

# COLLISION AND SHORT CIRCUIT ALERT INFORMATION SYSTEM IN VEHICLES USING ARDUINO, GPS AND GSM

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**Abstract**—The purpose of this project work is to detect the position of the vehicle when collided or fire accident due to short circuit condition automatically and transmit its geographical position and status in the form of longitude & latitude values to the concern or authorized mobile number. Two values, its latitude and its longitude describe any location on Earth. If a pilot or a ship's captain wants to specify position on a map, these are the "coordinates" they would use. This data acquired from the GPS receiver is fed to the Arduino, which will be displayed in the LCD. A message can be sent to any mobile phone using GSM.

**Keywords** - Light Emitting Diode (LCD), Global Positioning System (GPS), Global System for Mobile Communications (GSM), Arduino.

## I. INTRODUCTION

Due to increase in use of automobiles these days, the threat of accidents has increased proportionally. This puts people's life at risk. The main cause for accidents these days on land is collision with another vehicle. And in navy vessels and aeroplanes, due to short circuit is one main reason for life. The hospitals, police stations or fire stations are always not in the reach. So, this projects intends to solve such problems where lives can be saved using simple technology. In this system, as soon as the accident occurs, a message is sent within seconds to a police station and an ambulance service. When there is a short circuit a toggle switch is in place to send a signal to alert the recipient about the same. The collision will be detected using a limit switch, while the short circuit will trigger the toggle switch. The location of the vehicle is detected using GPS module and the message is sent through a GSM module.

## II. LITERATURE SURVEY

In the existing world of technology there have not been many technologies yet that send a message to a police station or hospital. There are technologies which use pressure sensors to sense the pressure, which in turn detect if the vehicle is colliding. There are also technologies which use vibration as a factor to detect an impact and send a notification. However, there is not as much research that has been done where we use a limit switch to detect a collision and then send a message. Therefore, in this project we can use limit switch to detect an accident and send a notification to the nearest police station and hospital.

## III. BLOCK DIAGRAM

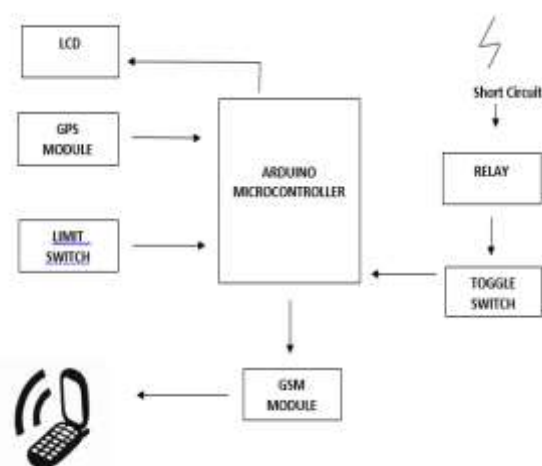


Fig.1 Block Diagram

## IV. METHODOLOGY

### i. Block Diagram

A block diagram is drawn which includes all the modules and the Arduino microcontroller. This serves as the layout for the whole project.

### ii. Collision Detection

The limit switch which has a plate angled at 45° detects the collision when the plate is closed and brought at 0°. This sends the data to the microcontroller.

### iii. Short Circuit Detection

If and when there is a short circuit due to high voltage, the relay toggles a switch which sends data to the microcontroller.

**iv. Location detection by GPS**

When the collision or short circuit occurs, the limit switch closes and the GPS module sends the location to the Arduino microcontroller.

**v. Sending a message by GSM**

As soon as the location is detected and the microcontroller gets the data, the microcontroller triggers the GSM module to send a message. A message is sent to the nearest police station and hospital.

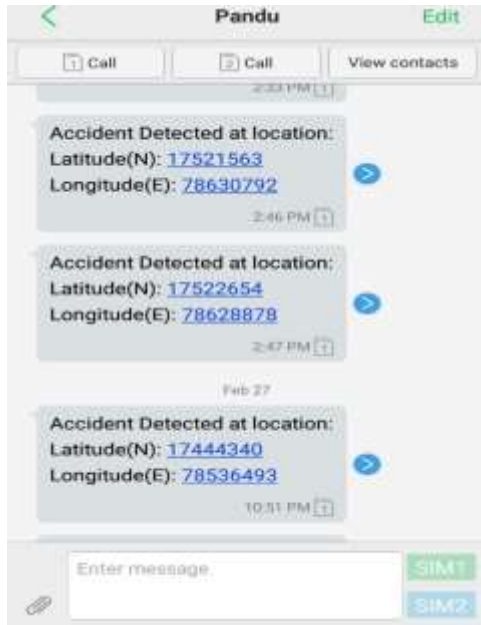


Fig.2 Message of the Location

**V. CONCLUSION**

This project attempts to solve the problem of immediate assistance to accident victims in a vehicle. When an accident occurs, a message with the location which is taken from GPS module is sent from the microcontroller via GSM module to the nearest police station and a hospital thus making it easier for immediate help and attention that is required to the victims.

**VI. REFERENCES**

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