

# IOT BASED AUTOMATIC VEHICLE ACCIDENT DETECTION AND RESCUE SYSTEM

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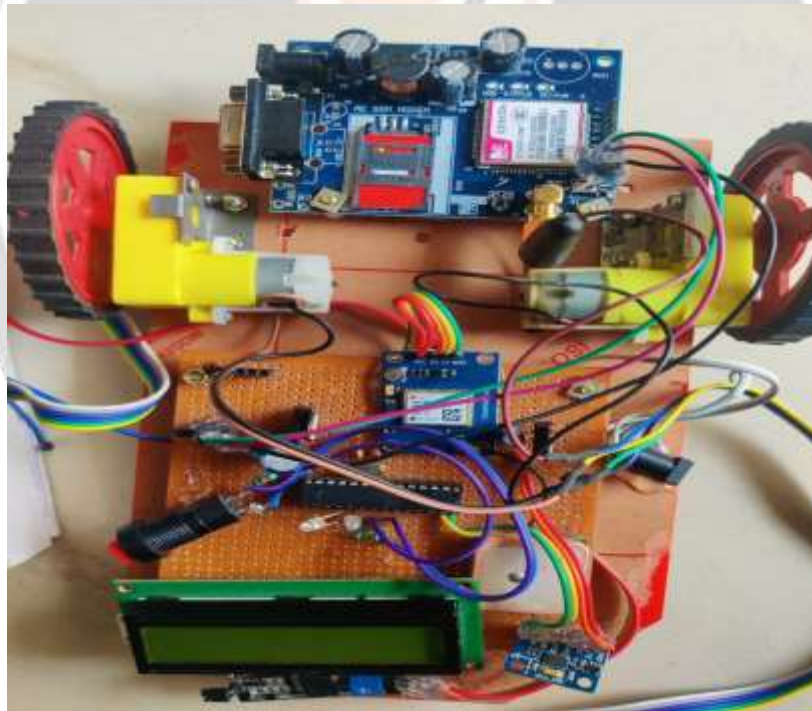
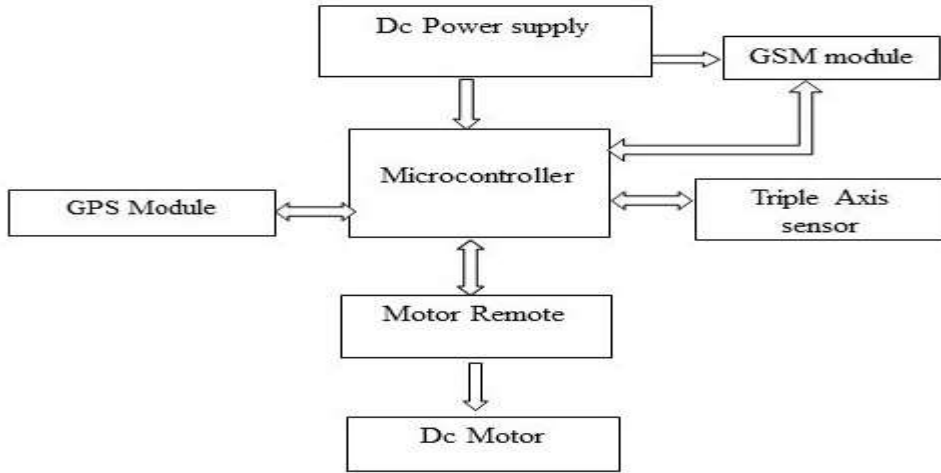
## ABSTRACT

The rapid growth of technology and infrastructure has made our lives easier. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which cause huge loss of life and property because of the poor emergency facilities. In this project, an IOT based automatic vehicle accident detection and rescue system is developed in order to detect vehicle accident and send the location information of the accident place to nearest hospitals, ambulance and police stations through message service. The accident is detected through impact and triple axis sensor. This system saves the valuable human life.

## 1. INTRODUCTION: -

Due to lack of attention, speed and new technology increases the chances of accident. India is at second rank in the accident overall world. When accident happens, life of human loses, which is very valuable. When road is curvature road at that instant more number of accident occur. On the curvature road driver at one side cannot see the vehicles at other side. Both vehicles may have high speed. Suddenly both vehicles are come in front of each other and at that time they cannot control their vehicles speed and accident happen and valuable life has lost. To overcome this problem existing system we developed the new system in which life of human can save using triple axis sensor. These sensors are placed at front sides of the vehicle. Triple axis sensors are used with Arduino and WI-FI module interfacing with them. This system also saves the valuable human life.

**2. BLOCK DIAGRAM:-**



**Fig -1:** hardware model

### 3.WORKING:-

- In our project we are using a 12V DC to provide a power supply.
- In our project the microcontroller and motor controller to run the operation. When switch is on then Regulated power goes to microcontroller, GSM module and motor controller etc. though microcontroller attachment with each other.
- Microcontroller has program according to that triple axis sensor this detects accident then this will provide signal to microcontroller then microcontroller receive the location from GPS module to the microcontroller as the location receives from the GPS this location will sends through GSM module.
- GSM module is connected with internet connection with microcontroller they provide message to respective phone numbers which is already mention in program.
- (Switch is on – vehicle is on – Accident fallout – triple axis sensor sense – signal to microcontroller – Indicator led is on – message is sent – vehicle is off).

### 4. COMPONENTS USED: -

#### (1) 16x2 LCD Display:

An LCD (Liquid Crystal Display) screen is an electronic display module and has a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. The 16 x 2 intelligent alphanumeric dot matrix display is capable of displaying 224 different characters and symbols. This LCD has two registers, namely, Command and Data.

#### (2) GSM MODULE :

GSM Module SIM900A Modem is built with Dual Band GSM-based SIM900A modem from SIMCOM. It works on frequencies 900MHz. SIM900A can search these two bands automatically. The frequency bands can also be set by AT Commands. The baud rate is configurable from 1200-115200 through AT command. SIM900A is an ultra-compact and wireless module.

#### (3) GPS MODULE :

GPS Module NEO-6M module series is a family of stand-alone GPS receivers featuring the high-performance u-blox 6 positioning engines. These flexible and cost-effective receivers offer numerous connectivity options in a miniature package.

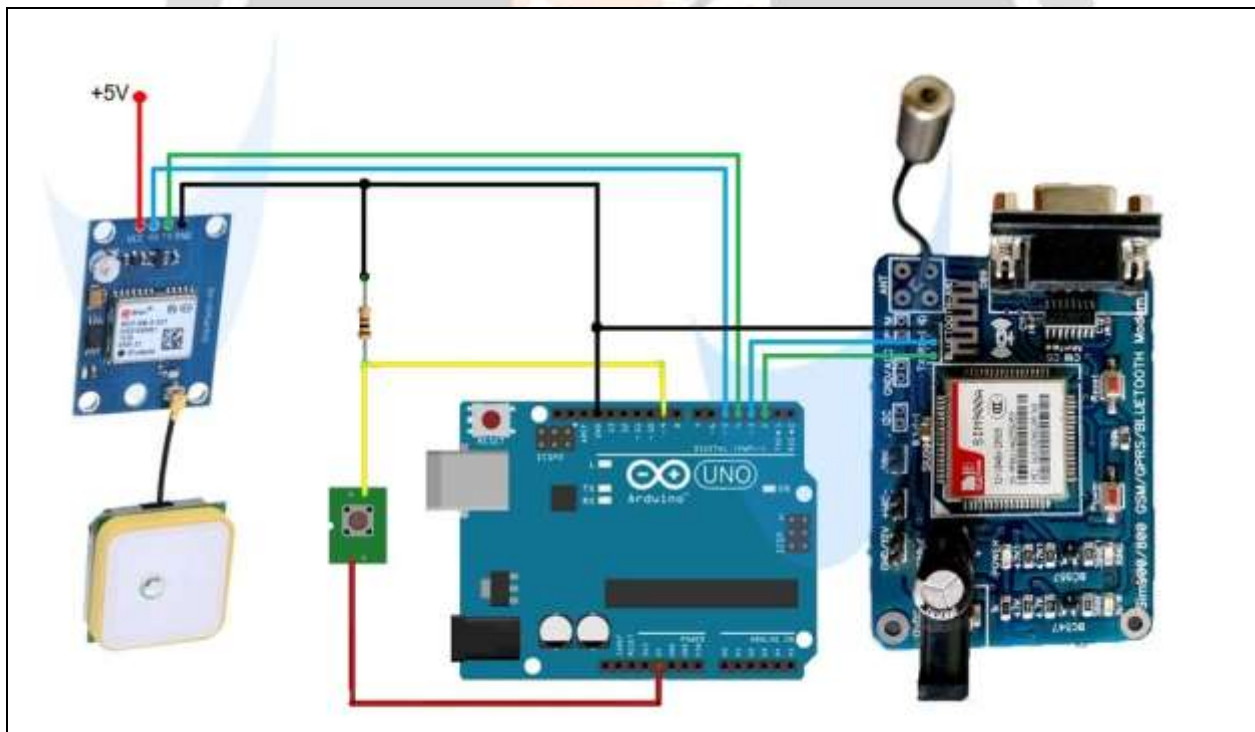
#### (4) TRIPLE AXIS SENSOR MODULE:

ADXL345 Triple Axis Accelerometer Board is a small, thin, low power, 3-axis accelerometer with high resolution (13-bit) measurement at up to  $\pm 16g$ . Digital output data is format as 16-bit twos complement and is accessible through either an SPI (3- or 4-wire) or I2C digital interface.

### 5. LIST OF COMPONENTS:-

Sr. No.	Part	Quantity
1.	16x2 Lcd Display With 12c Interface	1
2.	GSM Module	1
3.	GPS Module	1
4.	Triple Axis Sensor	1
5.	Microcontroller ATmega328p	4
6.	Ceramic Capacitor	1
7.	Electrolytic Capacitor	1
8.	LED	1
9.	Resistor	1
10.	DC Gear Motor	1
11.	Chassis	1

### 6. CIRCUIT DIAGRAM:-



### 7. ADVANTAGES:-

- Obstacle controlling vehicle
- It protect from accident and given notification.
- Easy and Wireless control from any where.

- Efficient by using ultrasonic sensor.
- Low cost design.
- Low power consumption.

#### **8. DISADVANTAGES:-**

- Only Works on internet.

#### **9. FUTURE SCOPE:-**

- The proposed program deals with detecting incidents and warning paramedics to reach the specific location by taking them to the nearest hospital and providing the medical services to the person affected by the incident.
- This can be extended through providing the victim with medication at the spot of the accident. We can also avoid accidents by increasing the technology and using warning systems that could really stop the vehicle to conquer them.

#### **10. REFERENCES**

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