

## Accident Detection and Alerting System Using GPS & GSM

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### Abstract:

*This project presents analyzes of the accident detection techniques and some future possibilities in this field. Most accidents do happen on the roads nowadays due to increased traffic and also due to the driver's reckless driving. In many cases, family members or the ambulance and police are not kept informed on time. This results in delaying the assist provided to the injured person by accident. Road accidents are the crux of the incident. The project aims at finding the vehicle where it is and locating the vehicle using a computer within the vehicle system to send a message. Most of the time, we might not be able to locate the accident because no one knows where the accident will take place. Our Real Time Vehicle Tracking and Accident Detection project with GPS is designed to avoid these circumstances.*

**Keywords:** Arduino, Vibration sensor, GPS, GSM

### 1. Introduction

India has had it in the last few decades developed so enormous a pace that many businesses have strongly founded themselves here. These firms bring a large amount of work force with them. In general, this transport is managed by annual contract for local transportation vendors, mishaps such as robbery, rape cases etc. have occurred recently. Developing satellite communication technology allows quick recognition of the vehicle's positions. Our project has integrated this technology into the common person's everyday lives. GPS used in automobiles, ambulances, buses, and police vehicles today are popular sights on developed country roads. Both current technology facilitates vehicle position and status monitoring. One of the most relevant solutions is the GPS/GSM Based System, which incorporates both GSM and GPS computer applications. It's important because of the many uses of both GSM and GPS system and their common use throughout the world by millions of people.

Created for land building and transportation users, this program provides real-time information in a succinct and easy format for reading, such as the location, speed and user expected arrival time. This paper at first exploits the same tag bits to enhance error protection capability of the tag bits within the caches [4]. This device may also be useful for communications processes between the two points. Now tracking GPS vehicles ensures their safety while driving. This circuit is also capable for communication processes between the two points. Now monitoring GPS vehicles ensures their protection while driving. This tracking system was used in customer cars as a tool for the theft prevention and rescue. This system was designed for the quarter wheelers, Tracking vehicles that is usually used for navy management functions in marine operators, routing, sending off, and a safe on board. The criteria include oversight the parent's driving performance along with a young driver. Car monitoring technologies which are licensed in consumer vehicles, as avoidance of theft and recovery devices. When the brigandage is detected the device will give the text message to the owner of the vehicle.

### 2. Proposed System

The suggested device configuration is designed to provide information about the incident and where the accident occurred. It helps to make it easier for the supervisor to support the victim of the attack. This device configuration uses the car location GPS module. GSM is used for collecting accident reports. The GPS receive the vehicle location that met an accident, and returns the details. Such detail is sent over a call to a mobile number. This message is sent using the circuit's GSM modem. The message will offer the longitude values and latitude value's information. Using those values, you can estimate the vehicle's location.

### 3. Methodology

When an accident occurs, vehicle / object location data are obtained from the satellite by the GPS module, this information is in shape of latitude and longitude scale. So the information collected is then fed to Arduino uno. The encoding is done and the information is passed to the modem and GSM. For arduino uno, the GSM modem gathers the information and then passes it to the mobile phone through the text format SMS.

A method of monitoring vehicles takes data from GPS and sends it to the appropriate computer via mobile contact via the GSM module. These two radiators enhance each other to form a single radiating element [6]. This method of vehicle monitoring takes place data from GPS and sends it to the correct smartphone / laptop using mobile contact via the GSM module. Auto monitoring device is one of the most critical technical developments in regulating the motions of the car.

The protection system locates the vehicle being monitored or tracked using Global Positioning System GPS and then sends the coordinates and location data to the mobile user via satellite or radio systems.

### 4. Block Diagram

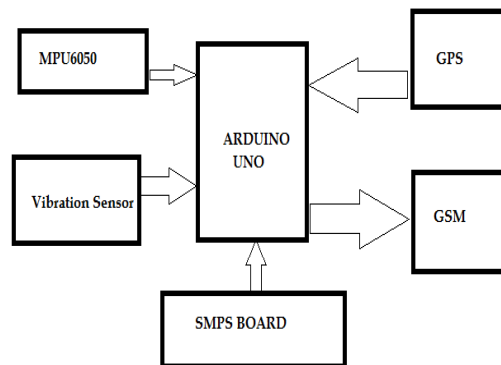


Fig. 1. Block diagram of the designed prototype

### 5. Working

The proposal is composed of a Microcontroller GPS receiver and GSM modem. The entire device configuration is installed on the car. There is one mobile GSM phone on the other end (main vehicle station) linked to the port. Therefore, the GPS system can give the longitudinal and latitude values corresponding to a vehicle's location to GSM modem whenever the sensors differ.

Whenever there is a variation in the sensors The program tracks injured vehicles and send a message using GSM module. Another GSM module receives the message. Google Karte module shows the exact whereabouts and accident information. It gets detailed SMS from the location of the accident. There is therefore a slight variance in the measurements, the original latitude and longitude values are the same but the fractional value changes with a small difference.

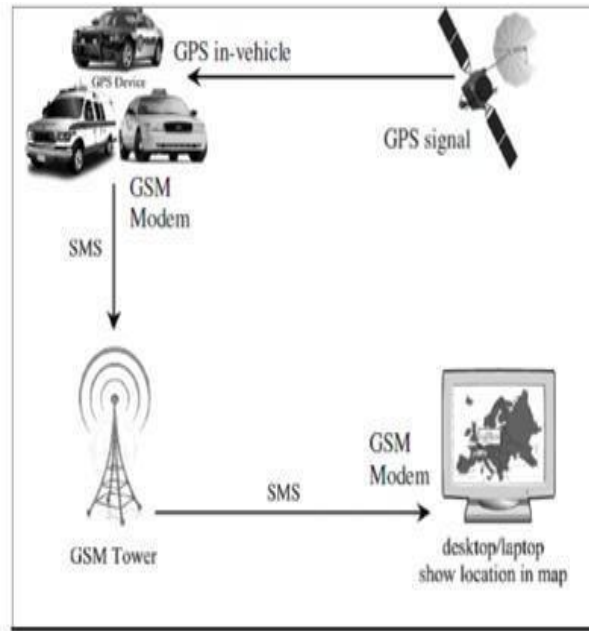


Fig. 2. Overview of working

## 6. Result and discussion

They used separate server for handling the location data in the cited document. From the Arduino, the location data is send to the server and the user's mobile phone and the location data is then pushed into the database and the server. When the location is shown in the mobile device, the mobile device has to question the server and the server must ask the database and send the mobile device back as an answer.

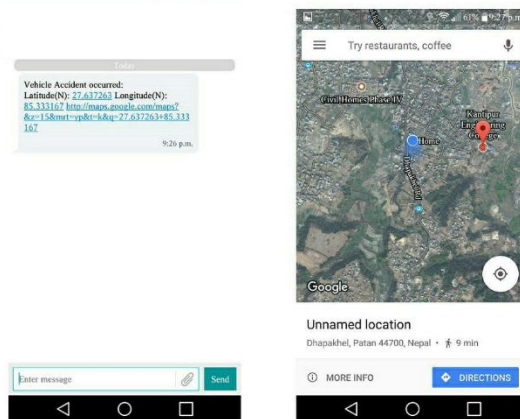


Fig. 3. GPS and GSM module gets and display the location

## 7. Conclusion

The module is made up of a receiver with GPS. Microcontroller and a GSM modem. The full device configuration is installed on the target vehicle. There is one handheld GSM phone connected to the port at the other end (main vehicle station). The GPS system will transmit longitudinal and latitude values corresponding to the position of a vehicle to GSM modem when a discrepancy in the sensor occurs. Whenever the sensor shifts, the system detects vehicle accidents and sends a message via the GSM module. This message is transmitted through another module of GSM. Google Karte module shows the static location of the incident and its details. It receives specific SMS from where the accident happened. There is therefore a slight variance in the measurements, the original values of the latitude and longitude are equal but the fractional value changes just marginally.

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