IEEE PROJECTS ON EMBEDDED SYSTEMS / COMMUNICATION / MICROCONTROLLER : 2013 – 14

NEMS 1. *Blue Walk* : ANDROID - INDOOR NAVIGATION & AUTOMATIC LOCATION ALERTING SYSTEM

ARCHITECTURE DIAGRAM

1. Mobile User can make query from current place to the desired destination from their Android Mobile. Current Place is identified via Blue tooth.
2. Android application also intimates intermediate Departments during mobile user transit. User can fix appointments in the corresponding departments from Android and also can reach the destination parallely.

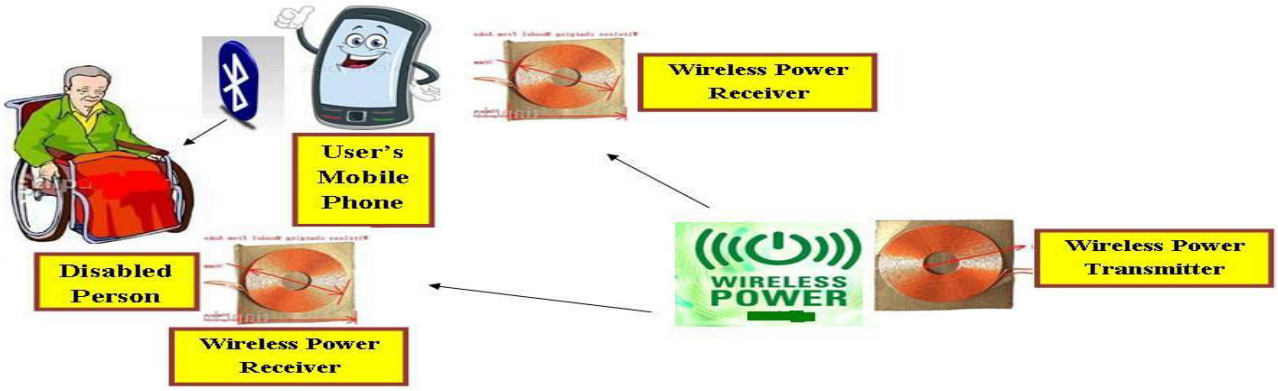
DESCRIPTION : In the **EXISTING SYSTEM**, Tracking of Indoor using GPS is failure system.. In the **PROPOSED MODEL**, Android Mobile User can get the current location which is used to find the destination path. User can search the destination and can get location map on the mobile based on the Signal Strength. In the **MODIFICATION** Part, User selects the destination and the user gets the Map Image to reach the destination. During the mobility user could cross some other Bluetooth also, for example, if this project is implemented for a Hospital, User would select, Nero Department and will get the graph to reach that Department. During the path, user would be crossing Scan Department. Bluetooth installed in that scan department will send it's ID automatically to the user, even user can to fix appointment if he requires & can get the timings. This process will reduce waiting time spend on every Depart.

DOMAIN: **Wireless, Android, Bluetooth, (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper on** COMPSAC, 2013

NEMS 2 (EMS 2001). *Wi-PoT* : EMERGING TREND IN THE FIELD OF POWER TRANSMISSION TO CHARGE MOBILE AND WHEEL CHAIR OF DISABLED

ARCHITECTURE DIAGRAM



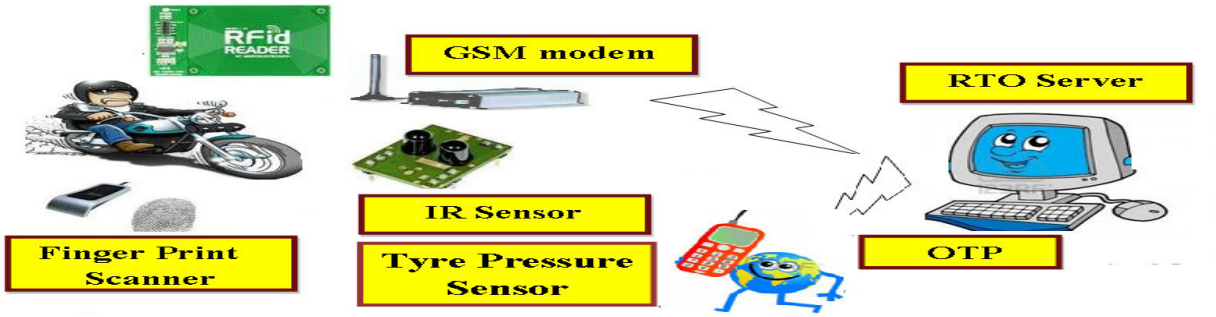
DESCRIPTION: Wireless power transfer (WPT) is an emerging wireless battery charging technique that does not require plugs or wires to charge the batteries of mobile devices. When two devices are tuned to the same resonant frequency, electric power is transferred from one to the other with high efficiency. Using this concept we have implemented a topic to wirelessly charge the mobile phone and the wheel chair battery of a physically challenged person. The wheel chair will be controlled from the user's mobile using Bluetooth technology. A Bluetooth module in the wheel chair will receives the commands from the user's mobile. These commands will then sent to the microcontroller and controller will controls the motion of the wheel chair.

DOMAIN: **Wireless Power Transmission (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** On Wireless Power Transfer Published on 2013

NEMS 3 (EMS2039). *VeSec* : SMART CARD & BIOMETRICS BASED SECURITY LAYER FOR SAFE BIKE RIDERS

ARCHITECTURE DIAGRAM



DESCRIPTION: This concept is developed to provide safety and security to the two wheelers. This makes use of RFID technology to prevent the non licensees to drive the vehicle. It also makes use of IR sensor and pressure sensor to avoid vehicle accidents in highways. The vehicle security is based on RFID and Finger Print of the authorized owner. The vehicle will start only if both get matches. If the unauthorized person wants to drive the vehicle, the Driving license of that person will be verified and OTP will be sent to the vehicle owner as SMS. The person can unlock the vehicle by typing the OTP using keypad in the vehicle. IR sensor is used to monitor the rider to wear helmets. Pressure sensor is used to monitor the tyre pressure. If the helmet is not wear or the tyre pressure reduces to a certain limit, then the vehicle will be stopped automatically.

DOMAIN: **Automobile, Biometrics, Imaging, Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper** on Information Communication and Embedded Systems, 2013

NEMS 4 (EMS 2015). *Cash Box* : ANDROID AND BLUETOOTH BASED SECURITY LAYER FOR SAFE HANDLING OF ATM MONEY TRANSACTION VEHICLE

ARCHITECTURE DIAGRAM

DESCRIPTION: This paper proposes a Bluetooth and android mobile based security and control system for money transaction vehicles. The vehicle carrying a huge amount of money to ATM centers requires high end security to avoid mishandling or robbery. The vehicle contains a money box along with the Bluetooth module. Each ATM Centers will be provided with a Bluetooth device. Also, driver has an android mobile with Bluetooth technology. So when the vehicle reaches the ATM center, the server cum ATM machine checks the Bluetooth addresses of both driver and the vehicle in its database. If both are matched with the expected Bluetooth Address / Location, then a One Time Password is sent to the driver's mobile. Using a keypad in the vehicle, OTP is typed and cash box can be opened only by typing the OTP. If the addresses do not match, then a buzzer alert is sent to the vehicle, SMS is sent to police from the server using a mobile, also, OTP will not be generated.

DOMAIN: **Security, Wireless Communication (Social / Society Based)**

IEEE REFERENCE: **IEEE Paper** on Intelligent Systems, 2013

NEMS 5 (EMS 2002). *Rural Doctor : AMM* - AN AUTOMATED MEDICAL MACHINE ENABLING ENHANCED FEATURES FOR TELEMEDICINE USING CLOUD COMPUTING

ARCHITECTURE DIAGRAM

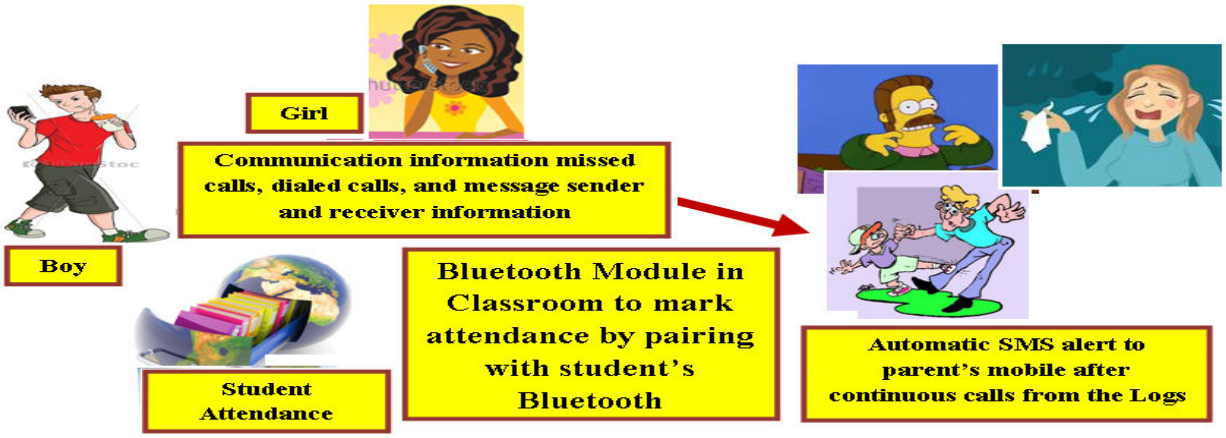
DESCRIPTION: This paper presents the concept of an "Automated Medical Machine" (AMM). The main objective of this project is to establish a Telemedicine Conference System from the Remote place by both the Distinguished Doctors and Patients. ATM machine like instrument is installed in the Rural place for better Medical Treatment and Diagnosis for the Rural People. Heart Beat, Temperature sensor is connected to the user and is monitored from the remote area. Web Camera is installed in both the ends for Live Video and Voice Conference. RFID is used for User Identification. Doctor examines the Patient and prescribes the medicines and the Medicine Dispatcher will Dispatch the Medicines from the ATM machine to the user.

DOMAIN: **Bio-Medical (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** On Information Communication And Embedded System, 2013

NEMS 6. *M - Track :* ARM AND BLUETOOTH BASED MOBILE BEHAVIOR TRACKING AND ATTENDANCE SYSTEM OF TEENS

ARCHITECTURE DIAGRAM



DESCRIPTION: Due to the development in the mobile technology, teenagers have been greatly distracted from their studies. This concept is designed to track the mobile usage of the teenagers and to send alert information to their parents. This project is developed to track the number of calls and/or SMS made by them to the same number on the same day. Automatic SMS alert to their parents is established if the number of calls or SMS to the same number exceeds the limit. Bluetooth based attendance system is also included in this concept to use the mobile resources effectively. Student's mobile Bluetooth has to be paired with the class room's Bluetooth to mark their presence in the class.

DOMAIN: **Mobile Communication, Tracking System**

IEEE REFERENCE: **IEEE Paper** on Advance Computing, 2013

NEMS 7 (EMS 2004). *Safer Cards* : CREDIT CARD FRAUD DETECTION: LOCATION BASED SECURITY SCHEME FOR SAFETY CARDS

ARCHITECTURE DIAGRAM

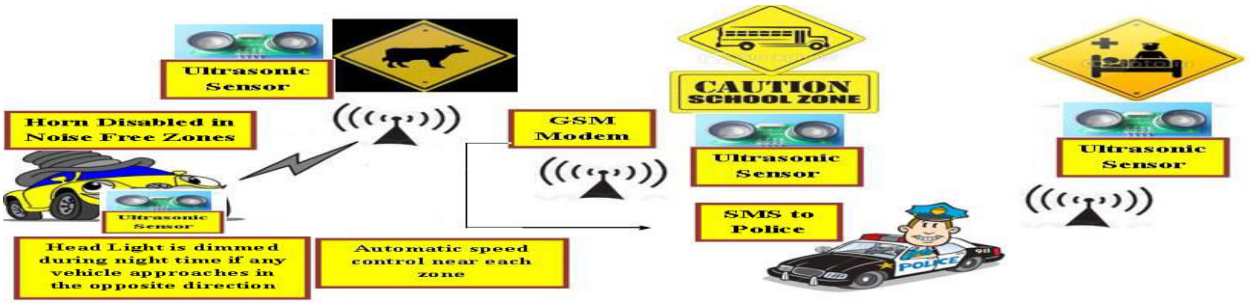
DESCRIPTION: In the **EXISTING SYSTEM**, Credit Card Fraud is the most common occurrence. There is no authenticated step to control Credit Card Fraud in real time. In the **PROPOSED MODEL**, Location based Verification Scheme is implemented by comparing the User's Credit Card Location with the User's Mobile Location. This is very effective to identify the Real User. The **MODIFICATION** we propose is to generate an Encrypted Data to the Real User's Mobile Number along with the Decrypting Key as SMS only when both the Location of Credit Card and Mobile of the User is Matched. So process would definitely filter credit card fraud totally. We also provide a Emergency Key to the Authorized User to use only twice or Thrice to Withdraw Money during Emergency Situation for only for Rs. 2000 – 3000.

DOMAIN: **Security (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Transactions** on Dependable and Secure Computing**, 2013**

NEMS 8. *Zone Alert* : INTELLIGENT ZONE AWARE SPEED AND HORN CONTROL SYSTEM WITH AUTOMATIC DIMMING OF DOOM LIGHT

ARCHITECTURE DIAGRAM



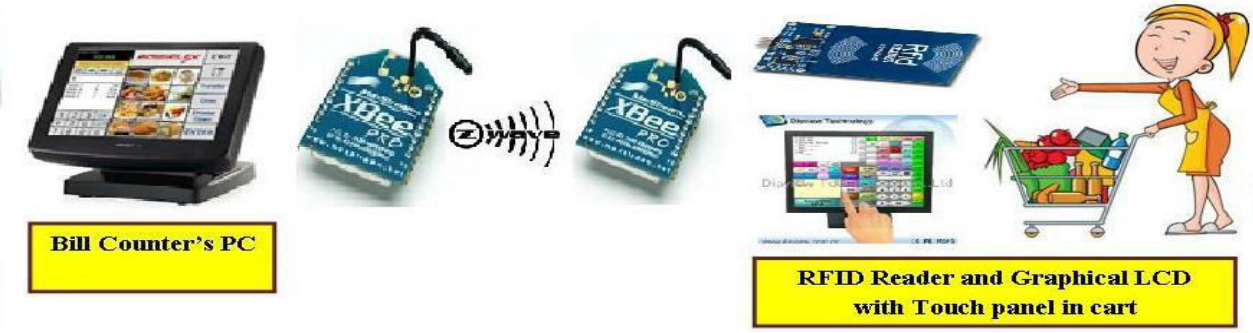
DESCRIPTION: Most of the Urban Vehicle Accidents are due to the lethargy of drivers. This project is designed for automatically controlling the speed of a vehicle near various zones which have certain speed limit. For this; the zone board module consists of ultrasonic sensors and RF transmitters. The vehicle module consists of RF receiver and ultrasonic sensor. When the vehicle approaches the particular zone, then ultrasonic sensor in zones detects the vehicle and transmits a signal indicating the zone. The receiver receives it and the speed of the vehicle is reduced automatically. Vehicle's horn is also disabled at the noise free zones. If the driver fails to reduce the speed then an automatic SMS alert will be sent to the police control room using GSM modem. Ultrasonic sensor in the vehicle is used to find any vehicle in the opposite direction during night time and to control the intensity of head light to reduce accidents.

DOMAIN: **Social Cause**

IEEE REFERENCE: **IEEE Paper** on Systems, Applications and Technology, 2013

NEMS 9 (EMS 2016). *E-Trolley :* DESIGN OF TOUCH ENABLED SHOPPING CART WITH AUTOMATIC BILLING SYSTEM IN RETAIL STORE

ARCHITECTURE DIAGRAM



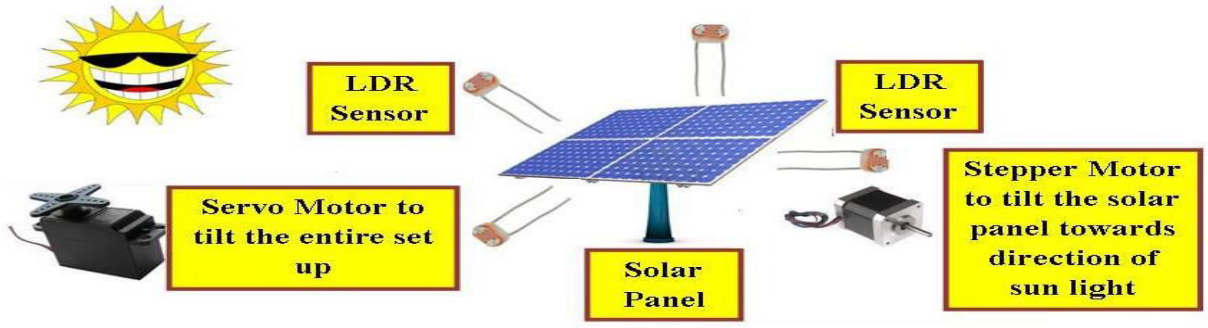
DESCRIPTION: The design and implementation of a new intelligent shopping guide system for large supermarkets is presented in the article. The RFID reader and the wireless touch screen with GLCD integrated in the shopping cart can automatically read the commodities tag ID and broadcast the information when the cart is moving in the large supermarket. The consumer can purchase or reject the commodities by using touch screen. Thus, it overcomes lots of disadvantages in the traditional shopping guide system for supermarkets, such as inefficient management of commodities and inconvenient shopping. Once the purchase is completed the total bill amount calculated by the shopping cart will be transmitted wirelessly using zigbee to the billing section. The bill amount will be automatically deducted from the user's account to avoid time consumption for billing.

DOMAIN: **Wireless Communication, (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** on Communication Systems and Network Technologies, 2013

NEMS 10 (EMS 2018). *Solar Laugh* : DESIGN OF MAXIMUM POWER EXTRACTION & AUTOMATIC FOUR DEGREES OF ROTATION FOR ENHANCED POWER STORAGE USING SOLAR PANEL

ARCHITECTURE DIAGRAM



DESCRIPTION: This paper describes the embedded solar tracking instrumentation system using microcontroller. The system consists of Light Dependent Resistor (LDR) sensor, microcontroller, motor and solar panel. The microcontroller is the main component for controlling the system. The LDR on four sides of the panel is used to detect the direction of sun rays. Based on the LDR sensor output, the controller will control the motor to change the direction of the solar panel to observe high amount of solar radiation. The solar system will track the location of the sun to ensure the solar panel is always perpendicular with the sun therefore optimizing power output.

DOMAIN: **Renewable Resources, Mechanical**

IEEE REFERENCE: **IEEE Paper** On Power Engineering and Optimization , 2013

NEMS 11 (EMS 2048) *Find Me If You Can* : LOST OBJECT & CHILD-LEFT-TRACKING & DETECTION SYSTEM USING BLUETOOTH IN VEHICLES

ARCHITECTURE DIAGRAM

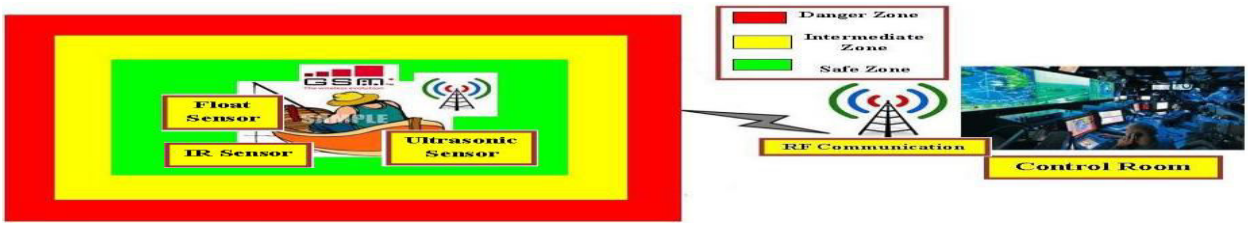
DESCRIPTION : This paper presents a simple and efficient capacitive sensing system suitable for detecting the presence of a child in an infant car seat. Infant seat with child is usually kept in the rear seat. Driver and passengers in some situations may leave the car without taking (forgetting) the child. When a car is turned-off (windows closed) temperature inside it will increase rapidly and can be life threatening as the thermoregulatory system of child is weak. The proposed capacitive sensor system detects child occupancy. Once the car is turned off and a child is found to be left alone in the car the system will generate a buzzer alarm to alert the driver and also send an alert SMS to the parents. A prototype of the proposed capacitive sensor and warning system has been built and tested. Also, if the person has left some valuable items in the vehicle, then by pairing the user mobile's Bluetooth with that of the device's Bluetooth, it can be found out with a buzzer alert.

DOMAIN: **Wireless Communication**

IEEE REFERENCE: IEEE Paper on Instrumentation and Measurement Technology Conference (I2MTC), 2013

NEMS 12. *My Area* : ZONE ALERT AND SURVEILLANCE SYSTEM FOR AUTONOMOUS NAVIGATION OF FISHERMEN'S BOAT SAFETY SYSTEM

ARCHITECTURE DIAGRAM



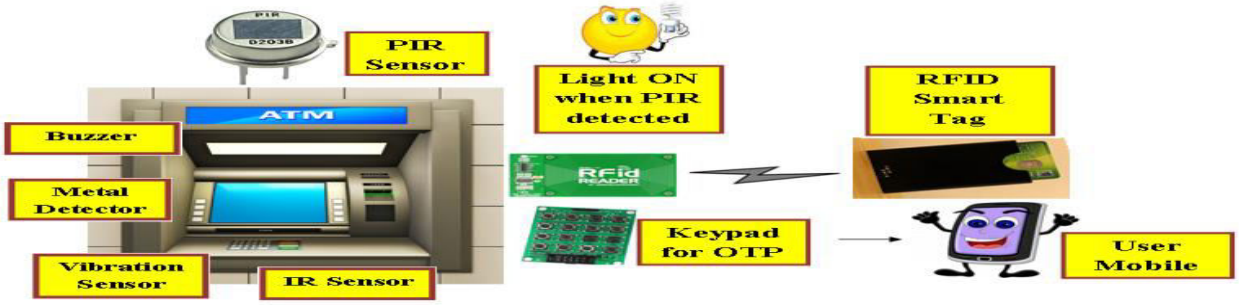
DESCRIPTION: This project describes various problems during the navigation of a boat for fishing and provides solutions to overcome these problems. The most important problem for the fishermen during fishing is to track their location in the sea. For this, the sea area is divided into three zones as Safety, Intermediate and Danger Zones for security purposes. The boat's location is tracked using GPS location of the boat. For prototypic model, RFID Reader is used instead of GPS. RFID reader is used to read the tag values of each zone. The boat is allowed to roam anywhere within the safety zone. A buzzer alert will be given to the fishermen if the boat crosses the intermediate zone and danger zone. If the boat crosses the danger zone, the boat will be stopped and reversed back to the safety zone automatically. Various sensors in the boat are used for safe journey in the sea. Ultrasonic sensor is used to find out presence of icebergs , float sensor is used to monitor the fuel level in the boat, IR sensor is used to monitor speed of the propeller fan. If any problem occurs to the boat in the sea, then an alert SMS will be sent to the control room using GSM in the boat.

DOMAIN: **Safety and Communication**

IEEE REFERENCE: **IEEE Paper** on Systems Conference (Sys Con), 2013

NEMS 13 (EMS 2003). *MoSAF – Track Me* : DESIGN OF PRE TRANSACTION BASED ATM SECURITY AND THEFT PREVENTION SYSTEM WITH AUTOMATIC ALERT

ARCHITECHTURE DIAGRAM



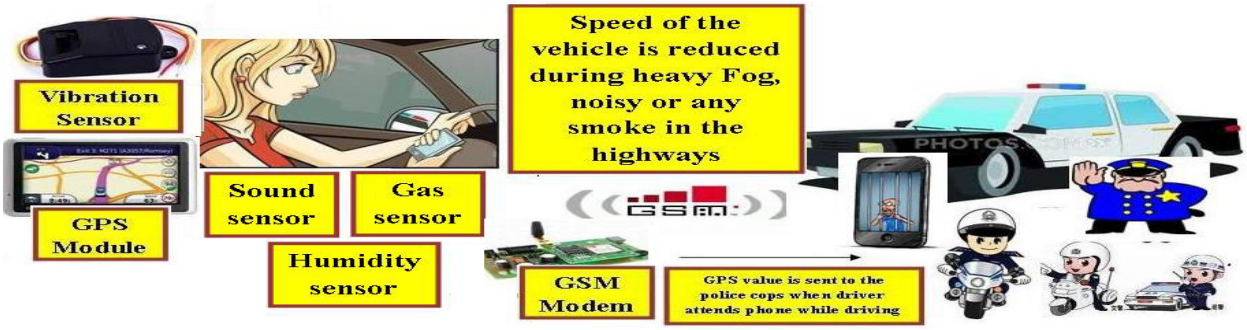
DESCRIPTION: In the **EXISTING SYSTEM**, there is no security layer is implemented in the ATM card except PIN number. In the **PROPOSED MODEL**, we monitor the location of the ATM Usage, time taken for the user to accessing the ATM machine, sequence of events processed by the User and expected amount of withdrawal by the user. All these four factors are verified for the authentication purpose of the user along with password. If any of the above said, parameters are differing, and then the One Time Password is generated to the User's Mobile Number for further more secure authentication system. PIR sensor is used to detect the human motion inside ATM center and to control the lights. Metal Detector is used to detect the usage of any destructive materials inside the center. Vibration Sensor is used to detect the glass breakage of the ATM center. IR is used to count the no. of persons inside the center. If any abnormal situation happens within the center then an auto SMS is sent to the police control room.

DOMAIN: **Security (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** on ICT, 2013

NEMS 14. *V – Safe Tracker :* AUTOMOBILE SECURITY AND ALERTING SYSTEM BASED ON DRIVER'S BEHAVIOR AND ATMOSPHERICAL SITUATION

ARCHITECTURE DIAGRAM



DESCRIPTION: This project is designed for monitoring usage of mobile phones by drivers while driving and take necessary action to prevent accidents due to distractions and to monitor the atmospheric parameters such as fog, smoke in highways. When the driver attends a phone call , the speed of the vehicle is measured. If the speed is high with mobile usage then the location information of the vehicle is obtained using a GPS in the car and the information is sent to the police cops through the GSM modem. Also, if gas sensor detects any smoke, humidity sensor detects fog and sound sensor detects any noise, then the speed of the vehicle is automatically reduced to avoid accident. If any accident occurs, vibration sensor is used to sense it and the information is also sent to the police cops so that they can take necessary actions.

DOMAIN: **Automobile Security**

IEEE REFERENCE: **IEEE Paper** on Advances in Technology and Engineering (ICATE), 2013

NEMS 15 (EMS 2005). *LiBRO :* INTELLIGENT LIBRARIAN ROBOT WITH POSITION IDENTIFICATION FOR EFFECTIVE USER SEARCH BOOKS USING RFID TECHNOLOGY

ARCHITECTURE DIAGRAM

DESCRIPTION: Radio Frequency Identification (RFID) is the wireless non-contact system that uses radio-frequency waves to transfer data from the tag attached to an object for the automatic identification and tracking. This RFID Technology is implemented in this concept for the Library Automation. An Autonomous Robot is used in the library to search the user requested book in the library. The books in the library is provided with a unique RFID Tag. If the student wants to search for a book from a PC in the library, the corresponding book ID will be sent wirelessly to the robot. The robot will then start tracking the book ID from the racks. If the book ID is matched, then the robot will points to that particular rack by moving its arm towards the direction of the rack. A mechanical set up with moving arm will be used for the prototypic demonstration of the project.

DOMAIN: **Robotics (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper on** Information and Communication Technologies, 2013

NEMS 16. M - GOD : MOBILE BASED REMOTE GUARDIAN MEDICAL MONITORING WITH INTELLIGENT RESPONSE SYSTEM

ARCHITECTURE DIAGRAM

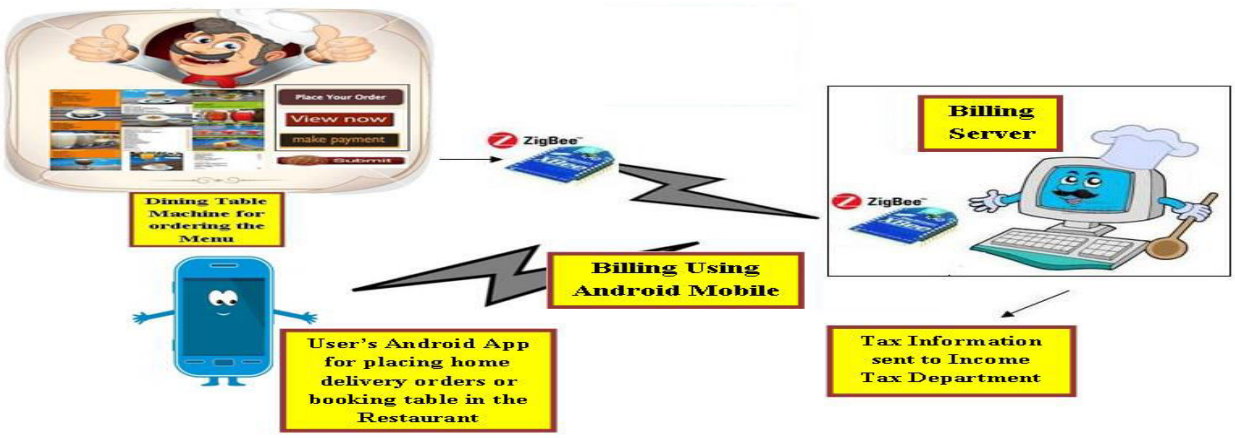
DESCRIPTION: Medical Monitoring system using a pervasive computing has the potential to improve the quality of health care of an individual. Our model provides an approach of mobile computing technology for improving the communication among the patients, physicians and other health care organizations. Patient's health conditions will be monitored using HB sensor fixed with the patient's body. IR sensor on each room is used to track the location of the elderly people in home. The server PC in home is used to monitor the health condition and to give timely alert to take medicines, food, etc. Emergency switches are provided to intimate doctor or the relatives about an emergency situation of the elderly patients at home.

DOMAIN: **Bio-Medical**

IEEE REFERENCE: **IEEE Paper** on Computer Communication and Informatics, 2013

NEMS 17. *M - Foody :* ANDROID BASED ORDER PLACEMENT, TABLE BOOKINGS AND BILL PAYMENT WITH TOUCH ENABLED SMART DEVICE FOR MENU ORDERINGS IN RESTAURANTS

ARCHITECTURE DIAGRAM



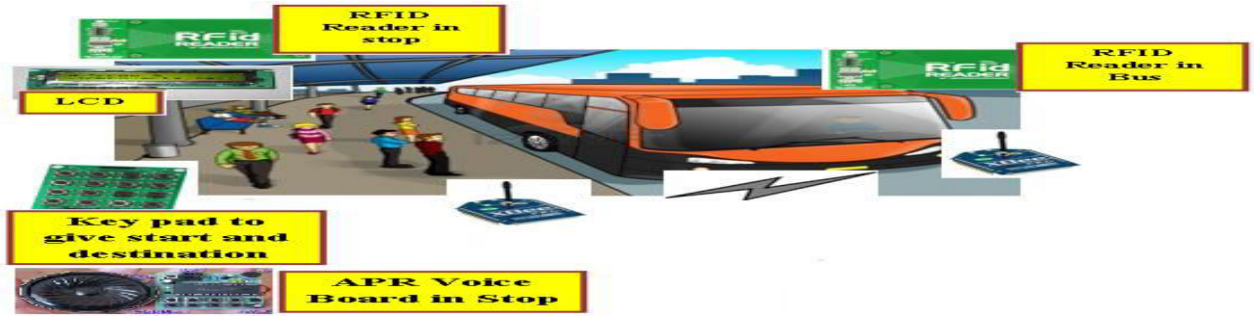
DESCRIPTION: An Android Application based order booking and bill payment in restaurants has been developed in this project. The user can search for the near by restaurants based on food items from his android mobile. Then they can place orders for door delivery or they can book the tables for dining. In restaurants, an embedded device is fixed in each table for item display, making orders, etc. The device consists of GLCD with Touch Screen to display the items available in restaurants along with the price and to place orders. The bill payment will made using Android mobile .

DOMAIN: **Wireless, Intelligent Systems**

IEEE REFERENCE: **IEEE Paper** on Embedded Computing, 2013

NEMS 18 (EMS 2019). *Book My Ticket :* DESIGN OF RFID BASED E - TICKET SYSTEM WITH VOICE ROUTE INTIMATION IN BUS STOPS

ARCHITECTURE DIAGRAM



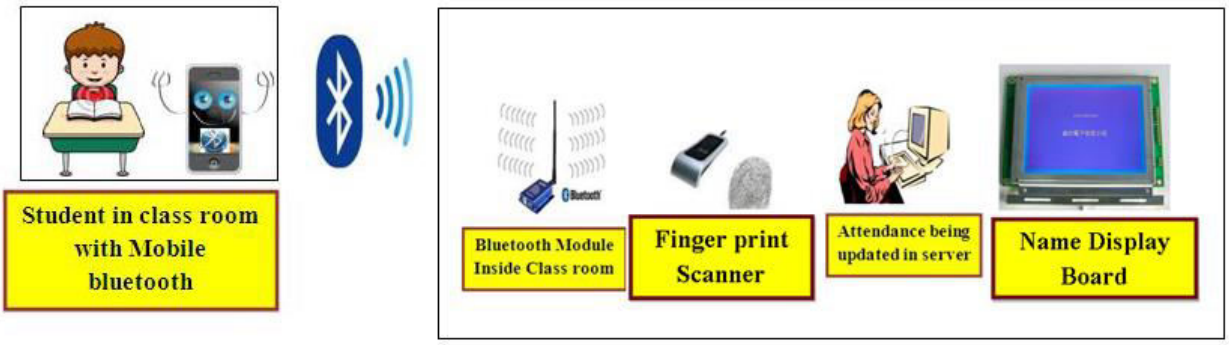
DESCRIPTION: The concept describes the RFID enabled Bus Ticketing system to reduce the time consumption and paper wastage used in traditional ticketing systems. The bus stop consists of a RFID reader and a Voice board. The LCD at the bus stop is used to display the bus numbers with the destinations. The passengers can get the ticket by selecting the bus stop using Keypad. The passengers RFID list will be sent to the corresponding bus via zigbee. After getting into the bus, the passenger can conform the ticket by showing the tag to the reader inside the bus. The passenger also have the chance of getting the ticket inside the bus if he catches the bus at the last minute. The voice module in the bus stop is used to announce the bus number coming near to the stop. In this paper, a PLC based elevator control is suggested but we are implementing the same idea for a bus for prototype implementation.

DOMAIN: **Wireless Communication, (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** on Engineering and Systems (SCES), 2013

NEMS 19 (EMS 2047). *Blue Goat :* DESIGN OF BLUE TOOTH AND BIO METRICS BASED ATTENDANCE SYSTEM WITH AUTO UPDATE IN CLOUD ENVIRONMENT

ARCHITECTURE DIAGRAM



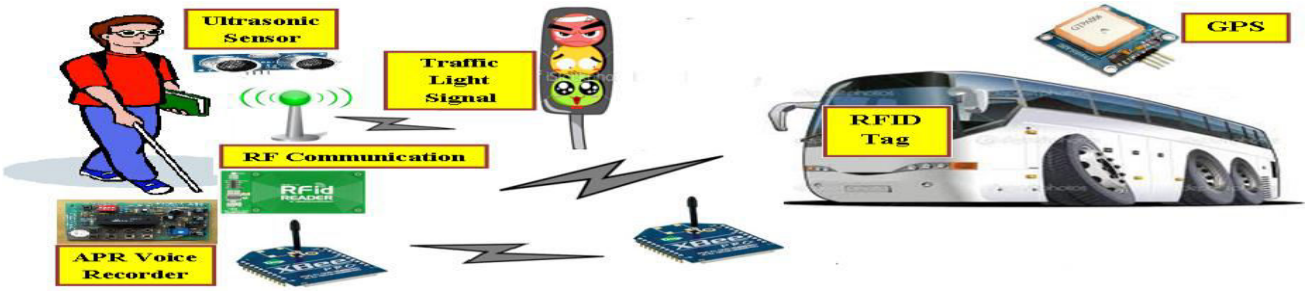
DESCRIPTION: This concept provides automation of students' attendance using Bluetooth Technology and Bio metrics and scalability using cloud computing. Current student attendance tracking systems employed in universities require a lot of human intervention. Also its storage for future use consumes a lot of memory. The proposed work identifies the potential use of Bluetooth and Finger Print and cloud computing platform to track students' attendance and to efficiently store and retrieve the same. With the help of Bluetooth with each student, pairing is done with a central blue tooth module inside the class room. Finger Print of the student also scanned using Finger Print Scanner connected to the PC. The name of the presented students will be displayed in the GLCD in the class room. Finally at the end of the day, attendance of the day is updated in the server.

DOMAIN: **Bluetooth, Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper** On Automation, Computing, Communication, Control and Compressed Sensing, 2013

NEMS 20 (EMS 2006). *Blind Path* : INTEGRATED SYSTEM FOR EASY NAVIGATON OF BLIND IN HIGHWAYS

ARCHITECTURE DIAGRAM



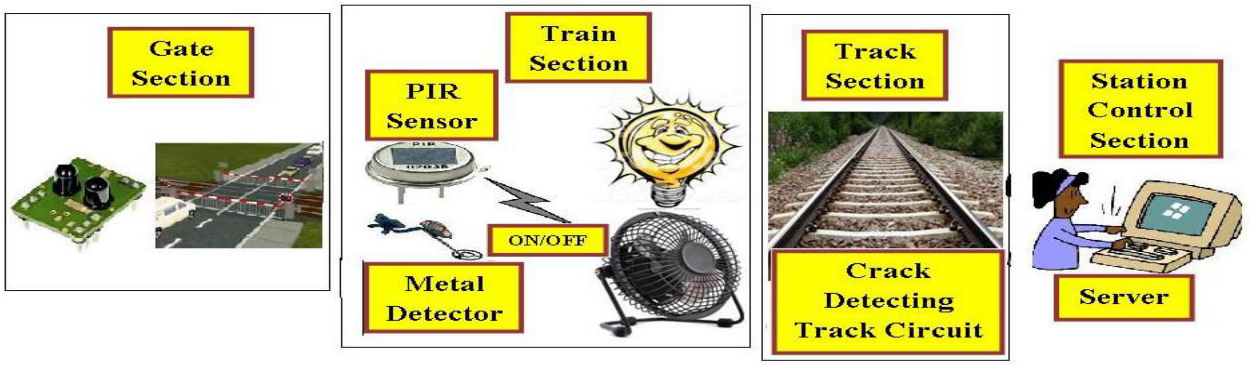
DESCRIPTION: This concept is developed to provide guidance to the blind people while waiting for the bus in bus stops. The entire concept is divided into three modules. The blind person module consists of a voice recorder and playback device, RF receiver, Zigbee transceiver, RFID Reader and ultrasonic sensor. The bus module consists of a zigbee, GPS, RFID Tag. The traffic signal module consists of a RF Transmitter and signal LEDs. When a blind person is standing in the bus stop, the RFID reader will reads the bus ID and it will be informed to them through voice module. Zigbee is used to transmit the blind people information to the bus. RF Communication is used to give traffic signal status information to the blind people for road crossing. Ultrasonic sensor is used to detect the obstacles in the path of the blind people. GPS in the bus is used to inform the bus stop information to the blind person.

DOMAIN: **Communication (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** on Circuits, Power and Computing Technologies, 2013

NEMS 21 (EMS 2011). *Train Me* : DESIGN OF AUTOMATED SYSTEM FOR EFFECTIVE MAINTENANCE OF RAILWAY INFRASTRUCTURE BASED ON PLCC

ARCHITECTURE DIAGRAM



DESCRIPTION: In India, most of the commercial transport is being carried out by the railway network and therefore, any problems in the same have the capability to cause major problem on transportation. This paper proposes a cost effective and robust solution for the railway infrastructure to monitor and control the operations of the railway network. The system comprises of four sections. First is the Automatic Railway Gate control based on IR sensor. Second is the Train module to detect and control the devices (Fan and Lights) in the compartments based in PIR sensor. Metal Detector is used to detect any unwanted metals like explosives inside the train. Next is the Crack Detector using Crack Detection Circuit. These circuits will be placed at several intervals in rails and interconnected using CAN or PLCC or Fiber Cable. Final section is the server in the station to monitor and control all the above sections.

DOMAIN: Controller Area Network / PLCC / Fiber Optic Communication

IEEE REFERENCE: IEEE Paper on Information Technology, 2013

NEMS 22 (EMS 2013). *E - Guide* : DESIGN OF ELECTRONIC GUIDANCE SYSTEM FOR ROUTE NAVIGATION AND SUPPORTIVE SYSTEM IN AIRPORT

ARCHITECTURE DIAGRAM

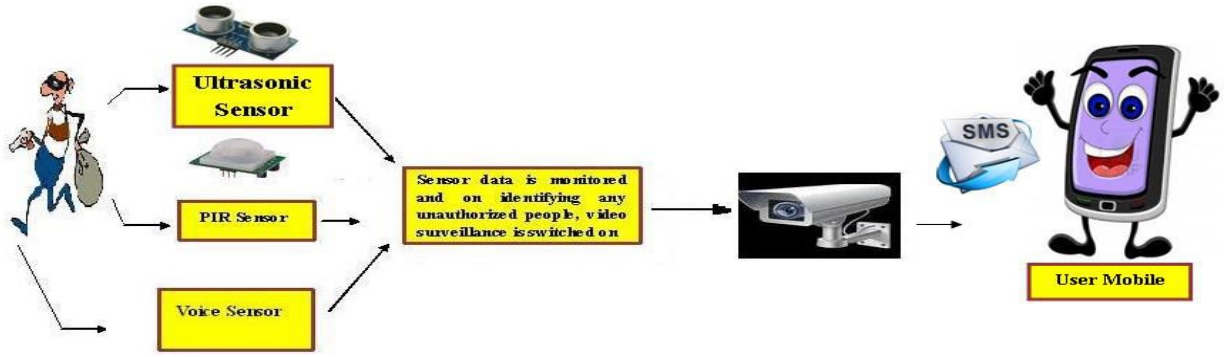
DESCRIPTION: Automatic path guidance and procedures describing system has been developed in this concept to help the peoples inside Airports. The Guidance module will be provided to every passengers entering the airport. The module consists of RFID Reader, Voice board, GLCD with Touch Screen and Zigbee for wireless communication with server. The RFID Reader is used to identify the Tag ID of each location inside the airport and to describe the step by step procedures for boarding. The route information will be displayed in the GLCD. Touch screen is used to select the locations to which they wish to go. The location information will be selected and route will be displayed and announced using Voice board. This information will be received from the server through Zigbee communication.

DOMAIN: **Security, Communication, (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE paper** on Circuits power and Computing Technologies, 2013

NEMS 23 (EMS 2014). 3rd Eye : AN OPTIMIZED WIRELESS SENSOR NETWORK USED IN VIDEO SURVEILLANCE SYSTEM

ARCHITECTURE DIAGRAM



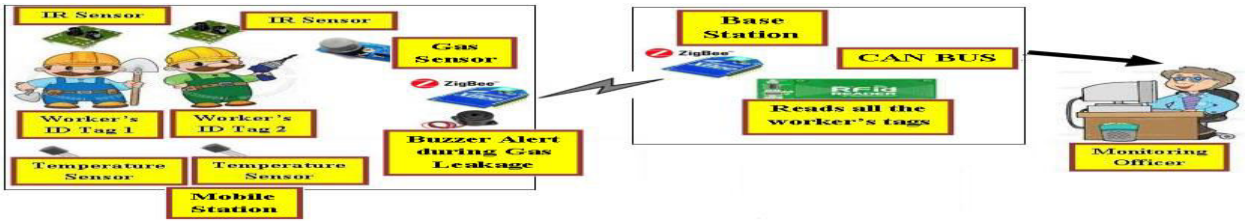
DESCRIPTION: In the **EXISTING SYSTEM,** the Remote Video Surveillance System is carried using Live Video Transformation to TV. Admin has to see those Videos continuously. In the **PROPOSED SYSTEM**, we use sensors namely Ultrasonic, PIR and Voice sensor. Ultrasonic is used to detect the obstacle and PIR is used to detect the Human presence and Voice sensor to detect the sound in the particular area. If any of these sensors detects any human motion, then web camera is initialized to capture the images for the surveillance system. In the **MODIFICATION** part, an Android application is developed for the administrator to view the motion detected image from the Server. Also an automatic SMS alert is generated from the Server to the administrator if motion is detected. Administrator can view the images and take action accordingly.

DOMAIN: Security, (Social Cause / Society Based)

IEEE REFERENCE: IEEE Paper on Measuring Technology and Mechatronics Automation,2013

NEMS 24. *Mine Safe* : INTEGRATED SYSTEM TO MONITOR WORKER'S HEALTH AND GAS LEAKAGE FOR WORK PLACE SAFETY IN A MINING ENVIRONMENT

ARCHITECTURE DIAGRAM



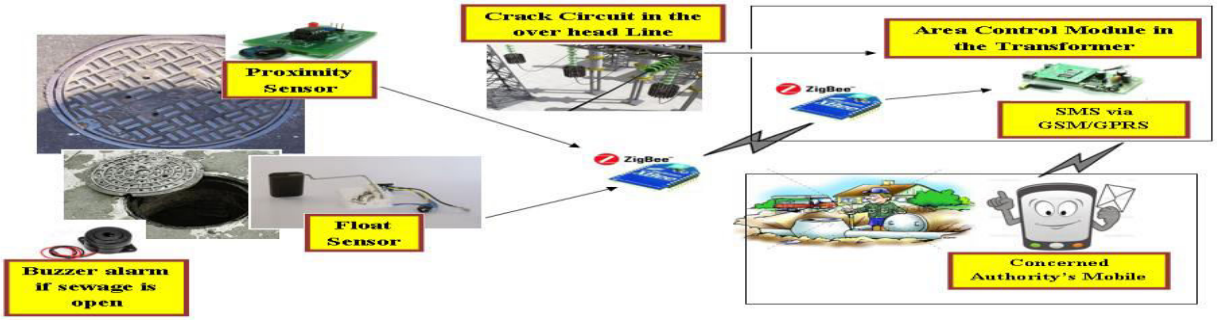
DESCRIPTION: Large Industrial Environments specifically mines are inherently very complex systems to be monitored and controlled. In this context, a centralized control system for monitoring, reporting and preventing workplace risks have been developed. A wearable embedded device will be fixed with the body of the workers. The main purpose of this device is to monitor the workers wearing the safety devices like helmet, gloves, shoes, etc. using IR sensors. The health condition of the workers is also monitored using temperature sensor. The mining environment is monitored using gas sensor to monitor the gas leakage . The sensor nodes will be placed at regular intervals within the mining environment. The values from the various sensor nodes will be transmitted to the base station node via zigbee. The RFID reader in the base station node is used to take workers attendance. The attendance and the sensor information will be transmitted to the control server node using CAN Protocol for further processing. 32-bit ARM microcontroller is used for CAN Protocol.

DOMAIN: **Networking, CAN (Controller Area Network)**

IEEE REFERENCE: **IEEE Paper** on Wireless Communication and Mobile Computing, 2013

NEMS 25. *SeweT* : A FAULT PREVENTIVE WIRELESS SENSOR SEWER SYSTEM FOR URBAN INFRASTRUCTURE MANAGEMENT USING EMBEDDED SYSTEMS

ARCHITECTURE DIAGRAM



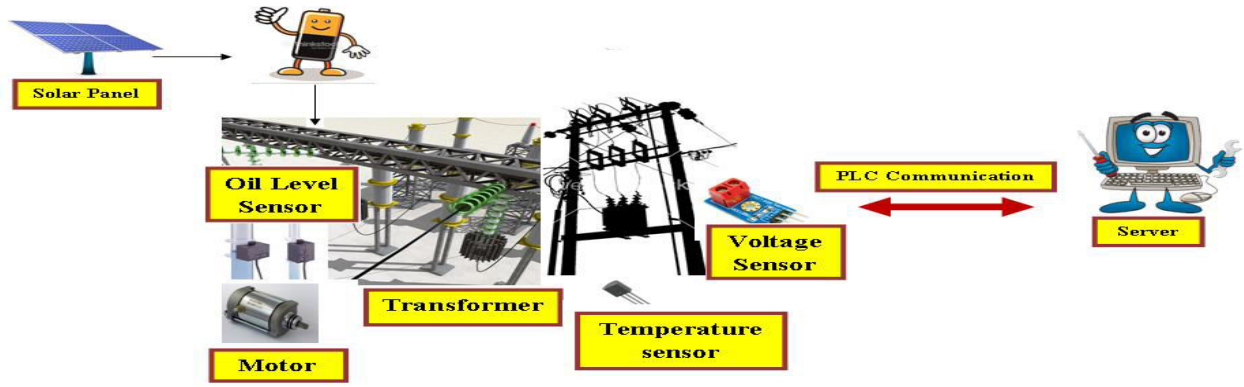
DESCRIPTION: This concept is designed to monitor the sewage system in roads during rainy seasons to protect people from falling into the open man hole. Proximity sensor is used to monitor whether the lid is open or closed. Float sensor is used to monitor the over flow of sewage water. Crack Detector in the over head power line is used to detect the disconnection in the cable. These sensors will be connected to a controller placed in the near by lamp post. The buzzer alarm will be enabled to alert the surrounding people to be aware of open lid, sewage over flow and disconnection in the power cable. The zigbee module in the lamp post is used to transfer the information to the central controller fixed in the area transformer. An alert SMS will be sent from the transformer module to the EB office regarding the issue to take immediate action and protect the surrounding people from danger.

DOMAIN: **Wireless, Social Cause**

IEEE REFERENCE: **IEEE Paper** on Communication and Signal Processing, 2013

NEMS 26. *TraM* : OVER HEAD POWER LINE MONITORING MODEL USING LONG-DISTANCE TRANSMISSION NETWORK

ARCHITECTURE DIAGRAM



DESCRIPTION: This concept is designed to develop a monitoring device for increasing overhead power line fault detection. The monitoring and inspection of overhead line fault diagnosis; maintenance work has caused great difficulty. To overcome this problem, Overhead power line is divided into multiple sections and the testing device is installed on each sections . The testing device utilizes several monitoring sensors such as Level sensor for monitoring the oil level, temperature sensor for monitoring the transformer temperature level, voltage sensor to monitor the voltage level of the transformer. The testing device fixed with the transformer is powered using a Battery which is charged using Solar Panel. The sensor values from the embedded module will be transmitted to the EB server for further inspection using PLCC.

DOMAIN: PLCC

IEEE REFERENCE: **IEEE Paper** on Computer Science and Education, 2013.

NEMS 27. *iVeDet* : A NOVEL APPROACH TO IMPLEMENT GREEN WAVE SYSTEM AND DETECTION OF STOLEN VEHICLES

ARCHITECTURE DIAGRAM

DESCRIPTION: In today's world, traffic jams during rush hours is one of the major concerns. During rush hours, emergency vehicles like Ambulances, Police cars and Fire Brigade trucks get stuck in traffic jams. Due to this, the emergency vehicles are not able to reach their destinations in time, resulting into a loss of human lives. The RFID based system is developed to identify the emergency vehicles and clearing the route of the emergency vehicles. Often criminal or terrorist vehicles have to be identified. In addition to the green wave path, the system will track a stolen vehicle when it passes through a traffic light signal. The RFID reader fixed at the road divider lamp post is used to read the vehicle's tag ID. The vehicle tag ID will be categorized as Normal, Emergency or Stolen vehicle. Based on the tag ID, the device at the lamp post will recognize the vehicle and send information to the traffic signal. The control command from the lamp post to the traffic signal will be sent using Zigbee. If the stolen vehicle is detected then an alert SMS will be sent to the nearest police station using GSM modem.

DOMAIN: **Wireless, Vehicle Security**

IEEE REFERENCE: **IEEE Paper** on Advance Computing, 2013

EMS 2009. *Power Cut* : DESIGN OF A SMART GRID SYSTEM FOR MANAGEMENT OF RESIDENTIAL POWER

ARCHITECTURE DIAGRAM

DESCRIPTION: In this paper we introduce an energy management system in home based on smart grid and then provide a solution to control the appliances if power consumption in the home exceeds the limit. The details about each appliances like model, input and output voltage and current of every consumers will be stored in EB Server. The owner of the house sends a request for using any appliance in their home to the EB office server via mobile phone . The server calculates the time of usage tariff of each appliance and tariff based on peak hour and non-peak hour usage and sends this to the owner's mobile and also to the home energy meter module. If the power consumption exceeds the maximum limit, then the owner is requested to control the power consumption. If the consumption exceeds the limit, then the control is done automatically from the EB server.

DOMAIN: **Power Electronics, Home Automation**

IEEE REFERENCE: **IEEE Paper** on Industrial Technology, 2013

EMS 2010. *Green Computing* : POWER MANAGEMENT AND AUTOMATIC FAULT IDENTIFICATION, CONTROL OF STREET LIGHTS

ARCHITECTURE DIAGRAM

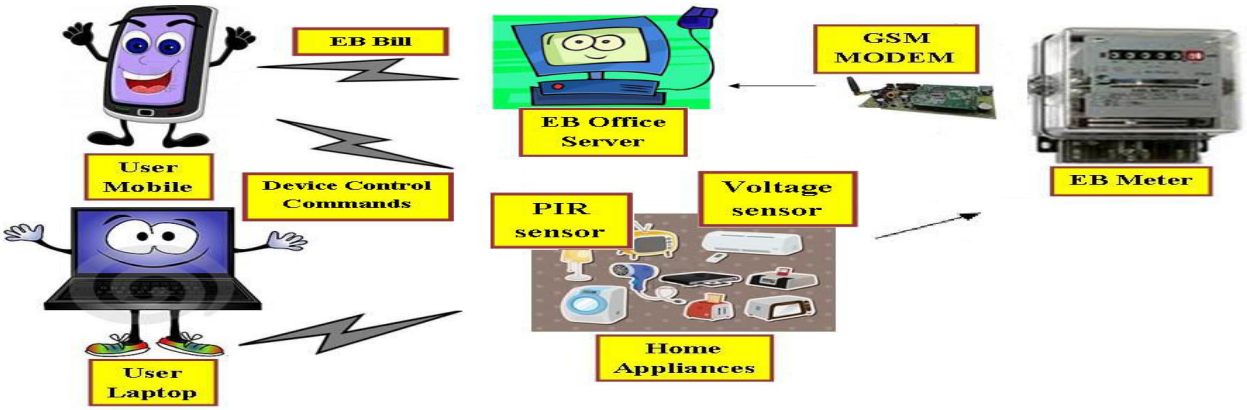
DESCRIPTION: We propose an innovative wireless street lighting system with optimized energy management and efficiency. An innovative system for street light based on LDR and PIR sensor is proposed. Solar panels are used to generate power for the street lights. LDR is used to monitor the light intensity to detect the duration of the day (day/night). PIR sensor is used to detect the human motion near the street light. The light in the streets will be switched ON/OFF by using LDR and PIR sensor. Any faults in the lights will be detected and transmitted to the remote station using Zigbee Transceiver. The proposed system is used to automate the street light and to detect the faults.

DOMAIN: Automation, Solar Panel, (Social Cause / Society Based)

IEEE REFERENCE: IEEE Transactions On Power Delivery, 2013

EMS 2007. *MobiD :* MULTI INPUT CONTROL MECHANISM OF HOME SECURITY SYSTEM USING ANDROID

ARCHITECTURE DIAGRAM



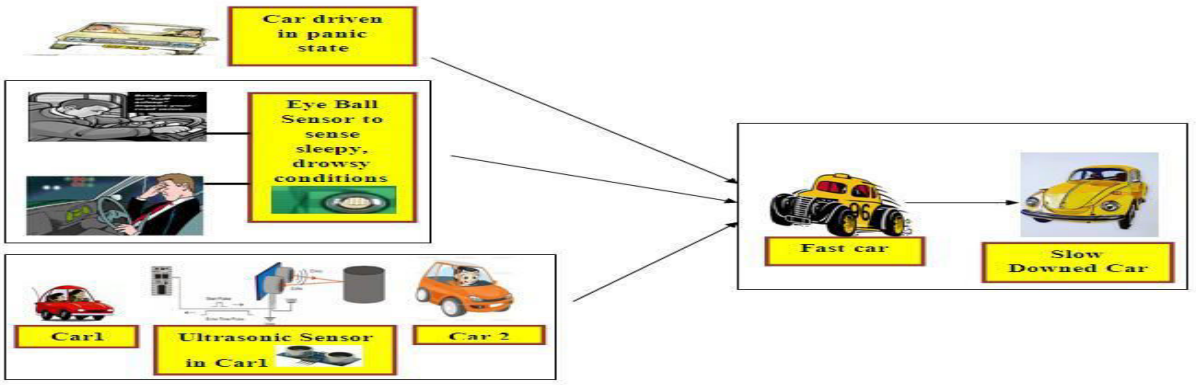
DESCRIPTION: In this project, a PC and mobile based control of house hold appliances and also calculation of their power consumption from the EB meter is provided. Using mobile communication, commands to control the devices are sent and also their status is obtained back to PC and user's mobile. PIR sensor is used to monitor presence of human inside house. If no human is detected by PIR, and if voltage sensor detects voltage in the devices, then an alert SMS using GSM modem is sent to the user. They can control the devices from either their mobile or laptop by sending a SMS to the GSM modem. Also, EB meter reading for the amount of power consumed for the whole month and the amount payable by the user is provided to their mobile number as a message.

DOMAIN: **Automation, Wireless Communication**

IEEE REFERENCE: **IEEE Paper** on Intelligent Control and Information Processing (ICICIP), 2013

EMS 2008. *Save Me* : PROACTIVE ACCIDENT AVOIDANCE SYSTEM FOR ROADSIDE VEHICLES

ARCHITECTURE DIAGRAM



DESCRIPTION: The Vehicle Accident in highways is only due to the three main reasons as follows: Drunk and Drive, Drowsiness and Over speed. An embedded device has been developed to monitor these parameters and to control the vehicle automatically. The proposed system consists of a alcohol sensor to detect the alcohol consumption of the driver, Eye ball sensor is used to detect the drowsiness, and ultrasonic sensor to detect the distance between the front vehicle. If the driver is seems to be drunken or feels drowsiness or distance between the front vehicle is less then the vehicle is stopped automatically. If the driving is rash then an intimation will be given to the driver to slow down the vehicle. If not then an automatic speed control is applied to control the speed. Break Failure is also detected and controlled.

DOMAIN: **Automobile, Security (Social Cause / Society Based)**

IEEE REFERENCE: IEEE Transactions On Intelligent Transportation Systems, 2013

EMS 2017. *iMedBox :* AN IN HOME DOCTOR CARING PATIENT'S HEALTH AND PRESCRIBING MEDICINES WITH AUTO UPDATE OF MEDICAL STATUS

ARCHITECTURE DIAGRAM

DESCRIPTION: An in-home healthcare station (IHHS) is provided to meet the rapidly increasing demands for daily monitoring with on-site diagnosis and prognosis. iMedBox is a Medical kit of the patients at home consists of RFID reader, buzzer, GSM modem, and a LCD display. RFID Reader is used to read the Tag value of the medicines and to get the information regarding the medicines from the hospital server. These information helps the med box to alert the patient to take medicines in-time, the check the availability of medicines, during emergency situations, etc. The patient module consists of a temperature and a heart beat sensor. During emergency situations, patient is advised to take a particular medicine by the med box. Simultaneously an alert message will given to the care takers.

DOMAIN: **Bio- Medical, Communication**

IEEE REFERENCE: **IEEE Paper** on Advanced Communication Technology, 2013

EMS 2021. *TeleMed* : ANDROID AND NFC BASED REMOTE TELEMONITORING SYSTEM WITH EMERGENCY ALERT

ARCHITECTURE DIAGRAM

DESCRIPTION: NFC (Near Field Communication) is the most recent and advanced technology in the field of mobile technology to provide unique identification to the user. This concept employs the NFC technology to track the health status of the in-patients in hospitals. In the existing system, the doctors has to check the patients' health status manually and prescribes medicines. In the proposed system, each patient will be provided with the temperature and heart beat sensor with a unique NFC Tag. The doctor with his NFC reader will reads the patient's health status measured using sensors. The doctor will then examine the health status of the patients in his room from his PC. Thus the proposed concept helps the doctor to track their patient's status remotely using NFC technology.

DOMAIN: **NFC, Bio-Medical, Communication, (Social Cause / Society)**

IEEE REFERENCE: **IEEE Paper** **on** Point-of-Care Healthcare Technologies, 2013

EMS 2022. *Park Me Safer* : SMART PARKING AND DAMAGE NOTIFICATION SYSTEM BASED ON RFID TECHNOLOGY

ARCHITECTURE DIAGRAM

DESCRIPTION: Vehicle Parking in Shopping Malls, Theatres and so on makes lot of troubles to the vehicle owner and consumes lot of time in searching an empty lot, parking and so on. In this paper, a sophisticated parking system based on RFID technology is proposed. Here, an RFID Tag is fixed with every vehicle. When the vehicle tends to enter the parking gate section, the reader at the Gate section reads the Vehicle's Tag value and thus obtains the Information of the owner, License Plate number ,etc. from the server and stored in database. Also RFID tag of corresponding empty parking lot is given to the driver. The RFID Tag value of the vehicle is sent to the particular lot entry. When the vehicle approaches the lot entry, the device at the entry will compares the vehicle ID and open/close the gate for parking the vehicle. PIR sensor is used for monitoring presence of vehicle inside the lot for switching ON/OFF lights automatically. Vibration sensor in car is used for vehicle's damage notification. Buzzer alerts during damage notification.

DOMAIN: Wireless, Automation

IEEE REFERENCE: IEEE Paper on Intelligent System Design and Engineering Applications,2013

EMS 2023. *HomSec* : DESIGN OF SMART HOME MULTI LAYER CONTROL SYSTEM WITH SECURITY AND DOOR OPENING

ARCHITECTURE DIAGRAM

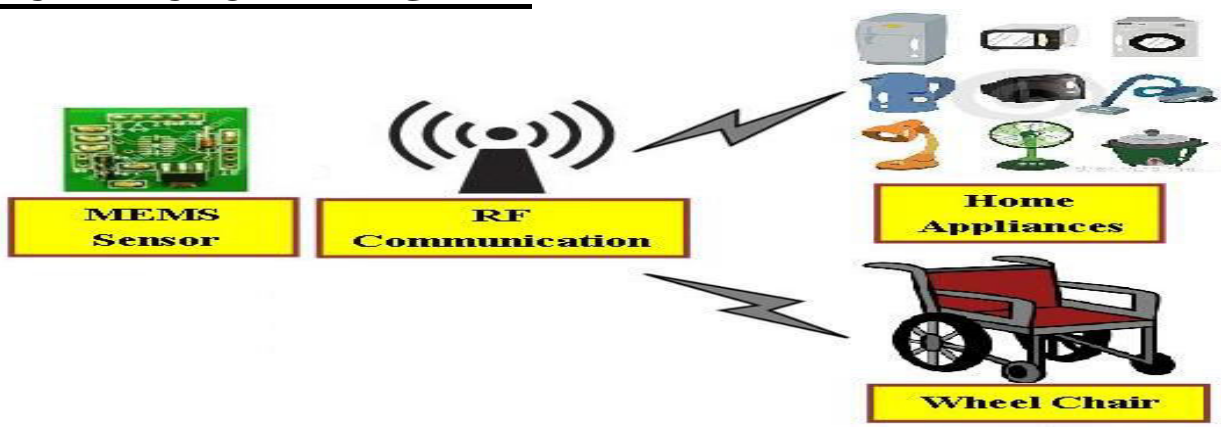
DESCRIPTION: A smart home based on various sensor technologies is implemented in this project to provide a complete home security and automation system. Sensors such as temperature, vibration, IR, Gas are used to build a smart home system to monitor the entire home parameters. Various home parameters such as device status, gas leakage and so on will be monitored. The parameter status such as gas leakage or device status will be sent to the owner's mobile as SMS using GSM modem in home. The owner can control the devices by sending commands from his mobile to the GSM modem. IR sensor in the door is used to detect the person standing near to the door. The image of the person will be captured using a camera and it will be sent to the owner as SMS. Upon seeing the image the owner can open or lock the door remotely.

DOMAIN: **Automation, Security, (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** on VLSI Design & Embedded Systems, 2013

EMS 2024. *Hand Control* : A MOTION CONTROL METHOD OF INTELLIGENT WHEELCHAIR BASED ON HAND GESTURE RECOGNITION

ARCHITECTURE DIAGRAM



DESCRIPTION: This concept is proposed to improve the life of the disabled persons to control the home appliances and wheel chair by their own. MEMS based Hand Gesture Recognition is proposed in this technique for disabled persons. MEMS stands for Micro Electro Mechanical Systems used for motion detection. MEMS sensor will be fixed with the hands of the disabled person. They can control both the wheel chair and the appliances using MEMS sensor. The home appliances such as lights, fans and so on can be controlled. The wheel chair will be controlled to any direction as forward, reverse, right, left and stop. MEMS based concept will help to improve the life quality of the disabled peoples.

DOMAIN: **Robotics, Automation, (Social Cause / Society Based)**

IEEE REFERENCE: **IEEE Paper** on Industrial Electronics and Applications (ICIEA), 2013

EMS 2026. *Weigh Me* : NFC BASED STOCK MAINTENANCE AND BILLING SYSTEM WITH AUTO ALERT TO CONSUMERS IN RETAILS STORES

ARCHITECTURE DIAGRAM

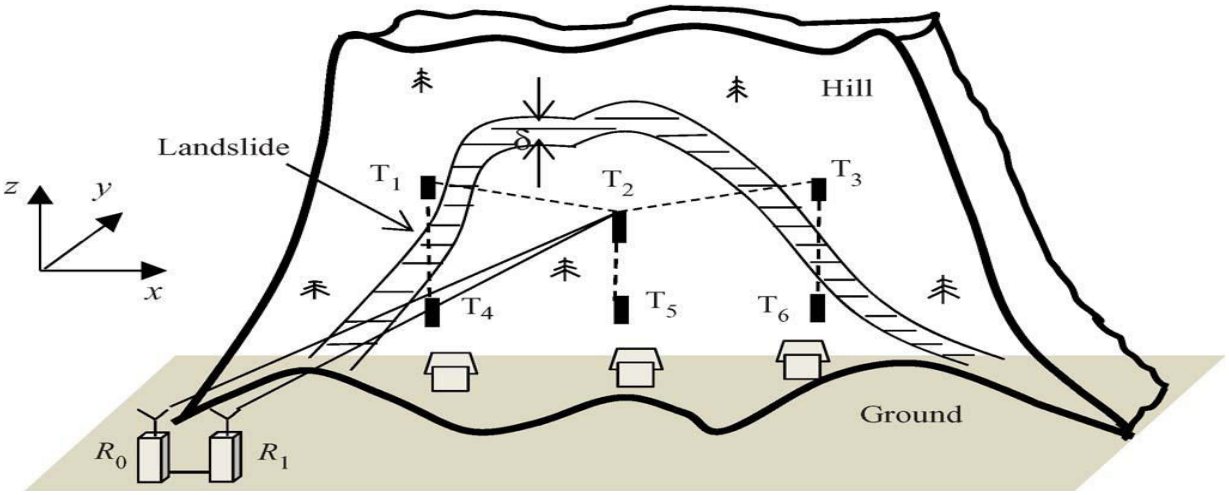
DESCRIPTION: In this project, NFC based technology is developed for stocks identification and selling of stocks to the public in ration shops. Each consumer has their NFC enabled multi purpose card . The ration shop module consist of a NFC reader, GSM modem, load cell, server for maintaining database of the stock sold for each card holder in a month. A message is sent when new stock for the month arrives in the shop to all the consumers in that area. The consumer can purchase the commodities by swiping the NFC tag . During billing, a load cell is used to measure the weights of the products. Also, using IR sensors, whether stock has been delivered or sold can be checked and updated in the database.

DOMAIN: **Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper** on Signal Processing and its Applications (CSPA), 2013

EMS 2028. *Save Earth* : DESIGN OF DISASTROUS LANDSLIDE MONITORING WITH PROACTIVE PREVENTIVE CARE SYSTEM

ARCHITECTURE DIAGRAM



DESCRIPTION: A new landslide detection technique is proposed in this paper. Angle sensor and level sensor are used to monitor the land areas angle and level continuously. If there is any change in these two values during rainy season or other natural disaster period, then a signal is sent to the control section through RF communication. An alert is created at the control room using a buzzer and a display displaying the land slide information. Thus with these information, measures can be taken in advance and avoid a great loss.

DOMAIN: **Security**

IEEE REFERENCE: **IEEE Paper** **on** Geosciences and Remote Sensing, 2013

EMS 2030. *Pick Me & Place :* DESIGN, FABRICATION AND CONTROL OF 3 AXIS ROBOT (CRANE) USING WIRELESS TOUCH DEVICE

ARCHITECTURE DIAGRAM

DESCRIPTION: Crane is a heavy vehicle used to move and replace heavy loads from one place to another. Crane operation is a most difficult tasks as it requires large training and experience to avoid major problems. The system proposed in this paper demonstrates the Touch Panel based control of crane using RF Communication. RF transmitter is placed in the control section along with Capacitive Touch Panel. RF Receiver is placed in the crane section to receive and controls the operation of the crane. For the demonstration purpose we use a robot model instead of crane. Robot model is a Pick and place type robot with 3D-arm which can perform all operations of a Crane like moving the arms, holding object, replacing objects, etc. whose motions can be controlled by the user using a touch panel.

DOMAIN: **Automation, Robotics, Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper on** Industrial Technology, 2013

EMS 2031. *iTel Lamp* : CONTEXT AWARE BUILDING ENERGY MANAGEMENT SYSTEM WITH HETEROGENEOUS WIRELESS SENSOR NETWORK

ARCHITECTURE DIAGRAM

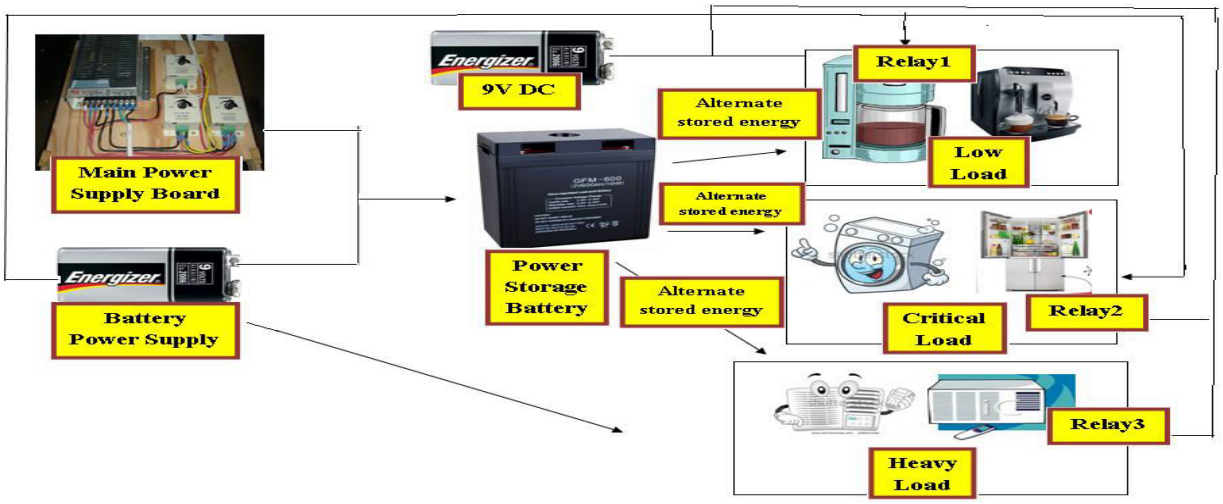
DESCRIPTION: This project is to reduce the wastage of power consumption in office cabins. Wireless Sensor Network is used for monitoring human motion inside the cabins. Human Presence is detected using Passive Infrared sensor. Light intensity is measured using LDR. Based on the human motion detection and the light intensity of the cabin, the light and fan will be controlled. The power consumption of the PC monitor in the absence of user is also reduced by using IR sensor. The status of the light and fan of each cabin will be transmitted through the central server. Zigbee is used to transmit data from sensor node to the central server.

DOMAIN: Automation, Power Management

IEEE REFERENCE: IEEE Transactions on Smart Grid Technology, 2013

EMS 2032. *Prioritize Me* : AUTOMATED ELECTRICAL PROTECTION SYSTEM FOR DOMESTIC APPLICATION

ARCHITECTURE DIAGRAM



DESCRIPTION: An efficient utilization of power management in domestic application is proposed in this concept. The source of power is taken from the main EB station and also from the renewable energy. The Solar power is observed and stored in the battery using solar panel for domestic usage. This stored energy will be used during main power cut. Also for better power utilization, appliances in homes will be categorized as heavy, low and critical. The priority will be given to the heavy loads. Upon request, low load will be given power supply. During emergency situation, low loads are considered as critical loads and given priority to the loads. This way can help the consumer to efficiently use the power.

DOMAIN: **Power Electronics, Automation**

IEEE REFERENCE: IEEE Paper on Power Engineering and Optimization, 2013

EMS 2033. *Test Me* : DESIGN OF ELECTRONIC SYSTEM TO MONITOR THE WATER CONTAMINATION AND DISTRIBUTION SYSTEM FOR PHARMACEUTICALS INDUSTRY

ARCHITECTURE DIAGRAM

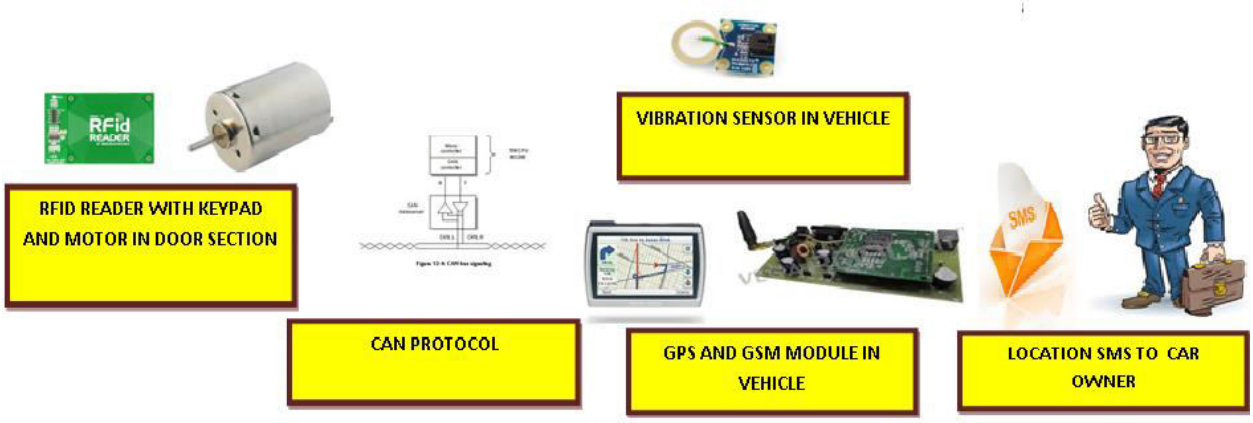
DESCRIPTION: Water is one of the major commodities used by the pharmaceutical industry. It will be used for reconstitution of products during synthesis, during production of the finished product or as c1eaning agent for rinsing vessels, equipment, primary packaging materials etc. Once water for pharmaceutical use has been obtained, it must be stored and distributed to the points of use; there is no point in producing quality water unless it is correctly stored and distributed. In this work the first stage is to automate the water storage & distribution for various requirements and monitoring the pH, level, temperature before distribution. The next stage of the work is to control the flow rate of the water in the distribution line. An alert SMS will be sent to the manager if there is any water contamination.

DOMAIN: **Automation, Communication**

IEEE REFERENCE: **IEEE Paper** on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s), 2013

EMS 2035. *iBox Track* : DESIGN OF CAN BASED VEHICLE THEFT PREVENTION & IDENTIFICATION SYSTEM

ARCHITECTURE DIAGRAM



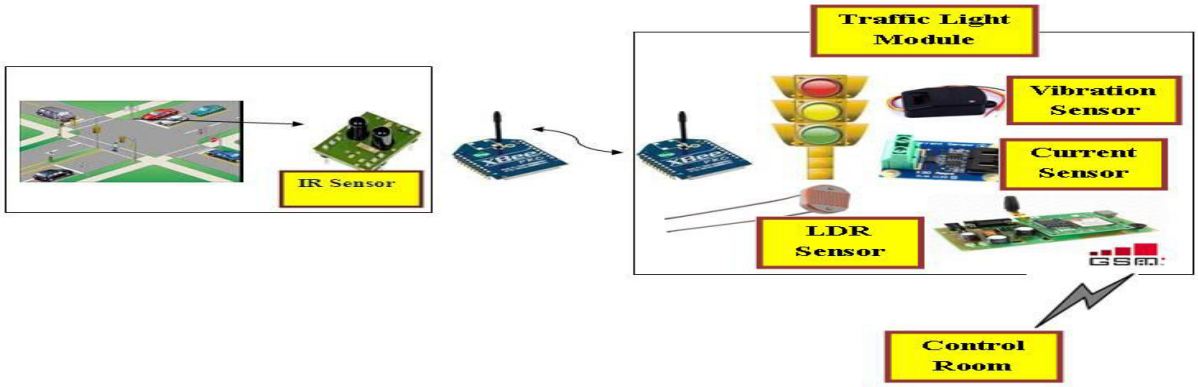
DESCRIPTION: Design and Development of a vehicle theft control system is achieved using RFID, GPS and GSM technology in the vehicle. RFID Reader is fixed with the door so that the authorized user only can control the door. If the door is controlled by an unauthorized person and the vehicle is theft, then the location of the vehicle will be tracked by sending a request message to the GSM in the vehicle. The GPS value of the vehicle will be sent back to the owner of the vehicle. The owner can also stop and lock the engine and the door by sending a control command as SMS to the vehicle. If the vehicle is met with an accident the accident information along with the location value is also be sent to the vehicle owner. The door module and the engine control module will be inter connected using CAN Bus.

DOMAIN: **Social Cause / Society Based, Control System**

IEEE REFERENCE: **IEEE Paper on** Green High Performance Computing, 2013

EMS 2036. *AUTO SIG* : AUTOMATIC TRAFFIC SIGNAL CONTROL AND FAULT IDENTIFICATION SYSTEM

ARCHITECTURE DIAGRAM



DESCRIPTION: An Intelligent Traffic Signal Control System based on vehicle density is proposed in this concept. This system is proposed to overcome the drawbacks of existing system of time and manual based traffic signal control system. This system comprises of IR sensors on each sideways of the roads to detect the density of vehicles . This information will be transmitted to the traffic signal light section using Zigbee Transceiver. The traffic signal light section receives the values from all sides, compares it and controls the signal based on high traffic density. Also the faults in the traffic light signal is detected using Vibration sensor to detect any damage due to vehicles' crash with the signal post, current sensor to check the incoming current to the light and so on. If the fault is detected the automatic alert will be sent to the control room using GSM module.

DOMAIN: **Automation. Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper** on Intelligent System Design and Engineering Applications, 2013.

EMS 2037. *Rem Robot* : WIRELESS BASED REMOTE SENSING AND TELEOPERATION OF A MOBILE ROBOT

ARCHITECTURE DIAGRAM

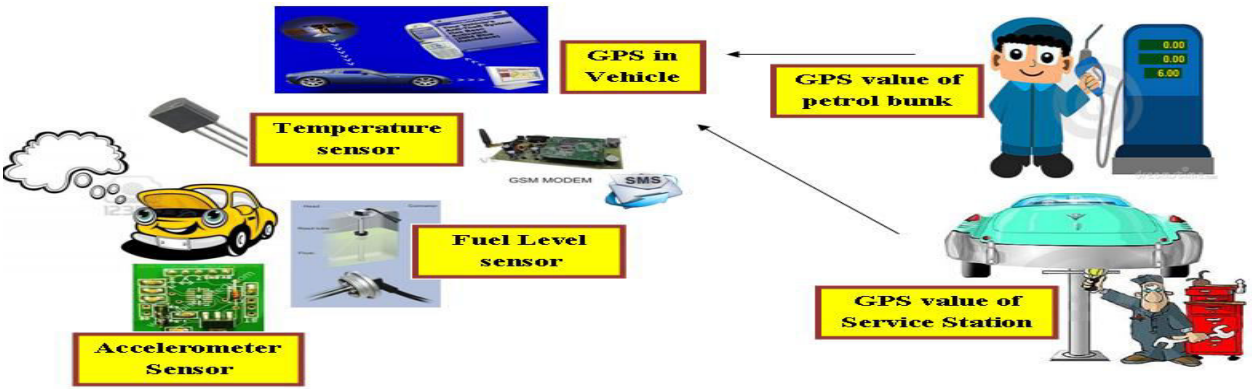
DESCRIPTION: The main objective of this paper is to design and implement a remote sensing and monitoring system running on mobile robot with obstacle avoidance capability in unreachable area. A simple mobile robot prototype with onboard sensors has been designed and implemented to scan and monitor several variables in the surrounding environment. Various sensors such as temperature, gas, ultrasonic are used to monitor the environmental parameters in the dense area. The GPS receiver is fixed with the robot to track the location information of the abnormality area. Teleoperation of such a mobile robot is a challenging task that requires an efficient interface and a reliable real time robot control to avoid obstacles. The proposed system enables the user (base station) to send commands to the remote station (mobile robot) and receive sensor value from the environment through mobile communication.

DOMAIN: **Robotics, Communication, Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper** On Systems, Signals & Devices (SSD), 2013

EMS 2038. *iFind* : AN EMBEDDED HARDWARE PLATFORM FOR IN-VEHICULAR MONITORING AND GPS BASED NEIGHBORHOOD TRACKING SYSTEM

ARCHITECTURE DIAGRAM



DESCRPTION: In this project, vehicle's internal parameters such as engine temperature, fuel level, etc is monitored are done by using GPS and GSM communication. Temperature sensor, MEMS and Level sensor are used to monitor the engine's temperature, vehicle status and fuel level of the vehicle respectively. If the level goes below the threshold value, then an GPS Location of the nearest petrol bunk is displayed to the driver. GSM modem is used to send message to the nearest service station in case if the vehicle has stopped due to fault. MEMS sensor is used to detect the motion of the vehicle. GPS receiver is use to locate the vehicle during emergency situations.

DOMAIN: **Automobile, Security, Social Cause / Society Based**

IEEE REFERENCE: **IEEE paper** on Communication Systems, 2013

EMS 2041. *R – Detector :* RFID BASED AUTONOMOUS TRACKING AND RESCUE ROBOT FOR DISASTER MANAGEMENT IN A FOREST ENVIRONMENT

ARCHITECTURE DIAGRAM

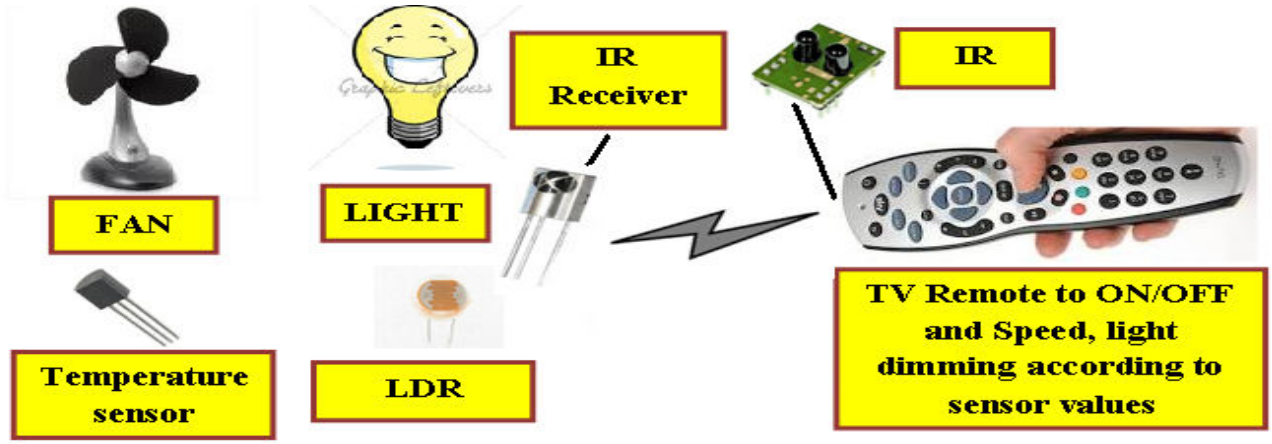
DESCRIPTION: This paper presents the framework of an RFID based rescue robot for missing people in forest environment. Trees are stick with RFID tags. The rescue robot has a RFID reader which reads the tag and send the information to the control section through Zigbee transceiver. It also uses a PIR sensor to detect the presence of people around the area and send this information to the control section. With the tag ID, the location is identified and people's presence is notified. This rescue robot is an autonomous robot to monitor and detect a missing person in a forest area.

DOMAIN: **Robotics, Wireless Communication**

IEEE REFERENCE: **IEEE Paper** on Communication Systems, 2013

EMS 2044. *Rem Box :* A REMOTE BASED DEVICE, SPEED AND DIMMING CONTROL MECHANISM

ARCHITECTURE DIAGRAM



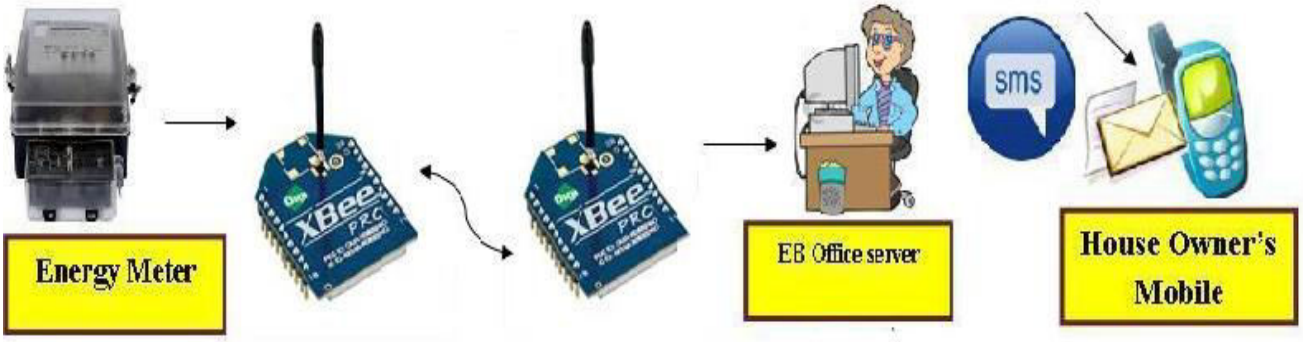
DESCRIPTION: In this project, a remote is used for controlling the appliances like fan, light etc with the provision of speed and dimming control respectively. Two modes are also provided Manual and automatic mode. In manual mode, the user has to provide the control commands like increasing or decreasing the speed of the fan or brightness of the light using the TV remote controller by monitoring the sensors at every node like temperature and LDR etc. In automatic mode, by monitoring the sensors, automatic control like ON/ OFF and speed , brightness control is achieved automatically.

DOMAIN: Power Electronics, Communication

IEEE REFERENCE: IEEE Paper on Informatics, Electronics & Vision (ICIEV), 2013

EMS 2045. *TAM Meter :* DESIGN OF ZIGBEE BASED AUTOMATIC ENERGY METER READING AND TAMPERING DETECTION WITH BILLING SYSTEM

ARCHITECTURE DIAGRAM



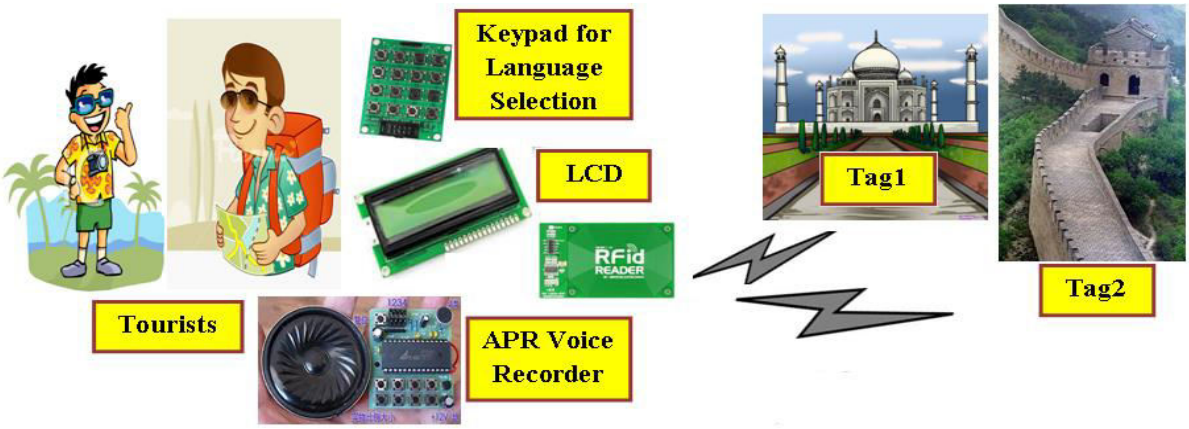
DESCRIPTION: This paper presents the design of a simple low cost wireless system for energy meter reading, instant billing and managing the collected data globally. The proposed system replaces the traditional meter reading and enables remote access of existing energy meter by the energy provider. A Zigbee based wireless communication module is integrated with electronic energy meter of each home to have a remote access over the usage of power. A PC with a Zigbee transceiver at the EB station acts as a billing point. The complete monthly usage and due bill is sent back to the Zigbee transceiver in the energy meter section back to the customer after processing these data. The bill amount will be debited from the consumer's bank account and an SMS will be sent as a receipt to the consumer's mobile number automatically.

DOMAIN: Wireless Communication, Social Cause / Society Based

IEEE REFERENCE: IEEE Paper on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s), 2013

EMS 2046. *E - Guide* : ADVANCEMENT IN THE MOBILE TECHNOLOGY AS A TOUR GUIDE SYSTEM

ARCHITECTURE DIAGRAM



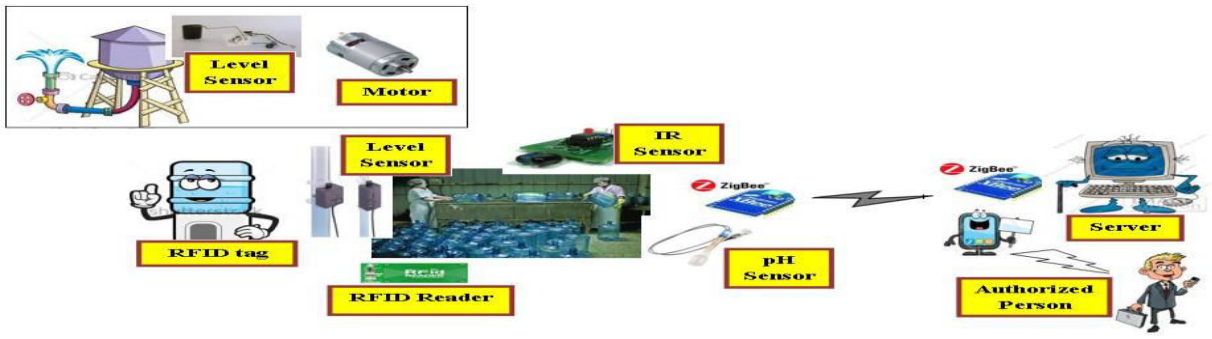
DESCRIPTION: In this project, a tour guiding assistance is provided using RFID technology. In this project, RFID tags are given for each landmark places with historical importance. For each group of user, a guiding module is provided which consists of a RFID reader. This reader is used to read the tags during the place visit. The read tag value will be sent to the remote server . The server will then transmits the information about the places and landmarks through voice recorder and playback device. Thus without any human help, except for provision and collection of the guide module, a tourist can visit a place, get its full information up to their satisfaction.

DOMAIN: **Social Cause / Society Based**

IEEE REFERENCE: **IEEE Paper** on Signal Processing Image Processing & Pattern Recognition (ICSIPR), 2013

EMS 2049. *Can Check* : METRO OVERHEAD TANK & CAN WATER MONITORING SYSTEM USING ZIGBEE BASED WSN

ARCHITECTURE DIAGRAM



DESCRIPTION: The proposed system is used for monitoring the overhead tanks i.e. filling the water tanks or stopping the pumping based on the available water level and monitoring the distribution of water. The existing can water supply has several problems like contaminated water and reduced water level . The system proposed consists of a central server by which the consumers can request for water supply to their house. The server will forward the information to the supplier nearest to the consumer. The cane with RFID Tag will be checked to detect the PH level, level of water and so on pH sensor is used for detecting the quality of water, level sensor for detecting the water level inside the cane, and RFID tag is used as Label for all the cans. The feedbacks will be sent by the consumer to the server to avoid malfunctions also orders can be placed by sending a request to the server.

DOMAIN: **Wireless**

IEEE REFERENCE: **IEEE Paper** On Information and Communication Technology, 2013

EMS 2052. *Seat For All :* SENSOR BASED SEAT OCCUPANCY AND AVAILABILITY INFORMATION SYSTEM IN PUBLIC TRANSPORTATION

ARCHITECTURE DIAGRAM

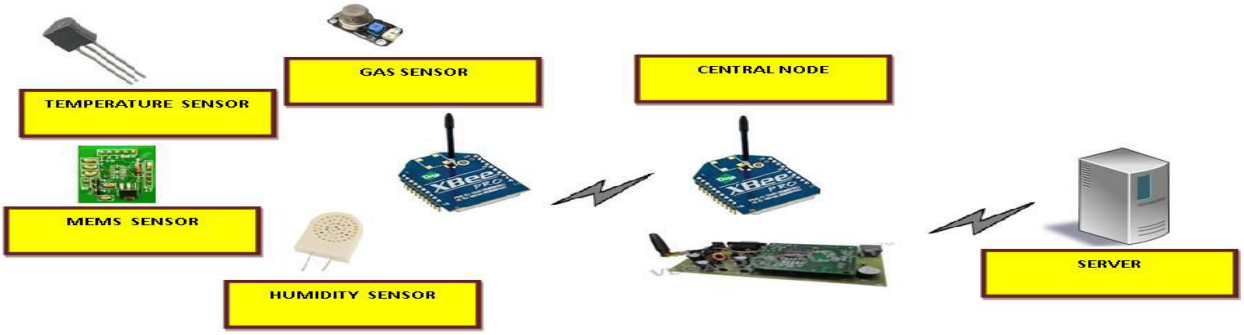
DESCRIPTION: The Minibus public transportation sector and road safety remains a significant challenge. We propose a low cost system to monitor the taxi industry and encourage safe driving. A low cost capacitive proximity sensor for seat occupancy detection is used in the seats to find whether it is occupied or not. The capacitive sensor uses a single electrode to detect an occupant. Also, IR sensors are used to count the number of passengers got into the bus and getting out of the bus, compare these value with the capacitive sensor's seat occupancy value and send it to the remote server using Zigbee Transceiver. The persons waiting for the bus can get the seat availability information from the server. Thus passengers can be made seated by this technique without causing a over standing crowd atmosphere inside the bus.

DOMAIN: **Public Transportation**

IEEE REFERENCE: IEEE Paper on Industrial Technology (ICIT), 2013

EMS 2054. *Green House* : WIRELESS SENSOR NETWORK FOR ATMOSPHERE MONITORING OF GREEN HOUSE ENVIRONMENT

ARCHITECTURE DIAGRAM



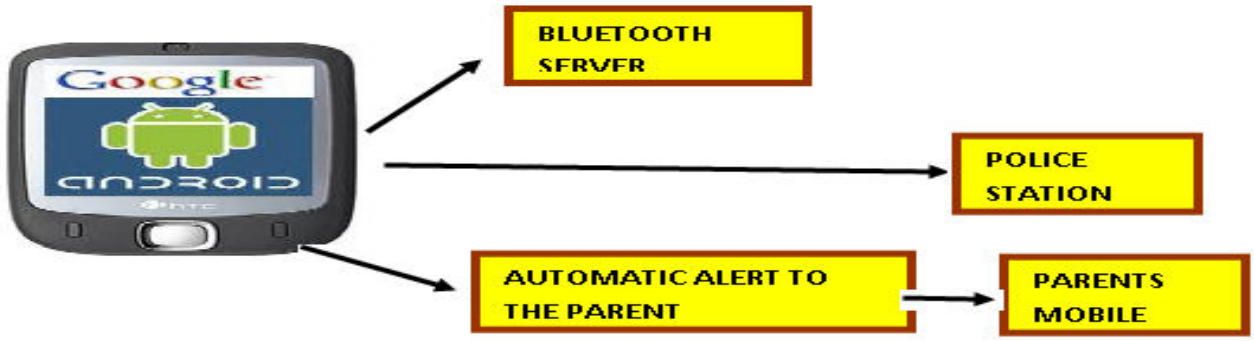
DESCRIPTION: Natural-risk management systems have become critical in recent years to reduce human fatalities and material costs resulting in the infrastructure reconstruction. The main natural hazards are threatening earthquakes and landslides. A system for natural risk management are must rely primarily on hydro- climatologically and seismic variables. This paper describes the design of a monitoring network of hydro-climatic variables for the existing sites using Zigbee/GSM technology. Sensors such as temperature, humidity, gas, MEMS are utilized in this concept to monitor the environmental parameters. The sensor values are transmitted to the central node using Zigbee technology. The central node transmits the information to the server using GSM communication. This paper reduces deployment and maintenance costs and it provides a flexible design for future network expansion.

DOMAIN: **Environment Monitoring**

IEEE REFERENCE: **IEEE Paper** On Communications and Computing (COLCOM), 2013

EMS 2055. *Locate Me* : LOCALIZATION & DETECTION OF EFFECTIVE TRACKING OF CHILDREN USING BLUETOOTH TECHNOLOGY

ARCHITECTURE DIAGRAM



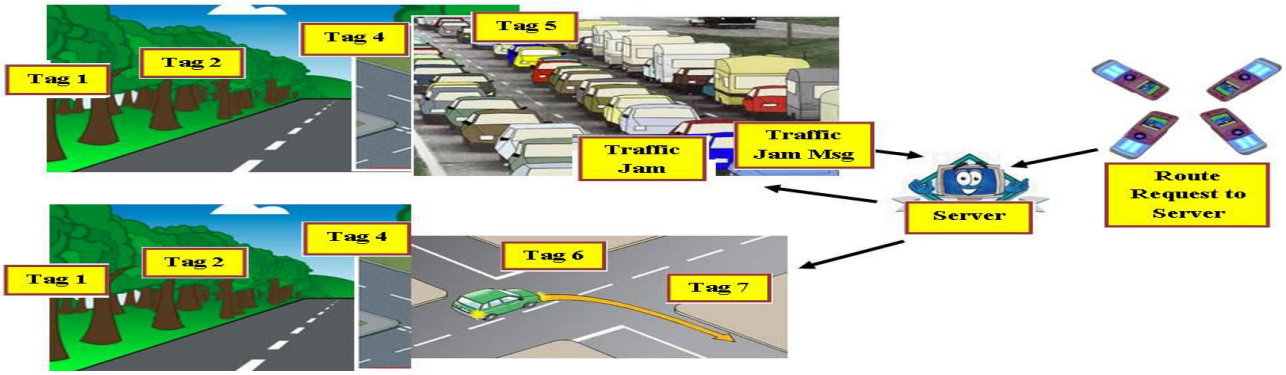
DESCRIPTION: In the **EXISTING SYSTEM**, children tracking system still a difficult task, as parents require server setup. In the **PROPOSED MODEL**, GPS, GSM voice recorder is provider to the children. Parents can send the request to the child's embedded hardware and can track the location. But in our implementation / **MODIFICATION** we are using Bluetooth instead of GPS for identification of location change in Indoor navigation. If a child is move from expected region an automatic SMS alert is send to the parents mobile. An emergency situation also provided to the children, in case of emergency.

DOMAIN: Android, Mobile Computing

IEEE REFERENCE: IEEE Paper on Communication & Signal Processing, 2013

EMS 2056. *Take Me Faster :* RFID BASED ACCIDENT IDENTIFICATION AND TRAFFIC ALERT INFORMATION SYSTEM

ARCHITECTURE DIAGRAM



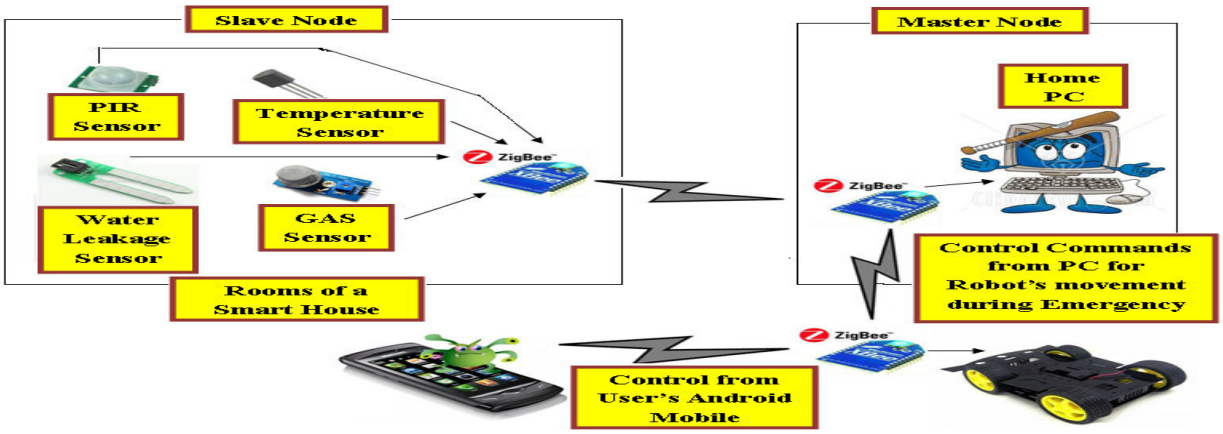
DESCRIPTION: This concept is developed to provide the urban traffic information to the vehicles and to guide them to take alternate routes for their destinations. RFID technology is utilized to provide location information as well as traffic information to the vehicles. For prototypic model, RFID Tag is used as a location identification. The traffic control server will keep track on each traffic information. If a person wants to know the route information from his location, by sending a request from his mobile , the server will send information by sending corresponding tag IDs specifying the routes. If there is any accidents or any other situations tends to create a traffic in a route, that will be updated in the server. The server will send the traffic information to the vehicles along with the alternate route information. This concept will help the working people not to stuck in traffic and to reach their destination in time.

DOMAIN: **Information Systems**

IEEE REFERENCE: **IEEE Paper** on Intelligent Transportation Systems, 2013

EMS 2057. *R - PUPPY :* BUILDING A SMART HOME SYSTEM WITH WSN AND SERVICE ROBOT

ARCHITECTURE DIAGRAM



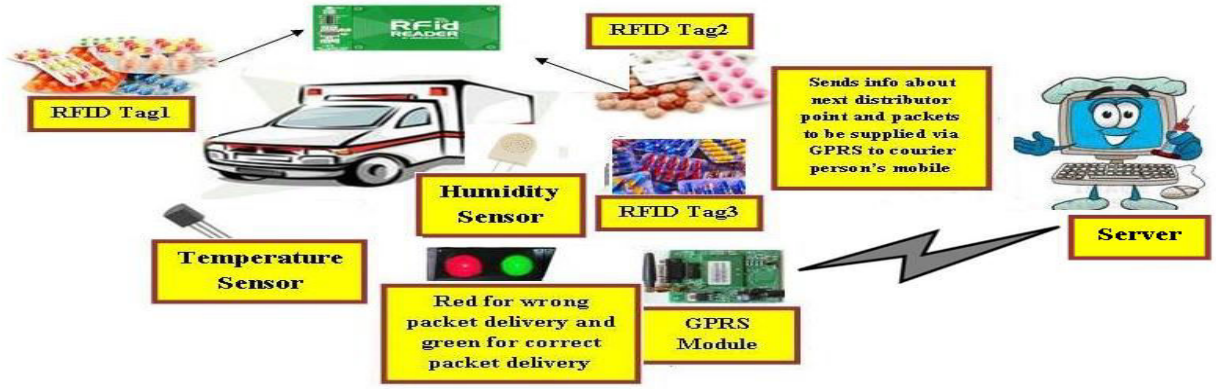
DESCRIPTION: This project is designed for building a smart home environment. For this purpose, temperature sensor is used to monitor temperature of the rooms, gas sensor for gas leakage, water leakage sensor for monitoring any leakage in the water lines, PIR sensor for human presence. All these sensor values are transmitted to the PC section via zigbee communication automatically in the automatic mode. If the sensors find any fire accident inside the rooms, then commands from PC are transmitted to a robot via zigbee communication for rescue purpose. The commands can also be sent to the robot after obtaining it from the user's android mobile in a third mode.

DOMAIN: **Robotics**

IEEE REFERENCE: **IEEE Paper** on Measuring Technology and Mechatronic Automation, 2013

EMS 2058. *Med Check :* TELEMATICS SYSTEM FOR INTELLIGENT TRANSPORT AND DISTRIBUTION OF MEDICINES

ARCHITECTURE DIAGRAM



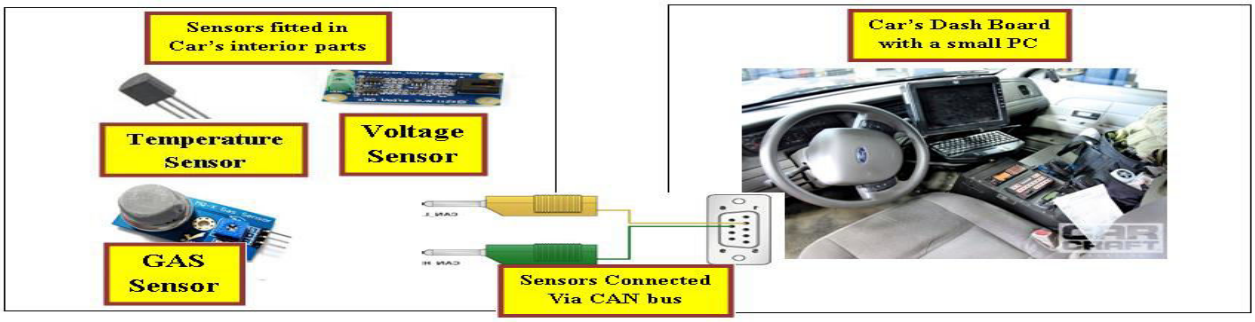
DESCRIPTION: A new technique in pharmaceutical medicine distribution system is designed in this project. When an order for medicine is placed, then server stores the information in its database. Each medicine box is given a RFID tag and each destination is given a RFID tag. The vehicle consists of a RFID reader and GPRS module. Temperature and humidity sensors are also employed in the vehicle section to monitor the storage condition of the medicines. Server sends the destination information to the vehicle's GPRS module. During distribution, tag values of the destination and medicine box are transmitted to the server from vehicle via GPRS module. Server then compares and verifies for correct match. As an authentication, green LED glows for correct distribution and Red LED for wrong distribution.

DOMAIN: **Communication**

IEEE REFERENCE: **IEEE Paper** on Intelligent Transport System, 2013

EMS 2059. *Engine Safe :* DESIGN AND DEVELOPMENT OF PIC MICROCONTROLLER BASED VEHICLE MONITORING SYSTEM USING CAN PROTOCOL

ARCHITECTURE DIAGRAM



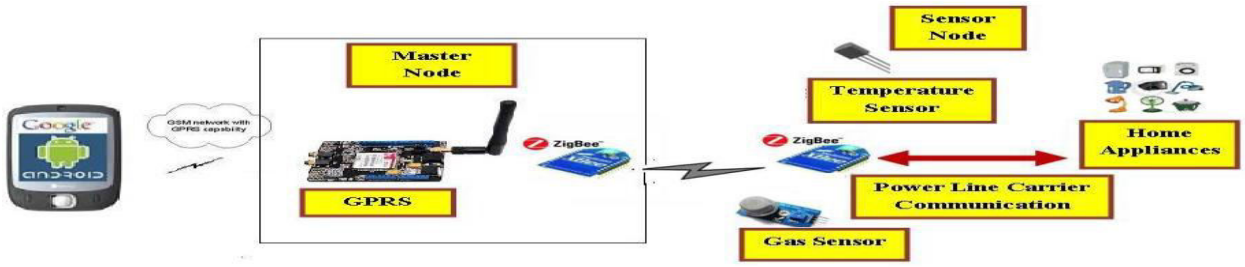
DESCRIPTION: Controller Area Network (CAN) is an attractive alternative in the automotive and automation industries due to its ease in use, low cost and provided reduction in wiring complexity. It was developed by Robert Bosch for communication between various digital devices inside an automobile where heavy electrical interferences and mechanical vibrations are present. This project is aimed at the implementation of CAN protocol using PIC microcontroller for vehicle monitoring system. The main feature of the system includes monitoring of various vehicle parameters such as Temperature, presence of gas level in the exhaust, Battery Voltage. CAN protocol will transmit the sensor values to the monitoring system in the dash board of the car. The monitoring station will display and control the devices based on sensor values. The software part is done in MPLab IDE using Embedded C.

DOMAIN: **Automobile**

IEEE REFERENCE: **IEEE Paper** Information Communication and Embedded Systems (ICICES), 2013

EMS 2060. *M – iControl :* LOW COST ANDROID BASED ENERGY EFFICIENT HOME AUTOMATION SYSTEM USING GPRS AND PLCC

ARCHITECTURE DIAGRAM



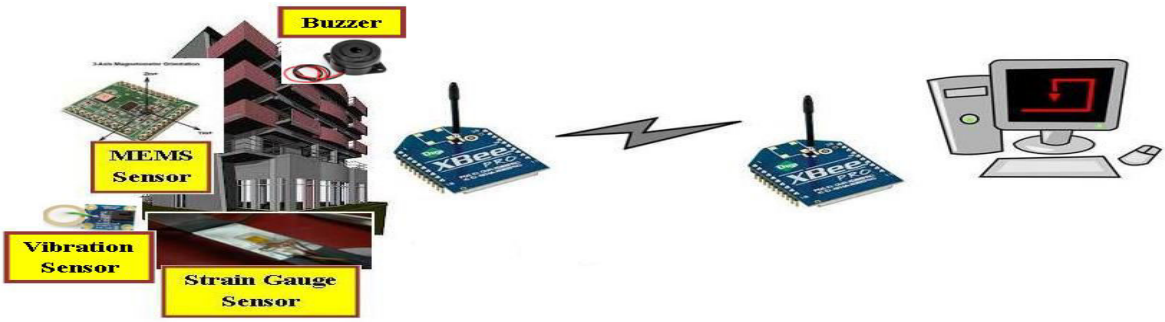
DESCRIPTION: In this project, we make use of Home Automation techniques to design and implement a remotely controlled, energy efficient and highly scalable Smart Home. Our system consists of home network (sensors and appliance actuators to respectively get information from and control the house environment). As a central controller we used a microcontroller that communicates with an Android Application, our user interface. Our house network brings together both wireless Zigbee and wired X10 (PLCC) technologies, thus making it a cost efficient hybrid system. Sensors such a s Temperature and Gas are used to monitor the room temperature and the Gas Leakage in home. The commands from the Android mobile will be received using GPRS module in the master node. These commands will be sent to various sensor nodes through Zigbee Communication. The devices will be controlled using PLCC technology.

DOMAIN: **PLCC, GPRS, Android**

IEEE REFERENCE: **IEEE Paper** on Computational Intelligence, Communication Systems and Networks, 2013

EMS 2061. *EmRes* : LOW POWER WIRELESS SENSOR NETWORK FOR PRE & POST EARTHQUAKE DETECTION & BUILDING CONDITION MONITORING SYSTEM

ARCHITECTURE DIAGRAM



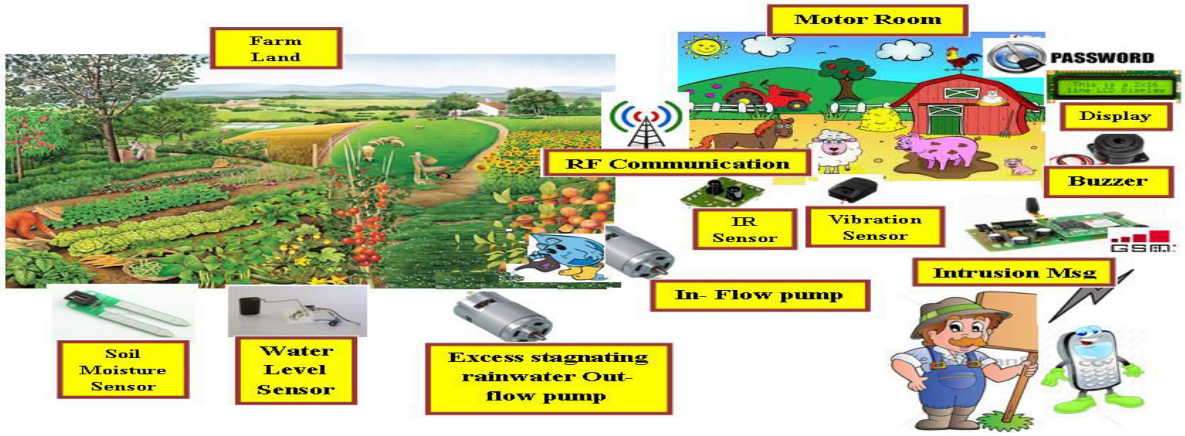
DESCRIPTION: A wireless sensor network is proposed for monitoring buildings to assess earthquake damage. The sensor nodes use custom-developed vibration sensor, strain gauge and acceleration sensors. Vibration sensor is used to detect the earthquake and to give buzzer alert to the people inside the building . The strain gauge sensor is used to measure the settlement of the building after an earthquake. They measure periodically or on-demand from the base station. The accelerometers are used to measure the seismic response of the building during an earthquake. These sensor values are sent to the monitoring station using zigbee. If the building condition becomes dangerous after an earthquake event, then the buzzer alert will be given to the surrounding people and to the rescue team .

DOMAIN: **Wireless Communication**

IEEE REFERENCE: **IEEE Paper** on Embedded Automation, 2013

EMS 2062. *Wi Agri Eye* : AUTOMATED IRRIGATION CONTROL AND SECURITY SYSTEM WITH WIRELESS MESSAGING

ARCHITECTURE DIAGRAM



DESCRIPTION: This work is designed to operate as an Automated Irrigation Control and Security System with Wireless Messaging option. The main objectives of our work are to maximize proper use of water, to minimize the cost of labor and to provide security. This project maintains the required water level in the field and throws up excess water due to heavy rain fall by controlling water pumps. A wireless system is designed to provide information to the owner of the land. To ensure the security of the pumps and other equipments, there is a password protecte3d lock system allowing the control of the authorized person only.

DOMAIN: **Communication**

IEEE REFERENCE: **IEEE Paper** on Informatics, Electronics & Vision, 2013

IEEE 2012 / 2011 PROJECTS

EMS 2063. DESIGN AND IMPLEMENTATION OF LOW COST INTELLIGENT WHEELCHAIR

IEEE REFERENCE: **IEEE Paper on** Recent Trends in Information Technology (ICRTIT), 2012

EMS 2064. DESIGN OF INTEGRATED MINE SAFETY MONITOR SYSTEM BASED ON ZIGBEE

IEEE REFERENCE: **IEEE Paper on** Systems and Informatics (ICSAI), 2012

EMS 2065. AN RFID BASED AUTONOMOUS INDOOR TOUR GUIDE ROBOT

IEEE REFERENCE: **IEEE Paper on** Circuits and Systems (MWSCAS), 2012

EMS 2066. DESIGN OF VOICE BASED MOUSE CONTROL SYSTEM

IEEE REFERENCE: IEEE Paper on EUROCON, 2011

EMS 2067. IDENTIFICATION CREDIT CARD FORGERY SYSTEM BY LOCATION BASED TRACKING USING ANDROID

IEEE REFERENCE: IEEE Paper on PDP, 2011

EMS 2068. GAS LEAKAGE DETECTION AND ENVIRONMENT SAFETY USING ZIGBEE

IEEE REFERENCE: IEEE Paper on **Measuring Technology and Mechatronics Automation, 2011**

EMS 2069. SECURED ONLINE VOTING SYSTEM WITH STEGNOGRAPHY IMPLEMENTATION USING RFID & FINGER PRINT TECHONOLOGY

IEEE REFERENCE: IEEE Paper on EPIT, 2011

EMS 2070. AN EFFICIENT TWO-FACTOR USER AUTHENTICATION FRAMEWORK FOR WIRELESS SENSOR NETWORKS

IEEE REFERENCE: **IEEE** Paper on ICACT, 2011

EMS 2071. FUZZY IMPLEMENTATION OF BIOMETRICS WITH FIVE FACTOR AUTHENTICATION SYSTEM FOR SECURED BANKING

IEEE REFERENCE: IEEE Transactions on Parallel and Distributed Systems, 2011

EMS 2072. RFID AND BIOMETRIC IMPLEMENTATION OF STUDENTS TRACKING SYSTEM WITH AUTOMATIC SMS ALERT TO PARENT'S BIOMETRIC ATTENDANCE SYSTEM

IEEE REFERENCE: **IEEE** Paper on Complex Medical Engineering, 2011

YOUR OWN IDEAS ALSO