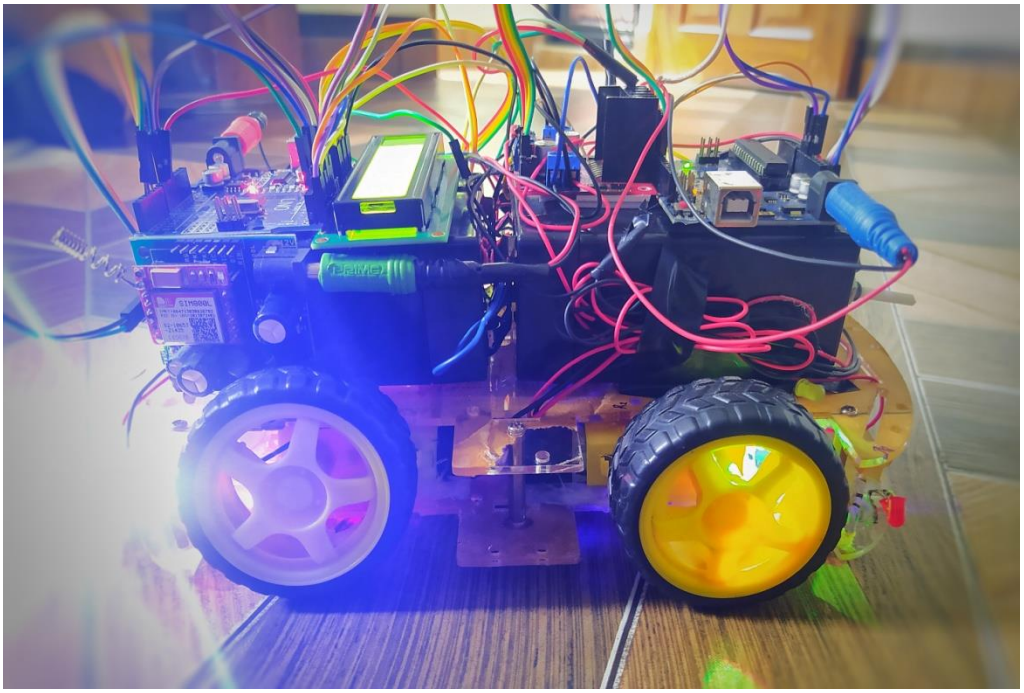
ACCIDENT PREVENTION AND REPORTING SYSTEM SYSTEM USING GSM (SIM 800L) AND GPS(6 MV2)



Project Title: **Accident Prevention and Reporting System Using GSM (SIM 800L) And GPS (6 MV2).**

Objective: **The main objective of this project is to prevent the accidents which take place due to harsh driving, alcoholism of the driver, sudden sleep and more cases. If the accident happens, the used electronic device (project) will be able to provide the spontaneous message and exact location to the pre-defined number.**

Scope and Application of the Project:

The project has a wide range of practical scopes:

• The accident preventive measures can be use with all type of engine vehicles.

i.e. diesel/petrol engine.

• The GPS and GSM system can be used to determine over speed in restricted

area and charge penalty automatically decreasing human manpower, saving

time and money.

• Reporting system can be used with Home security, personal security connecting with family, vehicle security.

Implementation Strategy and Plan: Currently there is no technology for accident detection. As it is done manually there is loss of life in golden hours. The accident victim is dependent on the mercy of others to rush him to hospital. Many times an accident goes unnoticed for hours before help comes .Due to all these factors there is a high rate of mortality of the accident victims. In addition to this there is delay in the ambulance reaching the hospital to the traffic congestion between accident location and hospital which increases the chances of the death of victim. So we need to spread the use and advantage of our project through exhibition and present our ideas to different association and organizations.

Components of the Project:

1.Arduino: Arduino UNO is a open source hardware and software project created with simple aims in mind to be as simple as possible. Arduino Uno which is based on a removable dual inline package the board is equipped with shapes of digital and analogue input / output pins.

2. ACCELEROMETER (ADXL335): An accelerometer is an electromechanical device that will measure acceleration force. It shows acceleration, only due to cause of gravity i.e. g force. It measures acceleration in g unit.

The ADXL335 gives complete 3-axis acceleration measurement--

- **This module measures acceleration within range ±3 g in the x, y and z axis.**
- **The output signals of this module are analog voltages that are proportional to the acceleration.**

It contains a polysilicon surface-micro machined sensor and signal conditioning circuitry.

3. GPS MODULE (6MV2): The NEO-6MV2 is a GPS (Global Positioning System) module and is used for navigation. The module simply checks its location on earth and provides output data which is longitude and latitude of its position .It is from a family of stand-alone GPS receivers featuring the high performance u-blox 6 positioning engine. These flexible and cost effective receivers offer numerous connectivity options in a miniature (16 x 12.2 x 2.4 mm) package. The compact architecture, power and memory options make NEO-6 modules ideal for battery operated mobile devices with very strict cost and space constraints. Its Innovative design gives NEO-6MV2 excellent navigation performance even in the most challenging environments.

4. HC-05 Bluetooth module: HC-05 Bluetooth module provides switching mode between master and slave mode which means it able to use neither receiving nor transmitting data.TXD UART_TXD,Bluetooth serial signal sending PIN Connect with the MCU's (Microcontroller and etc) RXD PIN.

5.16x12 LCD Display: The term LCD stands for liquid crystal display. It is one kind of electronic display module used in an extensive range of applications like various circuits & devices like mobile phones, calculators, computers, TV sets, etc. These displays are mainly preferred for multi-segment light-emitting diodes

and seven segments. The main benefits of using this module are inexpensive; simply programmable, animations, and there are no limitations for displaying custom characters, special and even animations, etc.

6.GSM Module(SIM800L): SIM800L is a miniature cellular module which allows for GPRS transmission, sending and receiving SMS and making and receiving voice calls. Low cost and small footprint and quad band frequency support make this module perfect solution for any project that require long range connectivity. After connecting power module boots up, searches for cellular network and login automatically. On board LED displays connection state (no network coverage - fast blinking, logged in - slow blinking).This module have two antennas included. First is made of wire (which solders directly to NET pin on PCB) - very useful in narrow places. Second - PCB antenna - with double sided tape and attached pigtail cable with IPX connector. This one have better performance and allows to put your module inside a metal case - as long the antenna is outside.

Overview: The Rapid growth of technology has made our life easier. This advancement in technology also increased the traffic hazards. Hence the ratio of road accidents which take place frequently increases causing immense loss of life due to poor emergency facilities. My project provides a solution for accident detection and prevention for human life safety. When an accident occurs at a city, it helps by sending message to the pre-defined mobile number through GSM module in less time. Arduino is the heart of the system which helps in transferring the message to different devices in the system. GPS system will help in finding the location of the accident spot. The location can be sent through tracking system to cover the geographical coordinates over the area. When a vehicle faces accident, immediately vibration sensor will detect the signal and then Microcontroller sends the alert message through the GSM modem including the location to predefined number that can be reserved for a rescue team.

Working Principal: **When an accident takes place the system detects it and after the detection of vehicle accident, the system automatically reports to the pre-defined number without wasting a single second so that the casualty might not loss his/her life due to late in rescue. The system is installed in the vehicle as a preventive measure for vehicle. For the detection of vehicle accident accelerometer is installed and for reporting GPS module and GSM module are used. Motor (control switch) is used for engine control and buzzer; led lights etc. are used for warning during prevention. All these devices are interfaced with the central microcontroller (Arduino Uno) unit. Accelerometer detects the occurrence of accident and sends signal to the microcontroller for further functioning. GPS module provides the location, speed, time and date of the certain place where the vehicle is in the real time. If accident occurs, the accelerometer detects it and location of accident is obtained using GPS, and finally sends the information to the pre mentioned emergency number by the help of GSM module. The message obtained in mobile phone consists of the location of the accidental place in the form of Google map link which will help to the family member (pre- defined number)to reach the casualty in time and rescue the lives .**

Why The Project Is Necessary?

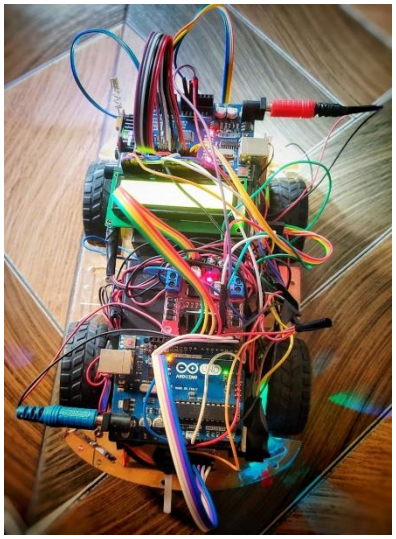
The answer to this question is very prompt.

Rapid development of economic construction and people's living standard continues to improve well as road traffic accidents take place frequently which causes huge losses of life and property to the country and people. In present days the rate of accidents are increasing rapidly. Due to employment the usage of vehicles like cars, bikes are increasing; because of these accidents can take place anywhere and everywhere. People are going under risk because of their over speed, due to unavailability of advanced techniques, the rate of accidents can't be decreased. To reduce the accident rate in the country this project introduces an optimum solution.

Budget of the Project: **The implemented system costs INR 1200/- .Overall our project is affordable, target's common people and easily implemented in all types of vehicles.**

Conclusion: **In this 21's century, with the continuous advancement in science and technology, more emphasis is given for vehicle safety. With the increase in number of vehicle, the number of road accident is also increasing day by day, so it is our duty to control it. Mostly the accident takes place because of drunk drivers, drowsiness while driving and over heating of engine causing fire. Implementation of this project will help to decrease the accident caused because of above reason. The system is automatic, low cost and power efficient which makes it easy to install in vehicle. Unfortunately, if accident happens to take place, the system detects it and with the help of GPS exact location can be pointed and informed to emergency unit using GSM module. This helps to save many lives by informing rescuing agent in time.**

Over all, this system is very affordable, targets common people and easily implemented in all types of vehicles.



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