

# VEHICLE ACCIDENT DETECTION AND ALERT SYSTEM

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## ABSTRACT

*Technology development has increased traffic hazards and road accidents due to the lack of emergency facilities. Our paper will provide a solution to this problem. Dangerous driving can be detected using the accelerometer in a car alarm application. It is used as a crash or rollover detector for vehicles during an accident or after an accident. An accelerometer receives the signal which is used to recognize a severe accident. In this paper, when a vehicle is met with an accident or rolled over the vibration sensor will detect the signal and sends it to the PIC controller. GSM send alert message to the police control room or rescue team from the microcontroller. Now, police can trace the location to the GPS after receiving the information. Then after conforming to the location necessary action will be taken. During the accident, if the person injured or if there is no serious threat to anyone's life, then the alert message can be stopped by the driver by a switch provided. To avoid wasting the time of the rescue team. This is used to detect the accident using a vibration sensor.*

**Keyword :** Accident detection, alert system, GPS, GSM, Accelerometer, Android application.

## 1. INTRODUCTION

Due the more road accident taking place in various cities. Nowadays the cause of death increasing more by accident. If an accident met on a national highway road no one is there to rescue the person to meet with accident this is due to a lack of emergency facilities and rescue teams to overcome these drawbacks our paper proposed this method can automatically indicate a device for vehicle accidents is used in this paper it is used protect the people from the risk as soon as possible after the occurrence the accident wasting a time may lead to death. so this system will detect the accident within less time and convey the information to the police station and the rescue system after a few seconds. The location of the accident place will be detected by GPS by tracking the vehicle PIC controller is used to save the mobile number in the EE PROM and send the message to require person when an accident occurred. One more facility is provided for critical times in case of heat attacks or other health problems if the person requires help he can press the single switch provided in the system through the GPS module the location of the vehicle accident is tracked and the message is transmitted through the GSM modem. The switch is provided to terminate the message sending when there is no severe injury. By this method, the time of the rescue system can be saved. The accident is detected using a vibration sensor. With this method, the emergency facility will be efficiently used during road accidents. Accelerometer sensors can be used in a car alarm application. By this sensor, dangerous driving can be detected. Due to advanced technology. There is a need for the identification of exact vehicle locations, and better data transfer facilities freedom to motor the software. Sometimes during an accident, the vehicle hits the other vehicle and passes away without stopping. To overcome these drawbacks we proposed a method in the accident detection and rescue system. Along with this Bluetooth is added. By using this Bluetooth the information of the hitting vehicle can send to the nearby vehicle within a 10m distance. The vehicle which hits the

other vehicle will automatically send the details i.e information like vehicle number, owner details etc.. to the nearby vehicles to identify the details of the hitting vehicle. By this police can easily find the hitting vehicle.

## 2. LITERATURE SURVEY

Mr. S. Kailasam, Mr. Karthiga, Dr. Kartheeban, R.M. Priyadarshani, K Anithadevi[1] states that due to lack of attention, Drowsiness, and drunk driving are the major causes of road accidents, this paper proposes preparing a system to prevent these circumstances. The proposed system herein aims at preventing and controlling accidents by using a Night Vision Camera. This system monitors the driver's face when the car starts which mainly helps in observing continuously. It uses two functions: One to detect the eye blinking, second is for reading the blinking. Automatic driving and braking systems are also combined with a controlling system using python programming. Speed is automatically reduced until the driver becomes alert and returns to consciousness.

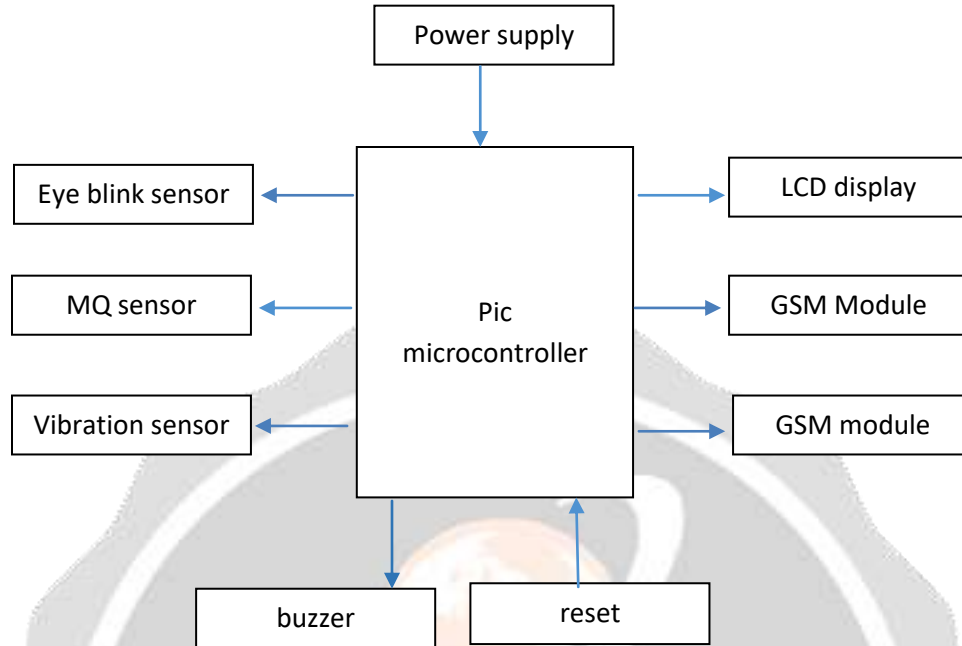
Rajvardhan Rish, Sofiya Yede, Keshav Kunal, Nutan V Bansode [2] proposed a system which states that the leading cause of deaths in road accidents is due to delay in medical help. This can be prevented by messaging the authorities and emergency contacts too on time. The system consists of GPS, GSM, accelerometer and Arduino. It alerts nearest hospital, police headquarters, family and friends during the time of mishap mainly by detecting changes in accelerometer. The system sends a google map link using GPS module and Arduino. The vehicle sets the flag bit of the Arduino UNO as an accident is identified until it detects abrupt deviation from the threshold values with the help of the measuring system detector. Throughout the accident, the device sets the effective sensitive value for measuring instrument detectors, unless a crash is observed. Once the accident or set bit is detected by the measuring instrument detector, Arduino activates the GSM module, which has a manually saved signal of the accident victim's emergency contact, and sends a pre-stored SMS to that contact.

Aarya D.S, Athulya C.K, Anas.P, Basil Kuriakose, Jerin Susan Joy, Leena Thomas [3] proposed a system that states the vehicle accidents are one of the most leading causes of fatality. The period between the occurrence of an accident and the dispatch of emergency medical services to the accident site is a critical factor in accident survival rates. Conclusion :This system aims to alert the nearby medical center about the accident to provide immediate medical aid. The attached accelerometer in the vehicle senses the tilt of the vehicle and the a heartbeat sensor on the user's body senses the abnormality of the heartbeat to understand the seriousness of the accident.

## 3. METHODOLOGY

### 3.1 Block Diagram

This is a block diagram of vehicle accident detection system.where we connected different sensors,GSM module,GPS module and lcd display.GSM is used for providing communication between gps.GPS is used to find location of vehicle.LCD is used for display messages on screen.vibration sensors is used to measure the amount and frequency of vibration in system.mq sensor is used to detect alcohol in the system. Eye blink sensor is used for If person close his eyes above 3 sec ,it will detected.



**Fig-1:** Block Diagram Of Vehicle Accident Detection And Alert System

**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.

**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 the GPS module is in NMEA format which includes data like location in real time.

**3.4 LCD Module:** To display the numbers, alphabets and special characters an LCD module with 16x2alphanumeric types is used. Using the higher bit data lines of LCD pins such as pin 11,12,13 and 14 are interfaced to digital pins of Arduino such as pin 8,9,10 in 4 bit mode as shown in the below figure. RS and E pins of LCD are connected to pin 12 and 13. To perform the write operation on LCD the read/write pin is connected to ground.

**3.5 Vibration Sensor:** A vibration sensor is a device that measures the amount and frequency of vibration in a given system, machine, or piece of equipment. Those measurements can be used to detect imbalances or other issues in the assets and predict future breakdowns

#### 4. RESULT

In this approach the accident is detected by either two sensors like the vibration and smoke sensor and there is an alternative way provided to stop the whole process of messaging through a switch. Where the other approaches provide only one way of detecting the accident. Hence this paper has an edge over the other earlier approaches. In this system accident can be located easily.



**Fig -2:-**Hardware Of System

If the accident is really a major accident then the system will send an SMS. The microcontroller receives the coordinates from the GPS modem. GPS send longitude and longitude information of vehicle location to easily find accident of vehicle. Then it will send this information to the GSM modem. The GSM modem is used to send this information via SMS. SMS will be sent to the family member of the driver so that they can take immediate action to help the persons suffering due to this accident.

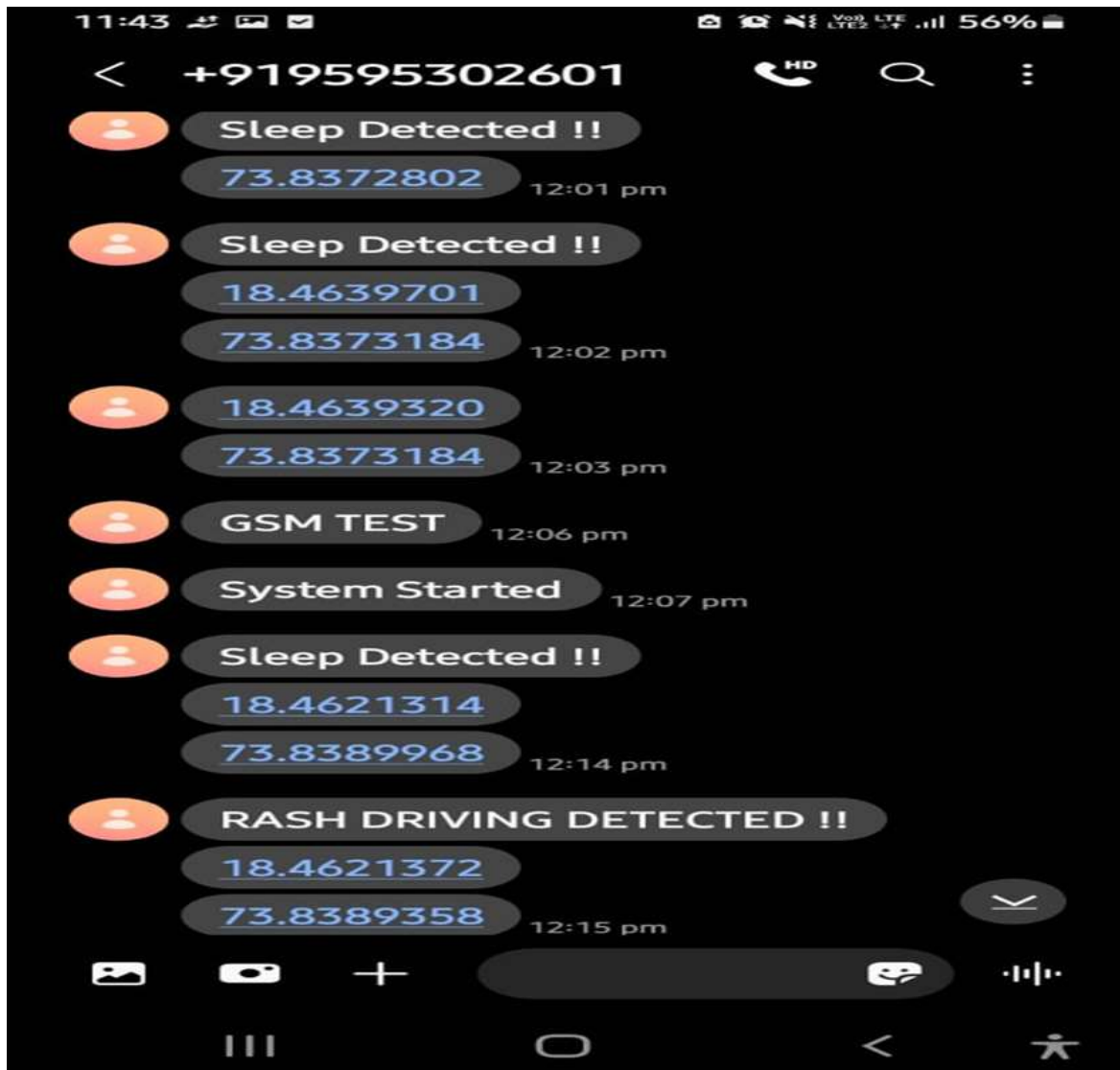


Fig -3 :-Output Of System

## 5.CONCLUSION

Thus, in this paper have discussed the different methodologies that have contributed in the innovative advancements in the medical field and attempted to integrate the study on various researches and proposed systems along with addressing the different technologies involved, with their advantages and drawbacks which can help in the selection and adoption of the appropriate up to date techniques in the future.

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