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Title: **VEHICLE ACCIDENT DETECTION SYSTEM BY USING GSM AND GPS**

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## VEHICLE ACCIDENT DETECTION SYSTEM BY USING GSM AND GPS

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### ABSTRACT:

With the growing population the use of vehicles has become superfluous. And this has led to the accidents increasing at an alarming rate resulting in a large loss of property and human life. This project aims at finding the occurrence of any accident and reporting the location of accident to the previously coded numbers so that immediate help can be provided by ambulance or the relative's concerned. GSM technology is used to intimate the vehicle position in the form of latitude and longitude coordinates through sms. The location spot is retrieved using Global Positioning System which is a navigational system using a network of satellites orbiting the earth. Sensors such as vibration, alcohol and fire detectors detect signal in case of an accident occurrence and send a signal to the connected microcontroller. The controller in turn operates the relay to blow the airbag and automatically lock the brakes. Meanwhile a message reaches to the necessary help. And thus ambulance service and required aid can reach in the shortest time possible. This system can also aid companies in the rental vehicle business to keep a track of the vehicular activity by sending message at regular intervals to the authorised numbers.

**Keywords:** IOT, Gas, Air pollution, with cloud resistance.

### 1. INTRODUCTION

Today, it is very difficult to find that an accident has occurred and to find the position where it the accident occurred. It's more difficult for the lives of victims until any person know the information and informed it to the emergency vehicles like ambulance or to hospitals and if it occurs in remote areas it will becomes no hope to survive. To avoid these, different technologies like GSM/CDMA and Global positioning systems are used. The GPS based accident identification module

contains a Micro Electro Mechanical System(MEMS), vibrating sensor, fire sensor, infrared sensor and a GPS module connected to the processor unit. At the moment of accident, the vibration sensor or MEMS or fire sensor detects the accident gives the information to the microcontroller, which will display the information on LCD, switch on the buzzer unit and sends the information to the ambulance, police and owner/parents through GSM network. Here the system also provide the user to track the

vehicle location, when he/she required. Here the position of the vehicle is also send to the mobile in terms of latitude and longitude. The main objective of this project is to detect the vehicle accident and transmit the location of the accident with the information of victim and type of accident to the medical help centre and police control room. So medical help centre and police control room will get the exact location by the geographical co-ordinates transmitted via message with the help of map.

## **2. LITERATURE SURVEY**

At present criteria, we cannot detect where the accident has occurred and hence no information related to it, leading to the death of an individual. The research work is going on for tracking the position of the vehicle even in dark clumsy areas where there is no network for receiving the signals. In this project GPS is used for tracking the position of the vehicle, GSM is used for sending the message and the ARM controller is used for saving the mobile number in the EEPROM and sends the message to it when an accident has been detected. From the past event and the existing approach the below Drawback are been noted:

1. Manual system is adopted.
2. Tracking of accident is a crucial process in the system.
3. Required medical attention cannot be given to the needed person.
4. Life loss and property loss were not stopped in large scale. Considering all the

drawbacks into account we have formulated a proposed system which covers all the above mentioned drawbacks.

5. The Automated system is used once the accident occurs.

6. This system GSM will send the message to the More Human life can be saved using this automated system. Considering all the drawbacks into account we have formulated a proposed system which covers all the above mentioned drawbacks.

## **3. RELATED STUDY**

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. Vibration sensor will be activated 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 vibration sensor which is used as major module in the system

#### 4. PROPOSED SYSTEM

Now a days large amount of accidents are happening in highways due to increase in traffic and also due to rash driving of the drivers. And in many situation the family members or the ambulance and police authorities cannot able to get information regarding to that accident in an appropriate time. This result in delaying the help which is more important to that person who suffer from that accident. Our project automatic accident vehicle detection and messaging system using GSM modem is designed to overcome such problem and to prove help for the person who met with accident and save their life too by passing message to rescue team in right time. In this project we are using accident detection unit which fitted the vibration sensor in the vehicle. For example, In case of accident, occurs if the car is hit to some other vehicle or an object it create some vibration in that case then the vibration sensor will detect the vibrating signal and it pass the message to the arduino. Arduino is used as a Central Processing Unit (CPU) of our project. When the arduino receives a signal from vibration sensor it

immediately pass the message to GSM modem then the GSM modem then the GSM modem will starts its process. In this project we used reset button it will be used by the driver if the accident is very normal for example if the driver hit the wall in some situation like parking then the driver will press the reset button this will inform the arduino to that system will not send SMS. But if the driver is not in a situation to press the switch or if the accident is really a major accident then the driver will not press the reset button and then the system will send SMS. Here, we use GSM modem to send SMS to the family members and the rescue team. Buzzer is also used to indicate as a accident has been occurred which will create a beep sound. Thus the life of a person who met with an accident has been identified and save their life too.



**Fig.4.1. Hardware kit image.**

The system detects accident from vehicle and send message through GSM module. The message is received by another GSM module. Google Map Module It displays Google map show u exact location of accident and it details. It gets detail SMS from accident location. Hence there is small variation in the coordinates, initial value of

latitude and longitude are same but fractional value changes with small difference.



**Fig.4.2. Output results.**

## 5. CONCLUSION

Our idea is used to detect accident and automate emergency assistance services. As a result, system is sending SMS to the nearest Emergency assistance service provider from accident location. The high demand of automobiles has also increased the traffic hazards and the road accidents. Life of the people is under high risk. This is because of the lack of best emergency facilities available in our country. An automatic alarm device for vehicle accidents. This design is a system which can detect accidents in significantly less time and sends the basic information. This alert message is sent to the rescue team in a short time, which will help in saving the valuable lives. A Switch is also provided in order to terminate the sending of a message in rare case where there is no casualty, this can save the precious time of the medical rescue team. When the accident occurs the alert message is sent automatically to the rescue

team and to the police station and the message is sent through the GSM module.

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