

# AUTOMATIC VEHICLE ACCIDENT DETECTION AND RESCUE SYSTEM

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**Abstract** – In the present scenario the world is seeing a continuous rise in the automobile sector. Though the automobile sector is continuously rising simultaneously the road accident due to vehicle is also increasing. This project is based on the Arduino, GPS module, GSM module, accelerometer, and ultrasonic sensor. The main concept of this project is the sensors and accelerometer will detect the axes of the vehicle and the GPS will locate its coordinates after that the GSM will send message to the receiver mobile phone.

by using the ultrasonic sensor and accelerometer they can determine the condition of the vehicle after that by the help of GPS the can determine their coordinates and by using the GSM module they can send the exact message to the nearest police station or their well wishers actually where they are.

**Key Words:** ARDUINO, GPS, GSM, ULTRASONICSENSOR

## 1.INTRODUCTION

On 17 may 2021 (12:56) in Times of India there was a news that five killed and four injured in road accident in Uttar Pradesh's Jhansi. That news was the sole reason to choose this project. There are many reasons why the victims of road accident are not surviving. The one reason is that the time duration in which the person who got accident reaches in the hospital. To reduce that time duration we have to do certain things. one is to identify the exact location and to inform that location to nearest police station or ambulance team in earliest. In this project the accelerometer and ultrasonic sensors sense the exact state of the vehicle and by GPS module we determine the exact coordinates of the vehicle after that by using GSM module using a sim card we will send the message to the nearest police station and the ambulance team.

### 1.1 PROBLEM

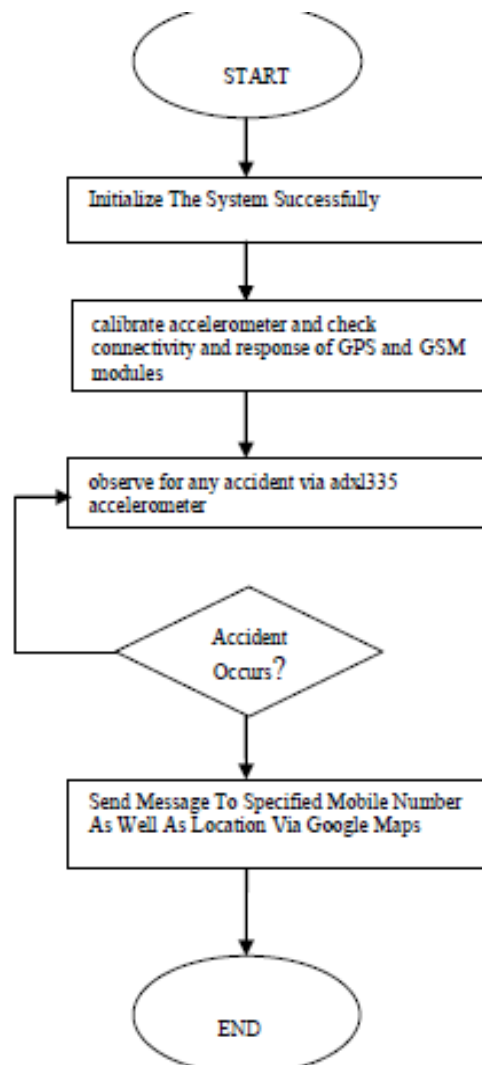
In previous system if an accident occurs then someone will inform using the GSM module only but there was no possibility to determine the exact location of the vehicle but in present system we can easily determine the location using GPS MODULE after that we can also determine the state of the vehicle using the sensors.

## 2. LITERATURE REVIEW

In the poorer and clumsy area of the country where a human cannot determine the place where he/ she is right now due to cloudy situation or unbearable weather condition if an accident occurs then there was no proper proven method by which he/she can rescue from that position. But now a time

## 3.METHODOLOGY

### A. FLOWCHART

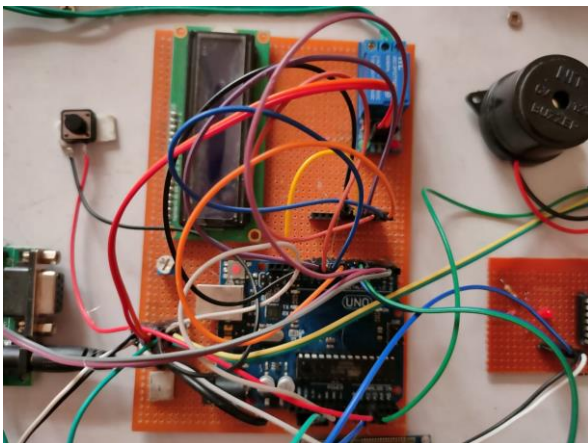


In this flowchart we can clearly see that first we have to start the system then it calibrates its accelerometer and sensors then check the response of the GPS and GSM module. It observes if there any accident occurred or not through the accelerometer. if there is no accident occurred then it will follow the same procedure again and again. If there is an accident then it will send a message containing its coordinates.

**4.HARDWARE DESCRIPTION**

**4.1 ARDUINO UNO**

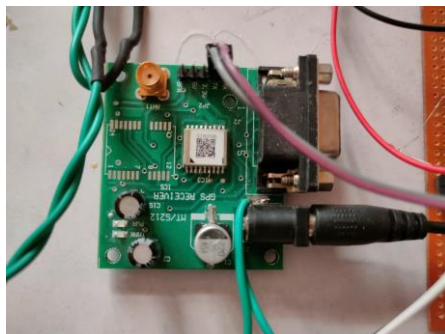
It is an microcontroller based microchip which runs on the TATMEGA 328 P microcontroller processor.it has both digital input and output pin. It has 14 digital pin and 6 analog pin. We can program the Arduino according to our use using integrated development environment.



**Figure 1 ARDUINO UNO**

**4.2 GPS MODULE**

By the name GPS we mean that global positioning system.it can locate the latitude and longitude of the exact position with UTC time. It is very sensitive in nature.



**Figure 2GPS**

**4.3 GSM MODULE**

By the name GSM we mean global system for mobile communication. GSM module can hold a 2G sim card which can be used to send message to another device.



**Figure 3 GSM**

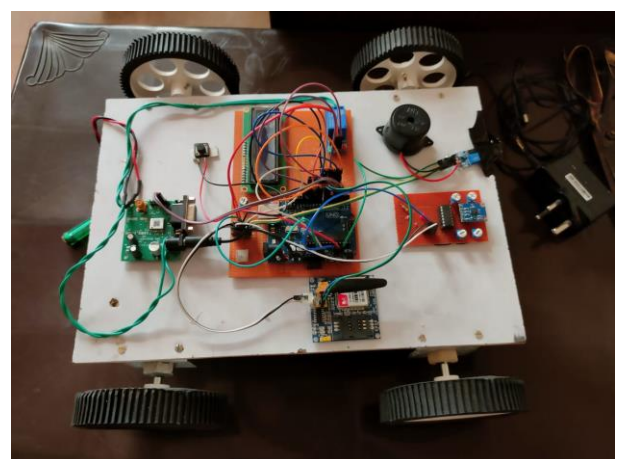
**4.4.ACCELEROMETER**

It is an electromechanical device which helps in measuring the acceleration force caused by the gravity.

**4.5.ULTRASONICSENSOR**

It is an electronic device which can measure the distance of a target object by emitting ultrasonic soundwaves.

**4.6.ASSEMBLE OF HARDWARE**



**Figure 4HARDWARE IMPLEMENTATION**

### 5.RESULT

if an accident occurs then a message will be sent to the receiver. The end result has been shown in the below diagram.

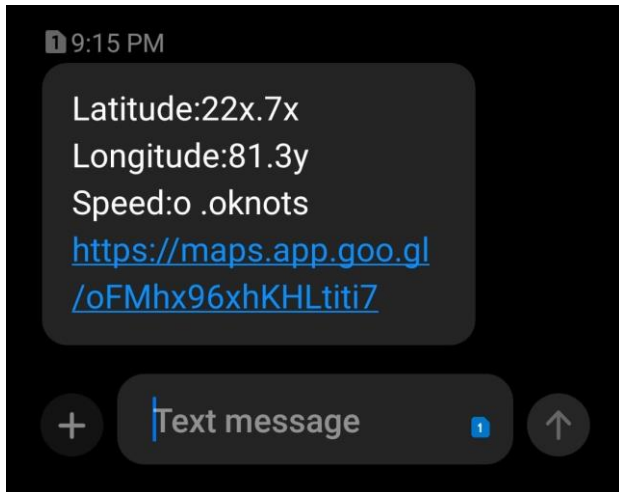


Figure 5 message received by the receiver

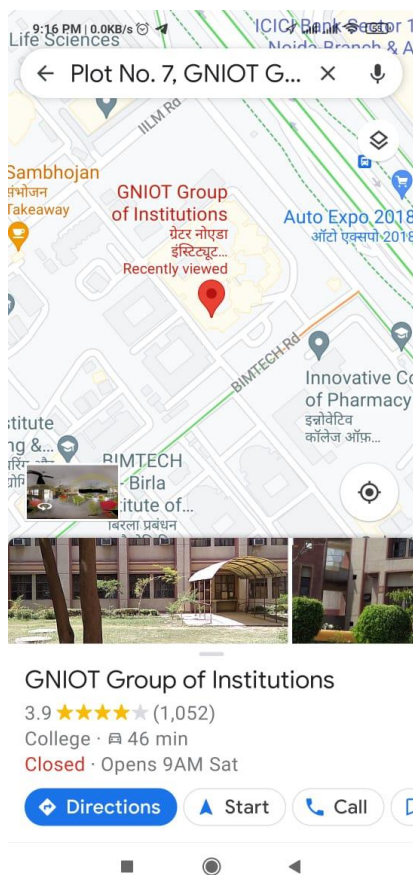


Figure 6 location obtained on google map

### 6.ADVANTAGES

Easy operation

Reliable system

Simple and reliable design

### 7.FUTURE SCOPE

Now this project only detects the road accident in future we can add sensors which will help to detect the temperature rise in the vehicle , remote controlling etc.

### 8.CONCLUSION

we have designed the system to send messages about the details where the accident has happened and how to reach that place using google map to the nearest police station and ambulance team, so that without delay the victim can reach the hospital. With increase in the automobile sector it is the need of the hour because in developing nation we do not have the proper infrastructure so there are heavy numbers of road accident occurs. This project is reliable and cost friendly and will be a gamechanger to eradicate the deaths occurring due to the delay in reaching hospital.

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