Smart Car
(Accident Detection and Alert System)

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ABSTRACT

Abstract--- As the usage of vehicles is increasing drastically, the hazards due to vehicles is also increased. The main cause for accidents is high speed, drunk and drive, diverting minds, over stress and due to electronic gadgets. This paper deals with accident detection system that occurs due to carelessness of the person who is driving the vehicle. This introduces accident alerting system which alerts the person who is driving the vehicle. If the person is not in a position to control the vehicle then the accident occurs. Once the accident occurs to the vehicle this system will send information to registered mobile number.

Keyword:- *Accident, Arduino, Coordinates, GPS, GSM, Limit switch, vehicle*

1. INTRODUCTION

In present days the rate of accidents can be increased rapidly. Due to employment the usage of vehicles like cars, bikes can be increased, because of this reason the accidents can be happened due to over speed. 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 paper introduces a optimum solution. Automatic alert system for vehicle accidents is introduced; the main objective is to control the accidents by sending a message to the registered mobile using wireless communications techniques. When an accident occurs at a city, the message is sent to the registered mobile 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. Metallic strips sensor will be short when the accident occurs and the information is transferred to the registered number through GSM module. GPS system will help in finding the location of the accident spot. The proposed system will check whether an accident has occurred and notifies to nearest medical centers and registered mobile numbers about the place of accident using GSM and GPS modules. The location can be sent through tracking system to cover the geographical coordinates over the area. The accident can be detected by a metallic strips which is used as major module in the system.

2. LITERATURE SURVEY

- To protect the vehicle and tracking so many advanced technologies are available in now a days. In olden days the information of accident can be transferred, but the place of accident spot cannot be identified. In any vehicle airbags are designed, air bags are used for security and safety travels the air bag system was introduced in the year of 1968.
- TPMS is system designed to control the pressure inside the pneumatic tires on vehicles that provides different operating conditions such as a lower tire pressure is desired in order to maximize traction, manoeuvring through challenging terrain, pulling a heavy load out of an incline at slow speeds, crawling out of soft dirt. The pressure ranges from 15 to 45 PSI.
- The other existing system uses IOT and cloud computing system. Where the vehicle detection id done through SVM (support vehicle machine) that is developed by Ant Colony Algorithm (ACA). Here IOT will

monitor the vehicles using magneto resistive sensors. The main aim of this project is to differentiate the accidents which took place in traffic and at no traffic place.

- Existing system also provides the location of the accident using Atmega 328 Microcontroller and RF transmitter and receiver. The information is send to the saved mobile numbers

3. WORKING MODULE

Fig. working module
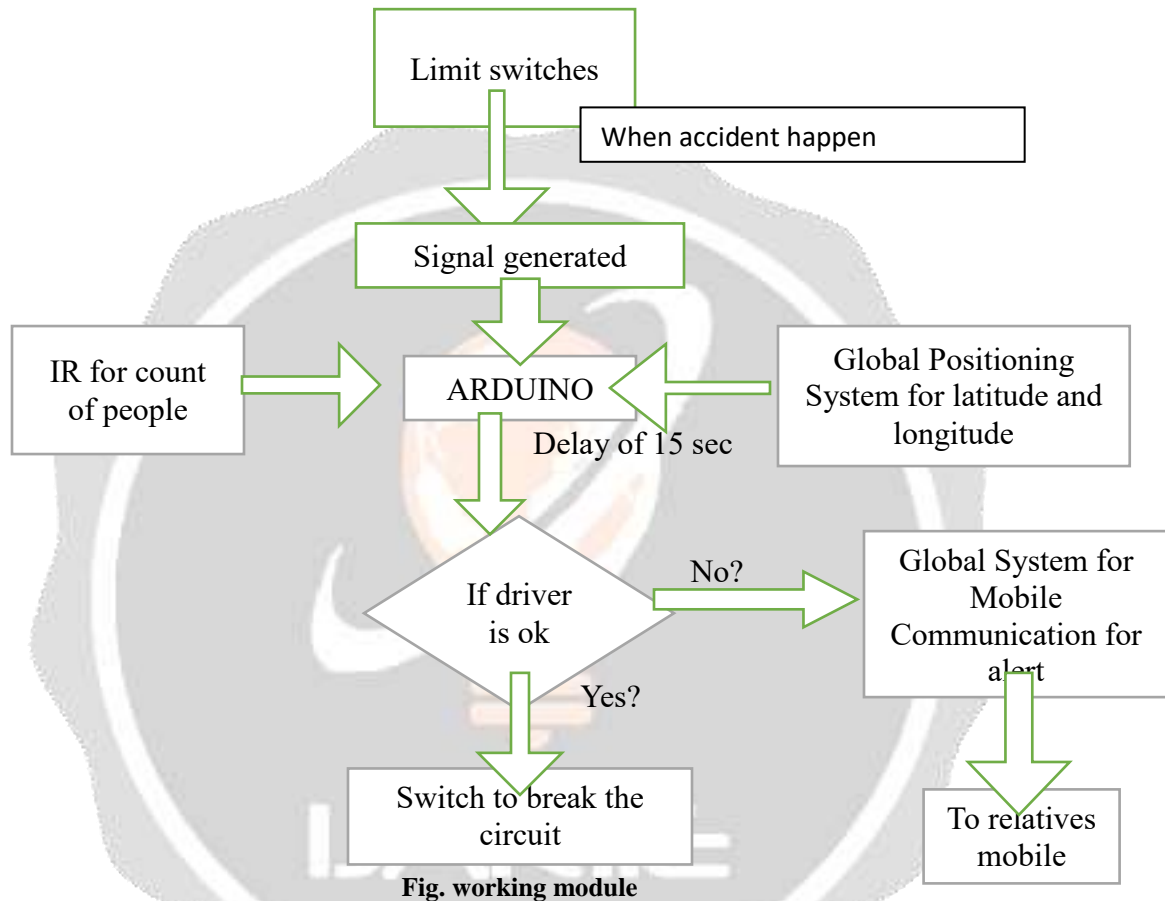
3.1 ARDUINO

The Arduino UNO is a widely used open-source microcontroller board based on the ATmega328P microcontroller and developed by Arduino.cc. The arduino is the major control unit to detect or alert when an accident occurs. It collects the data from metallic strips, GPRS and GSM modules and reflects the output either in display system or through a message. Here metallic strips plays a major role. This metallic strips will receive the vibrations of the vehicle which in turn acts as a accident detection module. Arduino gathers the information from all other modules and sends the message to the receiver though GSM module.

Fig -2: ardiono

3.2 GSM MODULE

For providing communication between the GPS, GSM and the allocated mobile number GSM SIM900 module is preferred. The name SIM900 says that, it is a tri band work ranging a frequency of 900MHz to 1900 MHz such as EGSM900 MHz, PCS 1900 MHz and DSC 100 MHz Receiving pin of GSM module and transmitting pin of GPS module are used for communication between the modules and the mobile phone.

Fig -3: GSM module

3.3 GPS MODULE

To find the location on the earth the whole is divided into some coordinates where the location can be easily captured by a module called GPS module. Here the GPS used is SIM28ML. This GPS module will find the location of the vehicle and the information fetched by the GPS receiver is received through the coordinates and the received data is first send to arduino and the information is transmitted to the saved contact through GSM module. The frequency is operated in the range of 1575.42 MHz and the output of GPS module is in NMEA format which includes data like location in real time.

Fig -3: GPS module

3.4 WORKING:

The controller used in this project is Arduino which is used for controlling all the modules in the circuit. The two major parts other than controller is GPS module which is used as a receiver and other module is GSM. To receive the coordinates of the vehicle GPS module is used and GSM will send the received coordinates to the user through SMS. There is an additional LCD which is used for displaying status message or coordinates. When a person is driving the vehicle met with an accident then the vibrations of the vehicle is received by the vibration sensor and the sensor acts as a accident detection module which further send the information to the micro controller and the location of the vehicle is received through GPS module and the coordinates of the vehicle is send to the GSM module. The received information is send to arduino uno. The received coordinate's information is collected and is send to the respected person through SMS.

4. RESULTS AND DISCUSSIONS
Whenever accident of vehicle is occurred then the device sends messages to given mobile number.

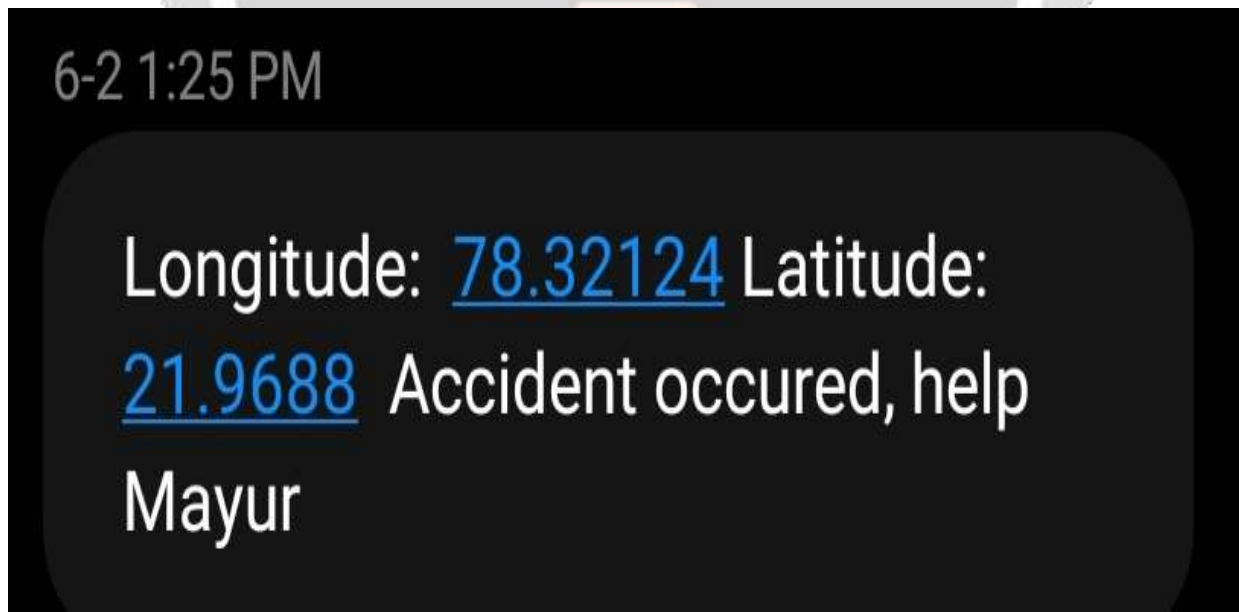**Fig -3: interfacing of all the devices**

Fig -4: The text message received from accident location

5. CONCLUSION

The proposed system deals with the accident alerting and detection. Arduino is the heart of the system which helps in transferring the message to different devices in the system. Vibration sensor will be activated when the accident occurs and the information is transferred to the registered number through GSM module. Using GPS the location can be sent through tracking system to cover the geographical coordinates over the area. The accident can be detected by a metallic strips which is used as major module in the system.

6. FUTURE SCOPE

The proposed system deals with the detection of the accidents. But this can be extended by providing medication to the victims at the accident spot. By increasing the technology we can also avoid accidents by providing alerts systems that can stop the vehicle to overcome the accidents.

7. REFERENCES

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