Eco Friendly

1. Car to Car Communication based on GPS and WI-FI.

This Project proposes a vehicle-to-vehicle communication protocol for cooperative collision warning. Emerging wireless technologies for vehicle-to-vehicle (V2V) and vehicle to-roadside (V2R) communications such as DSRC (Dedicated Short Range Communications) are promising to dramatically reduce the number of fatal roadway accidents by providing early warnings. One major technical challenge addressed in this Project is to achieve low-latency in delivering emergency warnings in various road situations. Based on a careful analysis of application requirements, we design an effective protocol, comprising congestion control policies, service differentiation mechanisms and methods for emergency warning dissemination. Simulation results demonstrate that the proposed protocol achieves low latency in delivering emergency warnings and efficient bandwidth usage in stressful road scenarios. The protocol comprises of following things :-

- Technology that will enable cars to talk to each other, helping to reduce crashes as well as potentially fuel consumption.
- The idea is that the wireless network and GPS chip in the cars can “see” the other cars connected to the network
- If the driver can’t actually see the other cars for one reason or another (they’re blocked at an intersection or in a blind spot).

2. Approach lightning system/pilot controlled lightning at airport runway for energy conservation

Pilot Controlled Lighting (PCL), also known as Aircraft Radio Control of Aerodrome Lighting (ARCAL) or Pilot Activated Lighting (PAL), is a system which allows aircraft pilots to control the lighting of an airport or airfield's approach lights, runway edge lights, and taxiways via radio. At some airfields, the aerodrome beacon may also be ARCAL controlled. ARCAL is most common at small or little-used airfields where it is neither economical to light the runways all night, nor to provide staff to turn the runway lighting on and off. It enables pilots to control the lighting only when required, saving electricity and reducing light pollution. The ARCAL frequency for most aerodromes is usually the same as the UNICOM/CTAF frequency, although in some rare cases, a second ARCAL frequency may be designated to control the lighting for a second runway separately (an example of this is runway 01/19 at the airport in Sydney, NS). To activate the lights, the pilot clicks the radio transmit switch on the ARCAL frequency a certain number of times within a specified number of seconds. There are two type of ARCAL systems, type J and type K. When either type of system is activated, a 15-minute countdown starts, after which the lights turn off. While the lights are on, whenever a lighting command is issued, whether it changes the lighting intensity or not, the 15-minute countdown is reset. At some airfields, the lights may flash once to warn pilots that the lights are about to go off, before turning off two
minutes later. When using ARCAL, it is strongly recommended that aircraft on final approach to the airfield issue a fresh lighting command, even if the lights are already on (especially if the lights were activated by another aircraft). This is so that the lighting does not turn off at a critical moment (such as when crossing the runway threshold).

- The purpose of the project was to design and build a system that can turn off and turn on relays of light while the Airplane approaches and leaves the runway. The lights will be turning on and off on the movement of airplane. Hence when no airplane is there lights will be off only.

- This will be based on RF (radio frequency) and through turn on the relay of lights on runway. As soon as the light is gone it will turn off the relay of light at the runways.

3. Advanced Rural Transportation Systems (ARTS)
Advanced Rural Transportation Systems (ARTS) provide information about remote road and other transportation systems. Examples include automated road and weather conditions reporting and directional information. This type of information is valuable to motorists travelling to remote or rural areas. This has been widely implemented in the United States and will be a valuable asset to countries like India, where rural areas are widely distributed.

4. Advanced Traffic Management System/ Automatic Number Plate Reader (ANPR) cameras
ATMS involved a trial run of the fully automated Traffic Regulatory Management System (TRMS), Involving usage of surveillance cameras in the city of Chennai. This project involved installing sophisticated cameras, wireless towers and poles, under the Rs. 3-crore State government funded project. Automatic Number Plate Reader (ANPR) cameras were installed in 28 out of 42 vantage points in the city, while „Pan Tilt Zoom” (PTZ) cameras were deployed in 10 out of 12 busy junctions identified. The traffic police also plan to install 40 CCTV cameras at various junctions. This is to warn motorists who blatantly violate rules and monitor traffic on arterial roads during peak hours. This integrates various sub-systems (such as CCTV, vehicle detection, communications, variable message systems, etc.) into a coherent single interface that provides real time data on traffic status and predicts traffic conditions for more efficient planning and operations. Dynamic traffic control systems, freeway operations management systems, incident response systems etc. respond in real time to changing conditions.

5. Multipoint Wireless Data Acquisition System for Smart Vehicle.
In data acquisition mode ARM-7 microcontroller acquires and stores different parameter of car. The main block of Wireless Data Acquisition System for Vehicles is ARM-7 micro controller which is heart of the WDASV which provides monitoring and controlling actions. It senses signals from input blocks and processes output blocks. The software program is stored in ARM-7 microcontroller on chip memory, according to which it provides the controlling actions. The on chip ADC converts these parameters into digital form and gives to the ARM-7 microcontroller. The status of door status i.e. whether the door is opened or closed is sensed by door status block and gives the corresponding.
Embedded PROJECT ABSTRACTS
(IOT (Internet Of Things, Automotive, Biomedical, Robotics, Biometric, Eco- Friendly, Biomedical, GSM, GPRS, BLUETOOTH, ZIGBEE), Raspberry PI.

signal to microcontroller. The speed of the vehicle is sensed by the speed sensor and this speed is measured in RPM by ARM-7 microcontroller. With the help of keyboard block the driver can enter the password along with cabin temperature. The LCD block is provided for visual display of the message and password. Also it continuously displays the measured parameters. The RTC provides real time clock depending on which the various events occur. Whenever accident takes place the accident interrupt block gives interrupt to the ARM-7 microcontroller. Through serial communication block the WDASV is interfaced the PC. With this interfacing the stored data is transferred serially to PC, for the analysis purpose.

a) Alcohol Sensor  
b) LPG gas sensor  
c) Accident switches  
d) Fuel Level Indicator  
e) Speed of vehicle (RPM)  
f) Temperature of the Vehicle  
g) Door and Bonnet  
h) Obstacle Detection

6. Token number display with voice and security using microcontroller

Main features of the project are it, not only display the called number but also speaks out the number. In case of any security threat to the cashier, a panic foot switch can be connected on a suitable place many such switches can be installed, press the switch to dial the nearest police station number to inform about the emergency situation in the bank.

7. GSM controlled door latch opener with security autodial-up

The said project is designed on the DTMF decoding. our modern telephone and even our mobile phone uses DTMF coding for number dialing. These DTMF codes can be decoded and utilised for useful purposes. The circuit utilises ic8870 for dtmf decoding. Microcontroller 89c51 reads these codes and takes the necessary action. Door latch can be opened by entering the correct password, you can also connect security sensors of your choice, in case of any breach of security takes place, the device will dial out the prestored number and delivers an emergency message.

8. Intelligent Car Lighting System using LDR

Automatic car lighting system is a simple yet powerful concept, which uses a transistor as a switch. By using this system manual works are 100% removed. It automatically switches on the lights when the sunlight goes below the visible region of our eyes. This is done by a sensor called Light Dependent Resistor (LDR) which senses the light actually like our eyes. It automatically switches off the lights, whenever the sunlight comes, visible to our eyes.
9. Implementation OF Real Time Passenger Information System Using GPRS

RTPIS provides travel information to passengers and tourists enabling them to make informed decisions about modes, routes and departure times.

The RTPIS framework can be broadly divided into two contexts:

(1) Pre-trip context and
(2) On-trip context.

Pre-trip context: The former provides information like timings, fares and routes well before the commencement of travel, through the Internet or the Short Messaging Service (SMS).

On-trip context: The On-trip context provides information like location and places of interest (POI) while on the move. This is achieved using on-board and at-stop terminals (displays and audio announcement units).

10. Automatic Terminal Information Service or ATIS

The ATIS information is relayed by a recorded voice and is important in an airport’s/Bus Terminal/ Harbor everyday operation, like when there are multiple landing strips receiving traffic because of upcoming landings and even operational information. Here is several ATIS information that is important to the pilot/driver:

- Arrival and departure indicator
- Time of weather observation
- Visibility
- Air Temperature
- Altimeter Settings
- Wind direction and speed
- Runways in use/ not it use
- Type of approaches expected
- Surface conditions
- Other essential operation information

Drivers use this information whenever they can to ensure the safety of the flight; they even listen again and again especially when there are changes in air traffic. The objective is to inform road-users of latest traffic updates and better management of traffic. Technologies that are employed are:

- SMS, internet and radio have been employed for updates.
- The update protocols in a few Indian cities are as follows:
  (a) Internet facility @ Bangalore and Hyderabad
  This project provides a platform for the public to check the real time traffic situation at important junctions and arterial roads, through the net.
  (b) SMS facility @ Chennai
  SMS will be sent during morning and evening peak hours to the subscribers, indicating congestion points and bottle necks. b. Chennai
  (c) FM radios facility @ Kolkata
Traffic updates are being provided on FM radio to convey critical information such as obstruction and road damage due to rain.

11. **Accelerometer based accident detection System**

The rapid growth of technology and infrastructure has made our lives more easy. The advent of technology has also increased the traffic hazards and the road accident take place frequently which causes huge loss of life and property because of the poor emergency facilities. Our project will provide an optimum solution to this draw back by using an MEMS sensor, GPS & GSM.