solid Waste Management Using RFID Technology</b></p> <p>With the increase of population of a country, proper management of cumulative of Municipal Solid Waste (MSW) becomes more acute for maintaining green environment. In conventional approach a number of trucks collect the MSW and then transport and transfer these MSW in a pre-specified location, but all the above jobs are not properly monitored. It is very important to monitor the trucks and record the information related to the collecting time and area from a central location to ensure the job well done. This project exploits the tremendous power of RFID technology and presents the development of an electronic monitoring (e-monitoring) system to overcome the above problem in the conventional approach. The proposed e-monitoring system is an embedded system that consists of RFID technology interfaced with PIC micro-controller and a web based computerized software. A web based GUI so that the system can be accessed from anywhere and information can be viewed by different group of people. The GUI will have the facility for the citizens to put their complaints and comments on the service. It has been tested in the laboratory environment as well as in the field environment. The test results show that the system functions properly and is working real time. Municipal authority can monitor the SW collecting status through the system and can generate different reports to improve the performance of their service.</p>
<b>TG-644</b>	<p><b>RFID Based Library Management System</b></p> <p>RFID systems are becoming very popular nowadays as they play a very vital role in reducing thefts with less human effort. Industries, shopping malls and departmental stores have started using RFID tags and readers in order to reduce the theft. Nowadays RFID systems have become an integral part of day-to-day life. RFID in libraries are a developing technology and is being implemented in small in small and medium sized</p>

	<p>libraries. Implementation of RFID will help in reducing the work burden of the administrator as well as the user in arranging and searching the books respectively. In the present systems employed there are special methodologies for arrangement of books, journals, DVDs and so on. These techniques need to be strictly followed in order to help the users find their book or their requisites. This paper helps in finding a solution to this tedious problem faced by most libraries in an easy way.</p>
<p><b>TG-645</b></p>	<p><b>Metal Detector Robotic Vehicle</b></p> <p>Land mines buried under the ground causes threat to the lives and affect the economy of the nation. Detection and removing of these mines manually is a dangerous task, which may sometimes causes accidents. In such situations robots are in detection of the land mines. Not only can land mines, these robots be used to detect any other metals presented in the ground. This article explains the metal detection robot that uses RF technology.</p> <p>The proposed system consists of transmitter and receiver circuit. The transmitter circuit transmits the commands required to operate the robot. The receiver circuit receives these commands through RF and moves the robot according to the received commands. A metal detector is interfaced to the controller in the receiver side. Thus whenever any metal is detected the robot stops there and buzzer starts ringing.</p>
<p><b>TG-646</b></p>	<p><b>Fingerprint Based Exam Hall Authentication</b></p> <p>Here we propose a fingerprint based examination hall authentication system. The system is designed to pass only users verified by their fingerprint scan and block non verified users. Our system consists of a fingerprint scanner connected to a microcontroller circuit. In registration mode the system allows to register up to 20 users and save their identity with respective id numbers in the system memory. After storage the person needs to first scan his finger on the scanner. The microcontroller now checks the persons fingerprint validity. If the fingerprint is authorized the microcontroller now sends a signal to a motor driver. The motor driver now operates a</p>

	<p>motor to open a gate. This ensures only authorized users are allowed to enter the examination section and unauthorized users are not allowed to enter without any human intervention.</p>
<b>TG-647</b>	<p><b>Automatic Railway Gate Controller (Using 8051)</b></p> <p>In general, Railway gates are opened or closed manually by a gate keeper. The information about arrival of train for opening or closing of door is received from nearby station. But some railway crossings are totally unmanned and many railway accidents occur at these unmanned level crossings. To avoid the human intervention at level crossings completely, we need to automate the process of railway gate control. This project deals with an interesting manner of automating the railway gate control where the gate is automatically opened or closed by detecting the arrival or leaving of the train.</p> <p>The principle of operation behind the working of this project lies in the functioning of IR Sensor. A Reflective type IR Sensor is used in this project. In Reflective Type IR Sensor, the IR transmitter and receiver are placed side by side. When there is no obstacle in front of the sensor, the IR rays transmitted by the IR Transmitter will travel undetected as there are no rays falling on the IR Receiver. If there is an obstacle in front of the IR Transmitter and Receiver pair, the IR Rays gets reflected off from the surface of the obstacle and are incident on the IR Receiver. This setup can be configured to detect an object like a Train and in turn can be used to switch ON or OFF the loads like motors with the help of microcontroller.</p>
<b>TG-648</b>	<p><b>Wireless Red Signal Alerting For Trains</b></p> <p>Railway networks are the biggest transportation networks used worldwide. Handling and managing such a vast network is not an easy task. The rail network consists of a lot of junctions and vast amount of signals on set distances to manage the train flow. Well the train driver needs to constantly check for any red signals on every post and decide whether to stop or move forward. It is very difficult to constantly keep track of every</p>

	<p>visual signal for the driver. So here we propose an automatic alerting system that alerts the driver of any red signal ahead. Our system works on the basis of RF Technology. Whenever a signal turns red, it sets on an RF transmitter fitted in it. The transmitter constantly transmits RF signals informing about a red signal. Now every train needs a receiver circuit on it. The receiver circuit when comes within certain range of the RF transmitter, it receives the input and sends it to the microcontroller. The microcontroller then processes this data in order to alert the driver about the signal ahead.</p>
<b>TG-649</b>	<p><b>Biometric Attendance System Circuit</b></p> <p>Biometrics is the emerging technology used for identification. Biometric refers to automatic identification of a person based on biological characters such as finger print, iris, facial recognition, etc. In this article finger print based attendance system is proposed. Attendance in educational institutions, industries will require more paper work and time. To reduce this, automatic attendance system using finger print was developed. We also call it as Biometric Attendance System. We have already seen how to used RFID Based Attendance System using AVR Microcontroller. Here, we are going to explain how to design the biometric attendance system circuit using AVR Microcontroller. The main aim of this circuit is to take the attendance and display when requested. Finger print identification is based on the fact that no two persons will have the same finger print in this world. This is because of the peculiar genetic code of DNA in each person. Finger print module differentiates between two fingers based on the ridges and valleys on finger print. When the finger print is given it stores the points where there are changes in the direction of ridges and valleys using some algorithms. Inside the finger print module a DSP processor is present to implement and analyze the algorithm. Main heart of the circuit is finger print module. This sends commands to the controller when ever finger print is matched. Microcontroller receives these commands from the finger print module and uses the internal EEPROM to store the attendance. Keypad is used to send the requests to the controller either enroll the new one or to save the attendance or to exit.LCD display displays the messages related to the commands received.</p>

<b>TG-650</b>	<p><b>Finger Print Voting System</b></p> <p>One of the major factors to be taken care of in a voting process is authentication and authorization of voters. Many conditions need to be checked to ensure these factors. Major conditions include:</p> <ol style="list-style-type: none"><li>1. Check authenticity of voter</li><li>2. Authorize legitimate voters to vote</li><li>3. Avoid double vote casting by any individual</li></ol> <p>Checking if all these conditions manually is a very complicated and exhausting task with many chances of human error. To avoid this we here propose a fingerprint based voting system project. We use a fingerprint module interfaced with microcontroller and an LCD screen in this system. The fingerprint module is used to sense fingerprints and provide to microcontroller for further processing. The system has list of eligible voters in it, the voting system tallies the recognized finger print against the ones stored in database. If match is found that person is allowed to vote. Once a vote is casted by that person his id is rolled out for that voting process. This avoids double vote casting. Thus our system provides for a fully automated voting system with finger print based authentication.</p>
<b>TG-651</b>	<p><b>Blue Nanny – Child Monitoring System</b></p> <p>Child safety at home is identified as one of the most important issues that concerns parents. Blue Nanny is a complete wireless system designed to assist child minding and help reduce the risk of child injury at home. It uses both Bluetooth technology and proprietary RF communication to provide parents with an instantaneous voice communication link to their child and constant awareness of their child’s location. Placing RF smart beacons in dangerous areas of the home or an area out-of-bounds</p>

	<p>(e.g. swimming pool, kitchen stove), a parental unit on the parent and/or child unit on the child can receive an alert if a child is detected nearby. This immediately notifies the parent of potential danger and can help prevent an accident. The number of RF beacons and level of child minding desired can vary, and can be configured using the Blue Nanny Application Software on PC. Once configured, the Parental Unit is programmed with the configurations via Bluetooth, and the PC is not required during normal operation. Blue Nanny aims to benefit families by preventing accidents in the home and providing parents with a constant awareness of their children's whereabouts. It allows parents to identify potentially dangerous areas and educate children about household dangers. Blue Nanny considers parental needs in varying household environments and provides a flexible solution to assist all types of child minding needs.</p>
<b>TG-652</b>	<p><b>Fingerprint Authenticated Device Switcher</b></p> <p>User Based Device control using fingerprint sensing. We come across areas where we need to switch no device for a particular user as soon as he enters. The device could be his Pc, fan, lights etc. For this purpose we suggest a fingerprint based device switcher project. The system switches on device for a particular user automatically on sensing him through his fingerprint scan. For this we use a fingerprint scanner interfaced to a microcontroller based circuit. As soon as a person enters he/she is allowed to scan his/her finger on the scanner. On scanning the data is sent to the microcontroller, based on this data the scanned copy is now verified for authentication. If the user is verified the microcontroller switches on a device (light) to indicate as the users verification.</p>
<b>TG-653</b>	<p><b>Rain Sensing Automatic Car Wiper</b></p> <p>Today's car wipers are manual systems that work on the principle of manual switching. So here we propose an automatic wiper system that automatically switches ON on detecting rain and stops when rain stops. Our project brings forward this system to automate the wiper system having no need for manual intervention. For this purpose we use rain sensor along with microcontroller and driver IC to drive the wiper motor. Our system uses rain sensor to detect rain, this signal is then processed by</p>

	<p>microcontroller to take the desired action. The rain sensor works on the principle of using water for completing its circuit, so when rain falls on it it's circuit gets completed and sends out a signal to the microcontroller. The microcontroller now processes this data and drives the motor IC to perform required action. The motor driver IC now drives a servomotor to simulate as a car wiper.</p>
<p><b>TG-654</b></p>	<p><b>Automated RF plus IR Based Paid Parking Manager System</b></p> <p>Current parking systems are all manually operated systems with personnel deployed to handle the parking process. Here we propose a fully automated parking management system. Here we use a combination of IR and RF technology in order to provide an advanced fully automated parking management system. The system keeps track of vehicles entering and exiting the system. Also keeps track of the balance amount of the vehicle, deducts a particular amount when vehicle enters the parking premises. Our system first takes user id through his rf notification. It then tallies the rf code to check for user balance in account. If user has sufficient balance then the system waits for him to arrive at the parking gate. The gate uses IR sensors to detect a car arrival. Once the IR sensor pair detects it gives an intimation to the system that the vehicle has arrived. The system then deducts balance from that particular account and increments the number of vehicles entered in the facility. It does not open the gate if user has insufficient balance. The system also continuously scans for number of vehicle exiting the gate through exit gate. An IR sensor pair at the exit gate is used for this purpose. When the sensor detects a car at exit gate it signals the system to decrease the count of parked vehicles by one. Thus we provide a fully automated parking management system that successfully parking space along with account balance management with ease.</p>
<p><b>TG-655</b></p>	<p><b>Billing System Based On RFID</b></p> <p>We usually come across areas where barcodes are used for product identification and billing. But these tags need to be visible and sometimes need double scanning. Also these cannot be used for card scanning. Here we propose a RFID based billing system.</p>

	<p>RFID tags are easy to scan. They are detected by scanner even if they are covered by something. They also avoid product theft since they can be detected at the facility gates. Our system proposes an RFID based billing system where we use RFID technology for product billing purpose. Our reader gathers the id and sends it to microcontroller for processing; it is displayed on an LCD display. This data can now be passed on to the computer for further billing and procedure.</p>
<b>TG-656</b>	<p style="text-align: center;"><b>GSM Patient Health Monitoring</b></p> <p>GSM based Patient Health Monitoring Project mainly works for allowing doctors or relatives of patient to check the status of patient health remotely. The system calculates the heartbeats and body temperature of patient and if it goes above certain limit then immediate informative alert message will be sent to the registered number. For this system we used AVR Family Microcontroller which is interfaced with LCD display, heartbeat sensor, and temperature sensor. The GSM based Patient health monitoring system works with GSM modem to send the data remotely to the registered number, system powered by 12V transformer. The system also featured with manual health button using that the patient with some other issues will also able to contact with doctor so, the system is very helpful for saving life of patient. The system also introduced a function through which a doctor will able to check the status of patient after a certain interval of time by sending message. The system efficiently updates doctor about health of patient as well as accurately calculates the health parameter of patient.</p>
<b>TG-657</b>	<p style="text-align: center;"><b>Ultrasonic Blind Walking Stick</b></p> <p>Blind stick is an innovative stick designed for visually disabled people for improved navigation. We here propose an advanced blind stick that allows visually challenged people to navigate with ease using advanced technology. The blind stick is integrated with ultrasonic sensor along with light and water sensing. Our proposed project first uses ultrasonic sensors to detect obstacles ahead using ultrasonic waves. On sensing obstacles the sensor passes this data to the microcontroller. The microcontroller then processes this data and calculates if the obstacle is close enough. If the obstacle is not</p>

	<p>that close the circuit does nothing. If the obstacle is close the microcontroller sends a signal to sound a buzzer. It also detects and sounds a different buzzer if it detects water and alerts the blind. One more feature is that it allows the blind to detect if there is light or darkness in the room. The system has one more advanced feature integrated to help the blind find their stick if they forget where they kept it. A wireless rf based remote is used for this purpose. Pressing the remote button sounds a buzzer on the stick which helps the blind person to find their stick. Thus this system allows for obstacle detection as well as finding stick if misplaced by visually disabled people.</p>
<p><b>TG-658</b></p>	<p><b>Postage Stamp Value Calculator</b></p> <p>The system aims at developing post office stamp value calculator project. The postal letters are applied a tariff rate based on their respective weights at the post office. In post offices, the normal weighing machines used in general stores cannot be deployed since their measuring range starts from kg and above. In post offices the weights of letters are considered in grams so that appropriate postal tariff may be imposed on it. Therefore there is a need for a weighing device with high precision to measure the exact weight and display accordingly. The system can be implemented through an electronic weighing device to perform this task with ease. The system not only displays the weight but also the stamp value to be imposed on the letter. The system consists of an 8051 family microcontroller along with a spring loaded weight sensor. The device measures exact weight and displays it along with the postal charge to be applied to it. The project can be further enhanced by attaching a printer that will print the stamp value for franking machine.</p>
<p><b>TG-659</b></p>	<p><b>Solar Street Lights with Auto Intensity Controller</b></p> <p>This system is mainly designed for LED based street lights with auto intensity control. This is done using solar power from photovoltaic cells. Due to the many benefits of using solar energy, many institutions are opting to make use of solar energy. For converting the sunlight to electricity, photovoltaic panels are used for charging the batteries. In order to control charging, charge controller is used. Intensity of street</p>

	<p>lights is required to be kept high during the peak hours. As the traffic on the roads tends to decrease slowly in late nights, the intensity can be reduced progressively till morning to save energy. Thus, the street lights switch ON at the dusk and then switch OFF at the dawn automatically. The process repeats every day. High Intensity Discharge lamps (HID) used for urban street light are based on principle of gas discharge, thus the intensity is not controllable by any voltage reduction method as the discharge path is broken. LED lights are the future of lighting, because of their low energy consumption and long life they are fast replacing conventional lights world over. White Light Emitting Diode (LED) can replace the HID lamps where intensity control is possible by pulse width modulation. The intensity control helps in saving energy during late nights while traffic density on the streets is low. A programmable microcontroller of 8051 family is engaged to provide different intensities at the different times of night using PWM technique, for energy saving for solar based system, using a charge controller for battery charging, overload and deep discharge protection. Further enhancement to this project can be done by using time programmed dusk to dawn switching that is based on latitude and longitude of a place. This can also be interfaced to a LDR to follow the switching operation.</p>
<p><b>TG-660</b></p>	<p style="text-align: center;">TECHNOLOGY SIMPLIFIED</p> <p><b>Vehicle Movement Based Street Lights Project</b></p> <p>The project aims at saving energy by detecting the vehicle movement on highways and switching on the block of street light ahead of it and simultaneously switching off the trailing lights. The project requires sensors to detect the vehicle movements and switches on the lights ahead of it. As soon as the vehicle moves ahead the trailing lights automatically switches off. This can be used to save a lot of energy instead of using conventional system where the street lights are remained ON. Another mode of operation can be used where the lights are remained ON with 10% intensity and when the vehicle passes by the lights ahead of it are switched on with 100% intensity and the trailing lights revert back to 10% intensity. PWM is used for intensity control through microcontroller. The sensors sense the vehicle movements and send it to a 8051 microcontroller that initiates commands for switching the lights ON/OFF.</p>

<b>TG-661</b>	<p><b>TV Remote Controlled Home Appliances Project</b></p> <p>The project is designed to operate electrical loads using a TV remote. The remote transmits coded infrared data which is then received by a sensor interfaced to the control unit. The system operates electrical loads depending on the data transmitted from the TV remote. Operating conventional wall switches is difficult for elderly or physically handicapped people. This proposed system solves the problem by integrating house hold appliances to a control unit that can be operated by a TV remote. RC5 based coded data sent from the TV remote is received by an IR receiver interfaced to the microcontroller of 8051 family. The program on the microcontroller refers to the RC5 code to generate respective output based on the input data to operate a set of relays through a relay driver IC. The loads are interfaced to the control unit through the relays. The system can be used in existing domestic area for either operating the loads through conventional switches or with the TV remote. The project can be enhanced by using radio frequency technology where the operational range shall be independent of line of sight distance as often encountered with IR type of remote control.</p>
<b>TG-662</b>	<p><b>Digitally Controlled Home Automation Project</b></p> <p>The project is a home automation system that uses DTMF connection to control the home appliances remotely. It overcomes the limitations of conventional wall switches that have to be operated by physically going near to then and switch on the button. The system uses DTMF by which one can control home appliances by dialing the designated number for particular load. One can operate it from home phone or by making a call to home number from outside. The system uses DTMF technology that receives commands from phone and produces digital output which initiates relay driver to switch ON/OFF the load appliances. For this the system we use De-Multiplexer, flip flop IC, DTMF Decoder. This DTMF technology allows the user to send commands to operate the appliances via a mobile phone and avoids the use of microcontroller. In order to use this system the user has to make a call to the mobile phone connected to this system. Once the call is received by the mobile phone connected to the system, the user can now send commands to operate the home appliances. For this the system</p>

	<p>makes use of lamps to demonstrate AC loads and uses 12V transformer to power the system.</p>
<p><b>TG-663</b></p>	<p><b>Wireless PC Communication System</b></p> <p>The project is a wireless message communication system that enables communication between two computers by making use of 2.4GHz trans-receiver units. The project can be used in offices for communication between employees or managers. For initiating real time bidirectional communication wirelessly a pair of 2.4 GHz transceiver modules is used that are provided 5volt DC and alarm circuits. A buzzer is used to notify whenever one user initiates a chat or sends a message. The PCs are connected via a pair of transceiver modules with the help of a DB9 (De-Sub) connector and serial data cord. RS232 protocol is used between the modules and the PC for communication purpose. The trans-receiver units are supplied power by an on-board dedicated AC to DC.</p>
<p><b>TG-664</b></p>	<p><b>Car Speed Checker with LCD Display</b></p> <p>The project is a speed checker system that can detect rash driving and any kind of speed violation on highways and alert the traffic authorities. The conventional system uses a handheld radar gun which is aimed at the vehicle to record its speed and if there is any speed violation, nearest police station is informed. This process involves a lot of time consumption. Hence the proposed system is used to check the speed by calculating the time taken to travel between two set points at certain distance. An IR transmitter and a receiver are installed on the set points on either side of the road. A control unit calculates the time taken by the vehicle to travel from one set point to other and calculates the speed that is displayed on seven segment display. If the calculated speed limit exceeds the set speed, a buzzer is sound which alerts the road transport authority.</p>
<p><b>TG-665</b></p>	<p><b>Paid Car Parking Project Based on RFID</b></p> <p>The project is a car authorizing system where the system can only allow a car entry</p>

	<p>when a valid RFID card id swiped by the car owner. The system also had paid parking facility where the amount of parking gets deducted automatically whenever the card is swiped and the available number of car parking are displayed on a seven segment display. The project requires a sensing circuits and a microcontroller to monitor the entry and exits of cars. The entry and exit is operated by an H-bridge arrangement. This arrangement operates the motors that enable exit and entry by opening and closing the door clockwise and anticlockwise. Whenever the card is swiped a buzzer sound comes. With every entry the available number of parking gets reduced by one and with every exit it gets reduced by one and is displayed on seven segment display.</p>
<p><b>TG-666</b></p>	<p><b>Device Load Monitor with Programmable Meter For Energy Audit</b></p> <p>The system is designed in order to calculate the energy consumption of a load in units and the cost incurred over the use in rupees in accordance to the number of hours that the load is to be used. The result is provided instantly allowing user to save time wasted in energy audits. An energy audit is a power consumption survey of the amount of units consumed by a particular device and the cost incurred over it to determine if the device is economical use in domestic or industrial sectors. Since electricity cost per unit has increased a lot these days, energy audits for devices have gained importance. Our project consists of an instant energy auditing system using 8051 microcontroller that is able to calculate the consumed units and cost incurred by device use over given time. The input data including energy tariff and the number of hour's device is to be used is fed by user into the system. Based on this data the system instantly displays the cost and units consumed within no time.</p>
<p><b>TG-667</b></p>	<p><b>TV Remote Controlled Robotic Vehicle Project</b></p> <p>The project is designed to control a robotic vehicle using a standard TV remote. IR sensor is interfaced to the control unit on the robot for sensing the IR signals transmitted by the remote. This data is conveyed to the control unit which moves the robot as desired. An 8051 series microcontroller is used in this project as control device. Transmitting end uses a TV remote through which IR commands are</p>

	<p>transmitted. At the receiver end, these commands are used for controlling the robot in all directions such as forward, backward and left or right etc. At the receiving end the movement is achieved by two motors that are interfaced to the microcontroller. RC5 based coded data sent from the TV remote is received by an IR receiver interfaced to the microcontroller. The program on the microcontroller refers to the RC5 code to generate respective output based on the input data to operate the motors through a motor driver IC. The motors are interfaced to the control unit through motor driver IC. Further the project can be enhanced by DTMF technology. With this technology we can control the robotic vehicle by a cell phone. This technology has an advantage over long communication range as compared to line of sight communication in IR technology.</p>
<p><b>TG-668</b></p>	<p><b>SMS Controlled Railway Level Gate Control with Programmable Numbers</b></p> <p>The project provides a system that allows user to operate the railway level crossing gate through SMS sent by operator/in charge. The operation of the railway level crossing is usually operated manually or through wired electronic media. A person needs to be present to operate it from the control room by pulling a lever or button. The system allows operation of railway level crossing through SMS thus allowing user to operate it from any range, anywhere in the world. Operator may open and close railway crossing gate from anywhere through a simple SMS. This functionality is achieved through a GSM modem interfaced to the System that reads the SMS commands from user. Suppose if the operator sends a close message it is recognized by the modem and instructs the motor to close the gate. In order to open, the operator sends an open command; this command is received by the modem. On reading it, the GSM modem passes this to the 8051 microcontroller which in turn instructs the motor driver IC to operate motors for specific command. Also the gate status is displayed on an LCD displays as opened or closed.</p>
<p><b>TG-669</b></p>	<p><b>Energy Management System with Programmable Numbers using GSM</b></p> <p>The project aims at a system allowing user to control home based appliances through</p>

	<p>SMS along with acknowledgements. Here user need not switch home appliances on and off manually. Our system allows user to operate these devices through SMS, also the status weather the device is switched on or not is sent to user via a return SMS. This can be used by domestic users and company users to operate as well as check status of home and company appliances from anywhere in the world. It is a very convenient system for users since it allows them to easily control and monitor these appliances from anywhere. An example is that a person may switch on his House or office AC 15 minutes before he arrives so that he gets a cool environment as soon as he reaches there. The system works in the following manner; the SMS sent by user is received by the GSM receiver and then sent to an 8051 microcontroller in order to process it. The microcontroller then activates the appropriate relay for that appliance and controls it. User may also send a query SMS in order to just get the status of an appliance. The query SMS is returned to user with the status of that particular appliance. Also user may see all appliance status on an LCD display.</p>
<p><b>TG-670</b></p>	<p align="center"><b>Monthly Electricity Billing Display with Bill SMS Feature</b></p> <p>The project provides a system that allows for consumed electricity reading in units as well as the amount charged over it to the user. Our system provides the electricity readings on an LCD screen as well as can SMS this reading and cost in rupees to the user.</p> <p>This lets the user know about his exact electricity units consumed and cost directly from his meter so that there is no chance of bill tampering. The project allows a two way reading, one on LCD display and the second on SMS. Our project consists of GSM modem connected to a microcontroller of 8051 family. The system continuously monitors electrical pulses and calculates the unit consumption. The system then uses the cost of each unit to calculate the electricity cost. It then sends all this data to user and electric company via SMS and also displays it on an LCD screen for viewing. The system can be further enhanced to receive user messages and control load operations.</p>
<p><b>TG-671</b></p>	<p align="center"><b>Shuttling Metro Train between Stations Project</b></p>

	<p>This project is designed to demonstrate the technology used in metro train movement which are used in most of the developed countries. This train is equipped with a controller that enables the automatic running of the train from one station to another. This proposed system is an autonomous train and it eliminates the need of any driver. Thus, any human error is ruled out. In this project microcontroller from 8051 family has been used as CPU. Whenever the train arrives at the station it stops automatically, as sensed by an IR sensor. Then the door is opens automatically so that the passengers can go inside the train. The door then closes after a prescribed time set in the controller by the program. It is also equipped with a passenger counting section, which counts the number of passengers leaving and entering the train. The door closes when it reaches maximum occupancy level irrespective of time allotted for the door to remain open. The passenger counts are displayed on a seven segment display interfaced to the microcontroller. The movement of the train is controlled by a motor driver IC interfaced to the microcontroller. The train incorporates a buzzer to alert the passengers before closing the door and also warn them before starting. As the train reaches the destination the process repeats thus achieving the desired operation. Further the project can be enhanced by making this system more advanced by displaying the status of the train over an LCD screen for the convenience of the passengers. The status of the train consists of the parameters like, expected arrival and departure time etc.</p>
<b>TG-672</b>	<p><b>GPS + GSM Based Advanced Vehicle Tracking System Project</b></p> <p>The project is designed to find out the exact location of any vehicle and intimate the position to the concerned authority about through an SMS. This system includes a GPS modem which retrieves the location of a vehicle in terms of its longitude and latitude. This data is fed to the microcontroller which is interfaced with a GSM modem. Microcontroller retrieves the location details from the GPS and sends it to the concerned authority in the form of an SMS over GSM modem on periodical intervals so set by the user. An LCD display is interfaced to the microcontroller for crossing the data received before being sent over GSM</p> <p>Adopting this technology will be highly useful to transport companies to keep tracking their vehicles. This project can be further enhanced by making an arrangement to stop</p>

	<p>the vehicle ignition by the owner remotely by sending an SMS in theft situations.</p>
<b>TG-673</b>	<p><b>Android Controlled Pick And Place Robotic Arm Vehicle Project</b></p> <p>The system provides a pick and place robotic arm which is a soft catching gripper system. It can be used to pick and place objects as needed. This arm is mounted on a robotic vehicle that can be controlled wirelessly through an android mobile phone. The android phone acts as the controller used to transmit the control commands through Bluetooth. These commands are used to operate the robot front, backwards, left and right directions. At the receiver side four motors are used, two to drive the vehicle and the other two used to control the arm movement and gripper movement respectively. The android phone is used as remote controlling device used to control the robotic vehicle. The use of Bluetooth technology provides adequate operational range with instant transmissions. The microcontroller after receiving these commands, operate required motors through the driver IC. It can be remotely controlled by any android device. This robotic vehicle may be used in industrial or even domestic purposes and even as a help for industrial workers.</p>
<b>TG-674</b>	<p><b>Android Controlled Fire Fighter Robot</b></p> <p>Our proposed project aims to develop an android controlled fire fighter robot that can be used to extinguish fires through remote handling. The vehicle consists of a water tank along with a pump which can throw water when needed. The system uses an 8051 microcontroller for this purpose. The android device is used as a transmitter to send over controlling commands to the vehicle. The android device provides a good touch based GUI for controlling the robotic vehicle. The Bluetooth receiver on the vehicle is</p>

	<p>used to receive those commands sent by the android device. These are then fed to the motors responsible for controlling the vehicle movements in front, back, left and right directions. The Bluetooth receiver is interfaced with an 8051 microcontroller for this purpose. The microcontroller after receiving input commands operates the motors through a driver IC for vehicle movements. The use of android has one more advantage in addition to improved GUI. It allows use of Bluetooth technology for communication allowing the vehicle to operate in a good range from the device. The system can also be later enhanced through the use of a wireless camera to be used for monitoring purposes.</p>
<b>TG-675</b>	<p><b>Motion Based Automatic Door Opener</b></p> <p>Our system puts forward an automatic and precise door opening system based on human movement sensing near the door. Well opening a door in places like hotels, Shopping complexes, and offices can be a tedious task and sometimes requires hiring a person just for the sake of opening door whenever a person arrives. Well this project proposes a system that allows for automatic door opening solution by sensing human presence near it. Our system achieves this functionality with the help of PIR sensors. PIR stands for passive infrared sensors. Every live body emits some infrared energy. This energy is sensed by a PIR sensor from a good distance. This signal is then processed and door is opened and closed based on this data. When a living being arrives within the sensor range, it detects its presence and sends out a command that opens the door. The door then automatically closes after a specific time delay if there is no further motion near the door. The system can be later enhanced by integrating counter mechanism so as to keep track of the number of persons inside the facility.</p>
<b>TG-676</b>	<p><b>Attendance System Based On RFID Project</b></p> <p>Our project consists of an RFID based attendance system that allows for automatic attendance marking by using RFID tags. Every student is provided with a unique authorization tag/card that is used to record his/her attendance. A lot of time is wasted in schools and colleges for manual attendance procedures, in such cases our system</p>

	<p>provides an instant and automated attendance marking system. Every authorized student is provided with a unique RFID tag/card with his/her details fed in it. The tag consists of a built in integrated circuit that stores this data through modulating and demodulating transmitted radio frequency signals. The data thus stored in this card is the unique identification of that person. As soon as the card is placed in front of the RFID reader, the data in it is read and attendance for that student is registered. This is done with the help of an 8051 microcontroller interfaced with the reader. If it is a registered student, then a confirmation is displayed on an LCD screen, else a rejection message is shown that denies the attendance. All student attendance status can be later obtained from the system when the status button interfaced with the microcontroller is pressed. This saves a lot of time and effort in student attendance registration. This system can later be further improved by adding attendance SMS to parents or using biometric attendance systems.</p>
TG-677	<p><b>Home Appliance Control Using Android Application Project</b></p> <p>Our project controls electrical loads by making use of an android application. The proposed system is used to control electrical loads based on the Bluetooth input signal received from the android device. It becomes difficult to keep operating electrical switches manually each time by elderly and handicapped people. This system solves the issue by interfacing a unit with home appliances that switches these loads based on the input received from android device. The android device may be any android based phone or tab having an android OS. The app also provided an effective GUI for providing this functionality. An 8051 microcontroller is used in this system. The Bluetooth receiver is interfaced with microcontroller in order to accept the commands and then react accordingly. It operates the loads through a set of relays using a relay driver IC. Relays are used between loads and the control unit. This system is to be used in various domestic applications controlling as well as in industrial setups. The system power supply setup contains a step down transformer of 230/12V, used to step down the voltage to 12VAC. A bridge rectifier is used in order to convert it to DC later. A capacitive filter is then used in order to remove the ripples and then regulate it to +5V by making use of a 7805 voltage regulator, that is needed for microcontroller and other</p>

	components operation.
<b>TG-678</b>	<p><b>Security Access Control Using RFID Project</b></p> <p>Our project aims at providing a secure authentication system based on RFID tags that allow only people with authorized RFID tags to access secure area. Security is an important issue for every enterprise. It is important to protect physical as well as intellectual property protection. Due to this concern only authorized people with proper tags must be allowed to enter the premises. The tag holds an integrated circuit that is used to store, process data as well as modulate and demodulate the RF signals being transmitted. So as soon as a person brings the RFID tag/card before the reader, the card is scanned and card data is compared with registered user's data. If the data matches, microcontroller turns ON the load through a relay that is switched by microcontroller output. An LCD display is used to show an "AUTHORIZED" message in case the tag matches else it shows "UNAUTHORIZED" message. A lamp is also used along with the LCD display. This system can be improved later by implementing GSM technology in it. This allows sending SMS message to required person or authority as soon as an RFID tag is scanned.</p>
<b>TG-679</b>	<p><b>XBEE Transformer/Generator Health Monitor Project</b></p> <p>Our proposed project aims at remotely getting the information on distribution transformers using a GSM modem or Xbee. This application requires a temperature sensor, three potential transformers along with three current transformers. They work together to monitor three parameters of a generator/transformer and send this data to remote location. Three analog values are obtained through multiplexing in connection to a programmable 8051 family MC. It is connected through an ADC 0808 IC. The entire monitored sensor values are then sent in a sequential order according to the multiplexing frequency obtained from ADC by the microcontroller. It sends these parameters to the XBEE module that operates at 2.GHz in order to send over the data. A microcontroller interfaced system is used as a receiver that is used to receive the real time data along with error signals transmitted for desired relay required for displaying</p>

	<p>output on an LCD display. A step down transformer (230/12V) that is used to step down the transformer voltage to 12V is used with power supply. A bridge rectifier is then used in order to convert it to DC. A 7805 voltage regulator is then used to regulate it to +5 V that is required for the MC operation.</p>
<b>TG-680</b>	<p><b>Android Controlled Remote AC Power Control</b></p> <p>Our proposed project aims to have control over the Ac power applied to a load by controlling the firing angle of a thyristor. In comparison to various methods this method is quite effective to control such a power supply. The android interface required for sending commands can be sent through any android based phone/tab or any device running on android OS. The system makes use of a waveform zero crossing point that is detected by a comparator and the output of this is fed to the comparator. The microcontroller is programmed to delay triggering control by making use of an opto isolator interface to a pair of SCR's. The power through the SCR's is then applied to the load. The project makes use of an 8051 microcontroller for the operation. The commands sent via android device are received by a Bluetooth receiver mounted on the circuit. The receiver then processes the commands and sends it to the microcontroller for further processing. A lamp is used to demonstrate as a induction motor. The lamp intensity is varied as per the commands to simulate as induction motor speed.</p>
<b>TG-681</b>	<p><b>Android Controlled Railway Level Gate Control</b></p> <p>Our project aims at a railway level crossing gate opening/closing system operated through an android application. The opening/closing of railway gate is traditionally operated through manual lever pulling method. This method leads to a lot of accidents due to the rational technique and lever jamming. The system allows user to easily perform this operation through the use of a simple android based application. It operates by providing the opening and closing functionality of a railway gate by sending commands through an android application. The remote controlling application is provided through an android application. This application just any android OS based device to run on. A Bluetooth device attached to the railway gate is used to receive the</p>

	<p>Bluetooth commands. These commands are then passed on to an 8051 microcontroller which then performs the required action. On receiving opening command, it drives the motors to open the gate and closes the gate on receiving the close commands. It does this by driving the motor through a driver IC to achieve this functionality. Moreover even the status of gate needs to be seen. So the system is also integrated with an LCD display in order to display whether the gate is open or closed.</p>
<p><b>TG-682</b></p>	<p><b>RF Controlled Robotic Vehicle with Metal Detection Project</b></p> <p>Our project proposes a Metal detection robotic vehicle operated using RF remote control wirelessly. The project demonstrates real life robotic vehicles used to detect land mines or other metal based objects on its path. The vehicle is fitted with a metal detection system that senses metals and then alarms the user about it through a buzzing sound of land mine possibility. The system works in conjunction with an 8051 series microcontroller to achieve this operation. The push buttons are used to send commands to move the vehicle forward, backward, left and right. Two motors at receiving end operate the vehicle as per the commands received. As soon as a command is sent it gets transmitted through RF transmitter. At receiving end an rf receiver reads the command and passes it to an 8051 microcontroller for processing. The microcontroller then operates the motors to move the vehicle through a motor driver IC. The metal detection system attached to the system detects any metal underneath it. On detection it automatically sends on a small buzzing alarm to notify user about it. Thus the metal detection system coupled with a robotic vehicle allows for operating the robotic vehicle on a 200 meter radius remotely through RF technology.</p>
<p><b>TG-683</b></p>	<p><b>CNG/LPG Gas Leakage Detection &amp; Accident Prevention System</b></p> <p>Gas leakage tragedies and accidents have led to heavy losses over the years. So it is very important to detect any gas leakage and prevent any accidents. So here we propose a system to detect LPG/CNG gas leakage scenarios and provide a security alert to intended users. We propose to build the system using a MQ6 gas detection sensor</p>

	<p>and interface it with Atmega 328 microcontroller along with an LCD Display. Our system uses the gas sensor to detect any gas leakages. The gas sensor sends out a signal to microcontroller as soon as it encounters a gas leakage. The microcontroller processes this signal and a message is displayed on the LCD so as to alert the user.</p>
<p><b>TG-684</b></p>	<p><b>SMS Voting System Project</b></p> <p>We come across areas where we need to gather votes from a wide range of people through an SMS. This system is widely used in large scale dance, singing as well as other type of public voting competitions. Here we propose a system to handle this voting process using a microcontroller. Our system is designed to get casted votes using a gsm modem and transfer the data to a microcontroller for further processing. User casted votes are first received by the GSM modem. This data along with votes is sent to the microcontroller. The microcontroller now decodes the voting data. It considers only one vote from every unique phone number. Multiple voting is not allowed. The microcontroller counts every unique vote and displays the results of voting process on an LCD display.</p>
<p><b>TG-685</b></p>	<p><b>Android Controlled Robotic Arm</b></p> <p>This system allows controlling a robotic arm by an android device. The android device is used to send Bluetooth commands. These commands are then sent to the Bluetooth receiver which is in the receiver circuit. This Bluetooth receiver is interfaced to the 8051 microcontroller which is processed by it. The 8051 microcontroller controls the motor to move the robotic arm as per the commands received. Thus this system uses an android application to move the robotic arm in upward or downward direction, or can send commands like grip open or close. Thus this Android controlled robotic arm project can be used to pick any object, move it, and place it anywhere as per the need. The receiver circuit instructs the motors to move the arm as per the commands received</p>

	<p>by the android application.</p>
<p><b>TG-686</b></p>	<p><b>Fire plus Hazardous Gas Detection and Instant SMS Alerting System</b></p> <p>Dangerous gas leakage as well as fires has caused wide damage to industries and economies in the past. These agents spread wildly and instant action needs to be taken as soon as such an event occurs. It is very important to detect a gas leak or fire as soon as it breaks out so that it can be prevented from spreading instantly. We here propose a system that detects gas leakage as well as fires as soon as they start and alerts the authorities automatically so that it can be stopped from spreading. Our system consists of gas sensor to detect any gas leakage as soon as it is encountered. The gas sensor sends a signal to the microcontroller as soon as gas leak is detected so that microcontroller can process it further. We use a temperature sensor in order to detect fire. The temperature sensor instantly sends a signal to the microcontroller on fire detection. Once the microcontroller receives signal from the sensors, it processes the input and then sends a signal to the GSM modem to send an SMS to the intended authorities so that they may take appropriate action.</p>
<p><b>TG-687</b></p>	<p><b>RTC Based Pump Switcher</b></p> <p>We usually come across areas where we need to switch devices on/off at particular time intervals. We simulate this system using a water pump that is controlled through RTC input. The RTC (Real time clock) is used to switch the motor on and off at desired time intervals. An RTC outputs real time signals which need to be converted into digital signals for further processing. The RTC provides these inputs to the microcontroller. The microcontroller then checks for time. It then switches on off</p>

	<p>motor when the RTC time matches pre defined time.</p>
<p><b>TG-688</b></p>	<p><b>Automatic Unauthorized Parking Detector with SMS Notification To Owner</b></p> <p>A large number of personnel are deployed to check for unauthorized parking and fine those owners. But owners evade the fine by various illegal means like bribing the personnel, threatening them etc. Towing vans need to manually search for illegally parked vehicles. This system requires large overhead costs in manpower payment, fuel and other physical surveillance. Here we propose a system that allows for automatic illegal parking detection and alerting. The system consists of integrating an RFID transmitter in every vehicle. RFID receiver circuit is mounted on every area where parking is not prohibited. If a vehicle is parked in an area where parking is not prohibited the RFID transmitter comes in rang of the receiver circuit. Once this happen the RFID reader reads the transmitter id and can instantly alert authority with area code so that authorities can directly arrive at the spot and sends an SMS to the car owner about the fine imposed on the vehicle.</p>
<p><b>TG-689</b></p>	<p><b>Dam Operation Based On Water Level</b></p> <p>We here propose an automatic dam water level monitor and controller system. Our proposed project uses sensors to sense the water level and then opens the dam gate (motor used to demonstrate as dam gate) according to the water level. Our system uses multiple water level sensors (float sensors) for these purposes. The sensors are mounted at three different levels in order to check water level and provide signals accordingly. When water reaches first sensor it is sensed by it and displayed. When water reaches second sensor it provides a signal to the microcontroller and it opens the dam gate partially. As soon as the water level reaches the third sensor, it signals the microcontroller and the microcontroller then signals the motor to run, which is demonstrated as opening the dam gate fully. Thus our proposed system allows for automatic dam gate opening based on water level sensing.</p>

<b>TG-690</b>	<p><b>Accurate Room Temperature Controller Project</b></p> <p>The main purpose of this Digital Temperature Controller is to control the temperature of any device like AC or any other electronic devices whose temperature keeps fluctuating and thus requires a constant watch on the device. The use of this system eliminates constant watching on the device by self controlling the temperature of the system. Our proposed project consists of digital temperature sensors for more accurate temperature control in various industries. Our system overcomes the disadvantages of thermostat/analog systems in terms of accuracy. This system can be used in any firm or organization where it is very important to maintain precise temperatures. LCD display is used to display the temperature and when the temperature exceeds the set limit, the lamp is switched off in order to control the temperature. The heater is demonstrated with the help of a lamp. After the heater is switched off, the AC is switched ON. Here AC is demonstrated with the help of small fan. After the AC is switched ON, it remains ON until the temperature reaches below the exceed limit. Thus the system keeps on switching ON/OFF the heater or the AC for automatically controlling the temperature of the system. The system uses a digital temperature sensor in order to detect temperature and pass on the data to the microcontroller. The 8051 microcontroller processes data and sends the temperature to be displayed on LCD screen. The display consists of 7 segment display unit to display up to 4 numbers. It consists of 4 push buttons for setting the high and low temperatures. Pressing set button allows user to increment and decrement high and low temperatures. After that the system detects temperature and switches the load when it goes beyond set limits.</p>
<b>TG-691</b>	<p><b>Home Automation Using Android</b></p> <p>This project helps to control the electrical loads with the help of android application. The electrical loads are controlled based on Bluetooth input signal. This input signal is received from the android device. Many times it becomes too tiring to operate the electrical switches manually every now and then. This is a big problem especially in case of aged or handicapped people. This system solves the issue by interfacing a unit with home appliances that switches these loads based on the input received from android device. The android device may be any android based phone or tab having an</p>

android OS. The app also provides an effective GUI for providing this functionality. An 8051 microcontroller is used in this system. The Bluetooth receiver is interfaced with microcontroller in order to accept the commands and then react accordingly. It operates the loads through a set of relays using a relay driver IC. Relays are used between loads and the control unit. This system proves to be very beneficial for controlling various domestic applications and in industrial setups. The power supply setup of the system contains a step down transformer of 230/12V, used to step down the voltage to 12VAC. To convert it to DC, a bridge rectifier is used. In order to remove the ripples, a capacitive filter is used and it makes use of 7805 voltage regulator to regulate it to +5V that will be needed for microcontroller and other components operation.

TG-692

#### **Vehicle Theft Detection/Notification with Remote Engine Locking**

The main purpose of this project is to prevent vehicle theft. This functionality is achieved by detecting vehicle status in theft mode and by sending an SMS which is generated automatically. This SMS is then sent to the owner of the vehicle. The owner can then send back the SMS in order to disable the ignition of the vehicle. Thus in this way crimes can be reduced to a great extent as vehicles today are being stolen in large number. Hence, vehicles today require high security which can be achieved with the help of this application. How the system works is when a person tries to steal the vehicle, the microcontroller is interrupted and the command is sent to the GSM modem to send SMS. On the receipt of the message, the owner sends back the SMS to the GSM modem. This is done in order to stop the engine. This GSM modem is interfaced to the microcontroller. This microcontroller on the receipt of the message uses a mechanism that helps to stop the engine. Motor is being used in this project in order to indicate vehicle ON/OFF state. Further enhancement can be done to this project by using a GPS system that helps to find out the exact position of the vehicle with the help of its latitude and longitude which then can be sent to the owner of the vehicle via SMS. This data can be then entered by the owner on Google map to find out the exact location of the vehicle.

<b>TG-693</b>	<p><b>GSM based Industry Protection System</b></p> <p>With heavy automation taking place these days, the number of industries as well as number of accident in those industries has increased substantially. Human errors and manual safety systems lead to increase in industrial accidents. So here we propose a GTSMN based industrial protection system that detects smoke, temperature as well as light to keep track of accidents. The system needs to detect if the temperature of a machine or environment goes above a certain level, if it goes above a level, it is an indication of a malfunction. So here we use temperature sensor to detect a possible accident. Next indication is the malfunction or overloading of machines leading to smoke. We use smoke detectors to detect smoke and similarly a light sensor to detect light due to spark or any flash caused due to malfunctions. All these indicators/sensors constantly provide their input to the microcontroller connected to them. The microcontroller constantly processes this data. On encountering a warning signal from any of these sensors the microcontroller now communicates this data to a GSM modem interfaced to it and sends out an SMS message to intended user as a warning.</p>
<b>TG-694</b>	<p><b>Fully Automated Solar Grass Cutter</b></p> <p>The fully automated solar grass cutter is a fully automated grass cutting robotic vehicle powered by solar energy that also avoids obstacles and is capable of fully automated grass cutting without the need of any human interaction. The system uses 6V batteries to power the vehicle movement motors as well as the grass cutter motor. We also use a solar panel to charge the battery so that there is no need of charging it externally. The grass cutter and vehicle motors are interfaced to an 8051 family microcontroller that controls the working of all the motors. It is also interfaced to an ultrasonic sensor for object detection. The microcontroller moves the vehicle motors in forward direction in case no obstacle is detected. On obstacle detection the ultrasonic sensor monitors it and the microcontroller thus stops the grass cutter motor to avoid any damage to the object/human/animal whatever it is. Microcontroller then turns the robotic as long as it gets clear of the object and then moves the grass cutter in forward direction again.</p>

**TG-695****IR Wireless Underwater Communication System**

Here we propose an IR based underwater communication system that can be used for wireless communication of messages even through water. The system can prove to be a very cheap alternative to long heavy physical wires that run through seas, rivers and require large costs for laying those wires and their maintenance. Our system makes use of infrared transmitter receiver in order to achieve this system. Our system consists of two microcontroller based circuits that have IR transmitter-receiver pairs as well as LCD displays for displaying the messages. Each system has a keyboard connected to it in order to type in messages. We use two water barrels in order to demonstrate underwater communication using IR signals passing through those containers. The system also has an acknowledgement receipt message that is sent back from the receiving circuit to the transmitting circuit on message receipt. This allows for efficient communication between two circuits wirelessly.

1

**TECH-GRAYLOGIX**  
TECHNOLOGY SIMPLIFIED