

# Fender Bender Espial and Notifying System

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## Abstract

The cause of death that results from an accident is rising in frequency. If a coincidence happens on a country wide dual carriageway, no one is present to rescue the character concerned. This is because of a lack of emergency centers and rescue groups. This paper's principal intention is to recommend a device that may effectively resource in stopping any sort of injuries, if such situations occur, then how it espials and signals the relevant dominion and humankind the use of VANET era, so that the situation can be dealt with straight away. This system uses accelerometers and vibration sensors to detect injuries. When an accident occurs, our GPS module locates it and GSM module sends a text message to the person's family or friends and the closest hospitals to let them know. Occasionally during an accident, a car strikes another car and keeps going without stopping. The vehicle that strikes the other vehicle will automatically submit the information, such as the vehicle number and owner information. This makes it simple for police to locate the ramming vehicle.

**Keywords:** Vibration sensor; GSM;GPS; Arduino.

## I. Introduction

The rising use of vehicles as increased traffic congestion. This increasing chaos as generated a rise in the digits of accidents. This item discusses several tools and technological advancements that aid in avert mishaps and spotting them right once to avert any on the spot causality. Our paper technique, automatic signaling device for automobile coincidence is used to shield the human beings from the hazards as soon as viable after the coincidence prevalence, dropping time might also result in dying. Consequently, this machine perceive the accident in a brief quantity of time and record the records to the calaboose and save the gadget rapidly then. Through the GPs module monitoring of the will allow for the place of the accident to be decided. When an accident takes place, the GSM module is used to store the mobile range and ship the message to the necessary people, also the likelihood that an injured crash sufferer will survive would possibly significantly exchange relying on how lengthy they may be without immediately scientific attention [7].The accident's place is decided by GPS, and GSM transmits the accident's info to a centralized server. The GSM module units a connection among microcontroller and GSM community to establish a mobile [3]. It is equipped with everything needed to support the microcontroller, all you need to do to use it is connected a USB cable, an AC-to-DC converter, or a battery for power. V2V network is a network where in a set of automobiles can interface with one another a good way to trade facts by using forming a web known as vehicular advert Hoc Networks (VANETs). The VANETs are created the usage of the postulates of cellular advert Hoc Networks (Mobile Ad hoc network). WIFI technology is utilized in Mobile Ad hoc network to change records among nodes. Then, underneath automobile-to-automobile advert hoc cell verbal exchange and networking VANETs were delivered. There are two varieties of vehicular communications, automobile to vehicle (V2V) communications [4].

## II. Literature Review

Many traffic control systems are growing diverse computerized occurrence espial strategy for espial and response to congestion coincidence so feasible. The literature assessment focuses on mapping present automation studies accident strategies and look for an methodical strategy for automatic mishap espial improvement of tight spot records and Vehicular Ad hoc network routing entente[5]. The suggest machine affords automated detection, reviews and enables passengers involved in traffic injuries the use of the functions it provides V2V communication technology. The reason of this gadget is to offer an planning that permits ,Direct automobile to automobile(V2V) concerned inside the mishap, unmanned switch of an essential information report statistics about the event to the manage unit.

The device is designed to seize vicinity through the automobile's GPS receiver, ship region information to the automobile proprietor's phone number via message and telematics to the machinist server via GPS. It consists of modules that are GPS is required to get hold of precise facts from GPS satellites, GSM proposed an automated coincidence alarm and protection system the use of an embedded GSM interface, this system expected is an automated crash espial and caution gadget centered totally on a GPS module and a GSM [6].

The protecting automobile should be geared up with a gadget that guarantees an awesome mechanical onnection complete body In case of a fender bender, the system find the use of the reality that the automobile could all of sudden bogged down in this kind of nation. The acceleration sensor constantly video display units the acceleration of the car and detects deceleration exceeding the edge price and sends the information to the microcontroller Analog to Digital Converter [9]. An actuator collate it with the set doorway price and right away sends a calamity notify to the recipient preset digits. With this notification, the actuator also sends the GPS harmonize of this automobile, continuously acquired by way of the GPS module. This system enables a lot in vehicle seek and rescue an twist of fate, provided a mock- up of an unmanned automobile mishap espial and verbal

exchange gadget the use of GPS and GSM. The reason of this operation is to locate the area of a visitor accident by using sending by a message entered into the vehicle's gadget. The biggest benefit of this take a look at is on every occasion the sensor is activated we get on the spot affirmation from the GSM modem for cellular phone numbers that are right now stored within the EEPROM[10]. This system as it should be detects and is aware the region of the twist mishap detection and communication system automation.

### III. Proposed Work

As shown in figure 1, Vibration sensor espials if the accident occurs ,else there is no changes in status of the sensor. Then the GPS collect all the data of the mishap. The collected data i.e. longitude and latitude are displayed on the LCD. And the sensor is triggered, Global System for Mobile Communication redirect the message to the preset digits of family or friends, also to the nearby police station and hospital or hospital wagon . By this idea we can rescue people who are helpless.

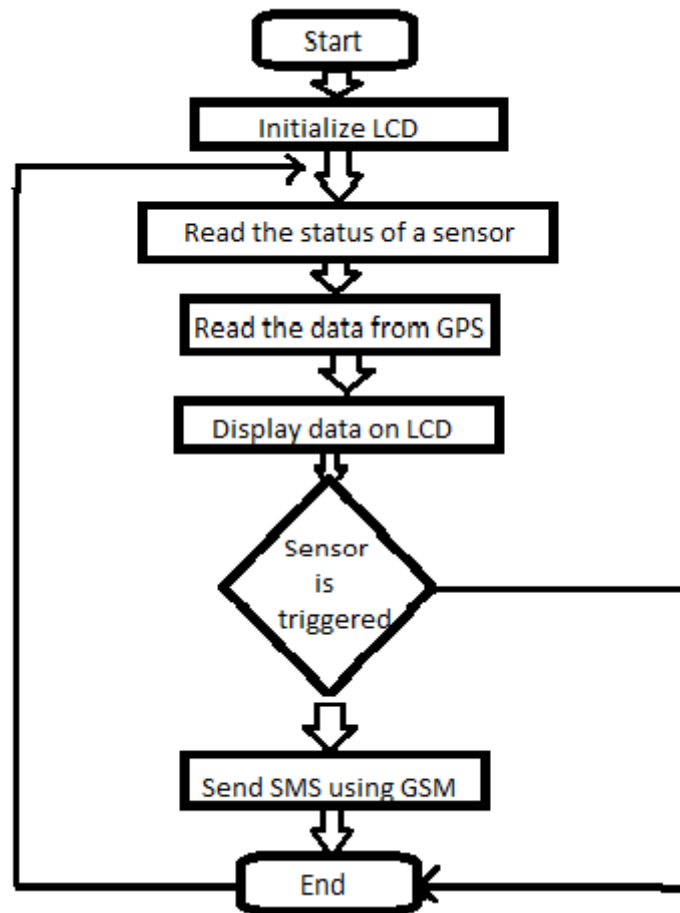


Figure 1: Flow chart of proposed work

### IV. Block Diagram

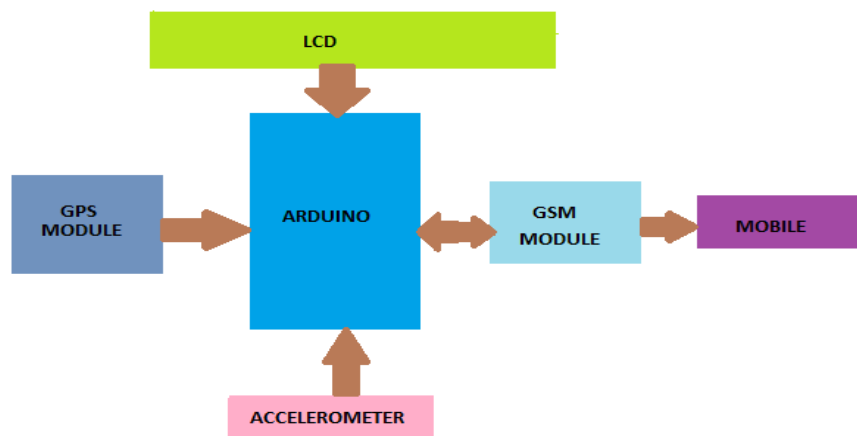


Figure 2: Block diagram of fender bender detection

This block diagram consists of vibration sensors, GPS, GSM and Arduino UNO.

### A. Vibration sensors

A vibration sensor is a device that transform modifications in stress, acceleration, temperature, stress, or force into an electrical price the usage of the piezoelectric impact. A piezoelectric sensor will to start with locate the lifestyles of an twist of fate after which offer the microcontroller with its output. As in figure.2 the accelerometer detects surprising adjustments in the automobile's axes. The heavy vibration within the car is detected by the vibration sensor. While the car receives too near another automobile, ultrasonic sensors sluggish it down, and the GSM module sends a warn notification to the phone with the mishap's information.

### B. Global Positioning System (GPS)

A GPS (Global positioning system) tool can provide a specific place almost anywhere on the planet through the usage of records from US satellites. A network of satellites and receiving system known as the worldwide positioning device (GPS) is used to discover objects on the planet. GPS is used to music the area of the coincidence spot. With use of the GPS the sufferer may be easily rescue. For instance, GPS enables the emergency services to get at an incident more rapidly than ever before, pinpoint the position of accidents, and make it easy for follow-up personnel to go to the spot. It is especially useful for search and rescue groups operating in dangerous maritime environments and on land throughout excessive climate when each second counts.

### C. Global System For Mobile Communication (GSM)

The main intention of the accident Detection and Messaging machine is to tell the ambulance and Police of the coincidence web page and arrange for important steps to manipulate the state of affairs by means of the use of GPS. This device isn't always only efficient however also worth to be applied. The fender bender espial and notifying machine can be outfitted in the patrol or hospital wagon and they're knowledgeable about any such adverse happening at the move.

### D. Arduino Board

The arduino is a microcontroller board based totally on the ATmega1280 . It includes 16 analogue inputs, four UARTs, and fifty four virtual output pins, 14 of which is utilised as pulse width modulation outputs (hardware serial ports), a piezoelectric resonator working at 16 MHz, a Universal Serial Bus connector are all protected. It is equipped with everything needed to support the microcontroller; all you need to do to use it is connect a USB cable, an AC-to-DC converter, or a battery for power.

### Accident Detection And Messaging System:

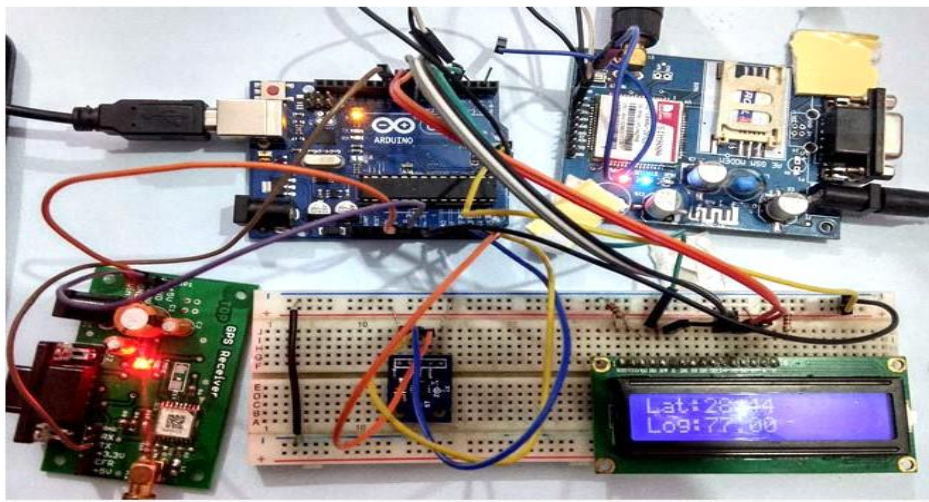


Figure 3: Hardware implementation of fender bender espial

### V. Result and Discussion

In this paper, as shown in figure 3, we had a vehicle alarm system based on arduino using Global positioning system, Global system for mobile communication and accelerometer. The acceleration sensor espials a quantum leap in the axles of the automobile and the Global system for mobile communication module redirect an alarm message to your phone about the spot of the accident. The location of the accident is sent as a link to Google Maps, which is derived from the longitude and latitude of the GPS module. arduino is used to manage the entire operation with the help of GPS receiver and GSM module. A GPS recognizes the automobile's action and a GSM module convey alert text containing a link to Google Maps. The ADXL335 accelerometer is used to espial mishaps or quantum leap in automobiles. A 16x2 Liquid Crystal Display screen is also accustomed expose prominence notify and coordinates. After the completion of all the operations move on to program, we can initiate it in automobile and power it up. The arduino reads these information and determines whether any axis has changed. In addition, as shown in

figure 4, the memo contains a link to the mishap spot on Google Map, making it simple to follow the location. Simply clicking the link in the message will take us to the Google map, where we will be able to view the vehicle's precise location. With this idea we can rescue them easily.



Figure 4 : Result of hardware implementation

## VI. Conclusion

Without right movement at right time, hazards waits us with a huge face. By using GPS and GSM, the location of the mishap and the message has been sent to the respective person. We concluded this paper by getting information of a person who met with an accident and send those information to the respective person. If each vehicle in the roads use cutting-edge system that we noted in our paper, can deliver a better end result compared to the present day visitors management machine to reduce road injuries.

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