



ACCIDENT ALERT SYSTEM

DESCRIPTION:

- ❖ As we know that latest cars have many advanced technologies to prevent it from road accidents but anyways accidents are happening and people are losing their lives.
- ❖ According to a data most of these deaths occur because of not getting medical aid on proper time. It said that the very first hour after the accident is golden hour, medical aid provided during this hour decide the life and death of a person.
- ❖ So this system is designed to help the injured person to get aid as soon as possible in that scenarios. It does the following work:
 1. detect that the accident has happened
 2. inform the nearest hospital/police station and relatives about the accident with the precise location.

COMPONENTS REQUIRED

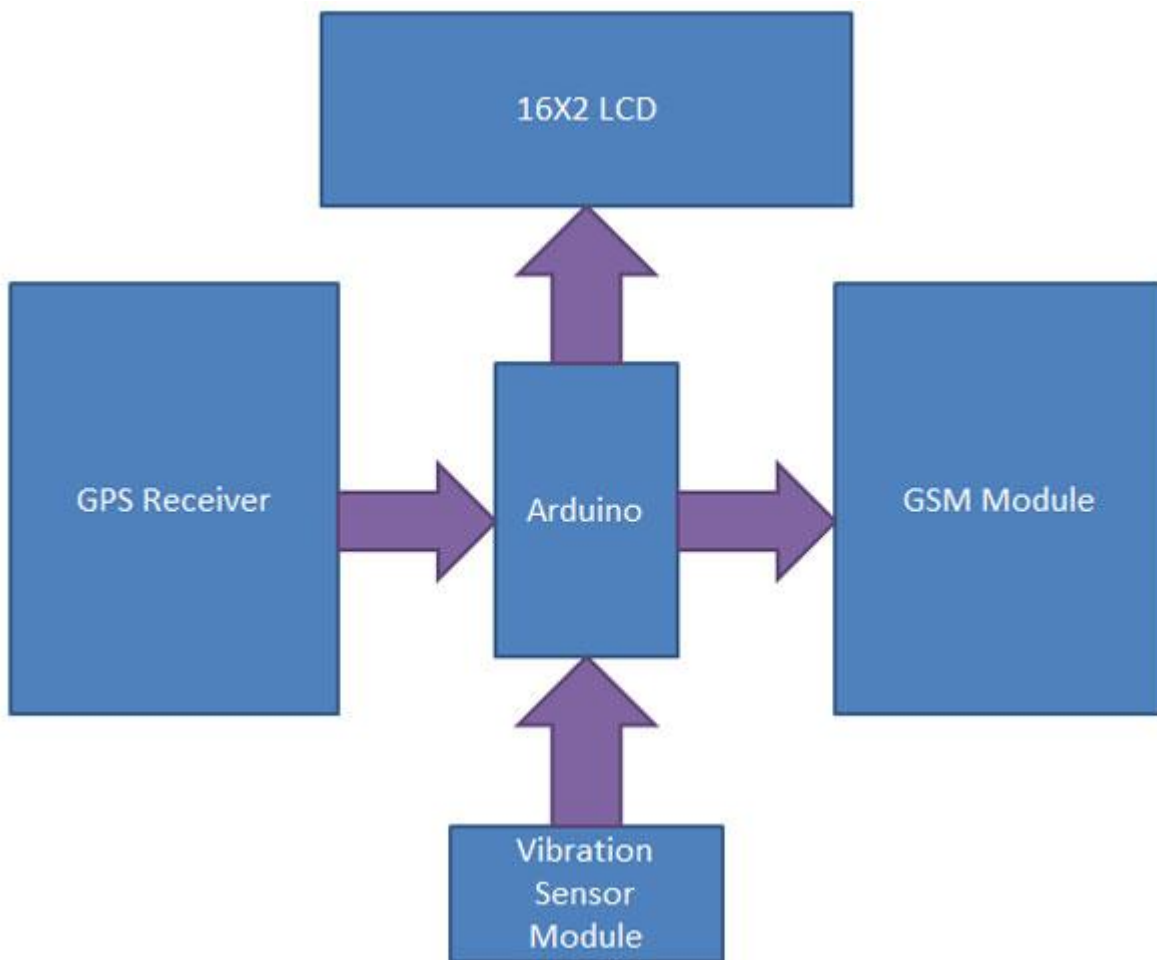
1. Arduino Uno
2. GSM Module
3. GPS Module
4. Vibration Sensor Module
5. 16x2 LCD Module
6. Variable resistor
7. 9V Power Supply
8. Connecting Wires

WORKING

1. When the accident happens, Vibration Sensors detects the accident and in turn send the signal to Arduino.
2. After that Arduino takes control and collects location details of the vehicle/object collected by the GPS module from the satellite, this information is in the form of latitude and longitude scale.
3. Thus, collected information is then fed to Arduino Uno. Necessary processing is done and the information is passed to the LCD and GSM modem.

4. The GSM modem collects the information from Arduino Uno and then transfer it to the mobile phone through the SMS which is in text format.

BLOCK DIAGRAM



CODE

```
#include<LiquidCrystal.h>
LiquidCrystal lcd(13,12,11,10,9,8);
#define vibrate_sense 7

char str[70];
char *test="$GPGBGA";
char longitude[10];
char latitude[10];

int i,j,k;
int temp;
//int Ctrl+z=26;    //for sending msg
int led=13;

void setup()
{
```

```

    lcd.begin(16,2);
    Serial.begin(4800);
    pinMode(vibrate_sense, INPUT);
    pinMode(led, OUTPUT);
    lcd.setCursor(0,0);
    lcd.print("Accident Detect");
    lcd.setCursor(0,1);
    lcd.print("Alert System");
    delay(3000);
}

void loop()
{
    if (digitalRead(vibrate_sense)==0)
    {
        for(i=18;i<27;i++)          //extract latitude from string
        {
            latitude[j]=str[i];
            j++;
        }

        for(i=30;i<40;i++)          //extract longitude from string
        {
            longitude[k]=str[i];
            k++;
        }

        lcd.setCursor(0,0);          //display latitude and longitude on 16X2 lcd display
        lcd.print("Lat(N)");
        lcd.print(latitude);
        lcd.setCursor(0,1);
        lcd.print("Lon(E)");
        lcd.print(longitude);
        delay(100);
        lcd.clear();
        lcd.print("Sending SMS");
        Serial.begin(9600);
        Serial.println("AT+CMGF=1");    //select text mode
        delay(10);
        Serial.println("AT+CMGS=\"0123456789\""); // enter receipt number
        Serial.println("Vehicle Accident occured:");
        Serial.print("Latitude(N): ");          //enter latitude in msg
        Serial.println(latitude);                //enter latitude value in msg
        Serial.print("Longitude(E): ");          //enter Longitude in Msg
        Serial.println(longitude);                //enter longitude value in msg
        Serial.print("http://maps.google.com/maps?&z=15&mrt=yp&t=k&q=");
        Serial.println(latitude);
        Serial.println("+");
        Serial.println(longitude);
        Serial.write(26);                        //send msg Ctrl+z=26
        lcd.print("SMS Sent");
        temp=0;
        i=0;
        j=0;
        k=0;
        delay(20000);                            // next reading within 20 seconds
        Serial.begin(4800);
    }
}

void serialEvent()
{
    while (Serial.available())                //Serial incoming data from GPS
    {
        char inChar = (char)Serial.read();
        str[i]= inChar;                        //store incoming data from GPS to temporary
        string str[]

```

```

i++;
if (i < 7)
{
    if(str[i-1] != test[i-1])          //check for right string
    {
        i=0;
    }
}
if(i >=60)
{
    break;
}
}
}

```

CIRCUIT DIAGRAM

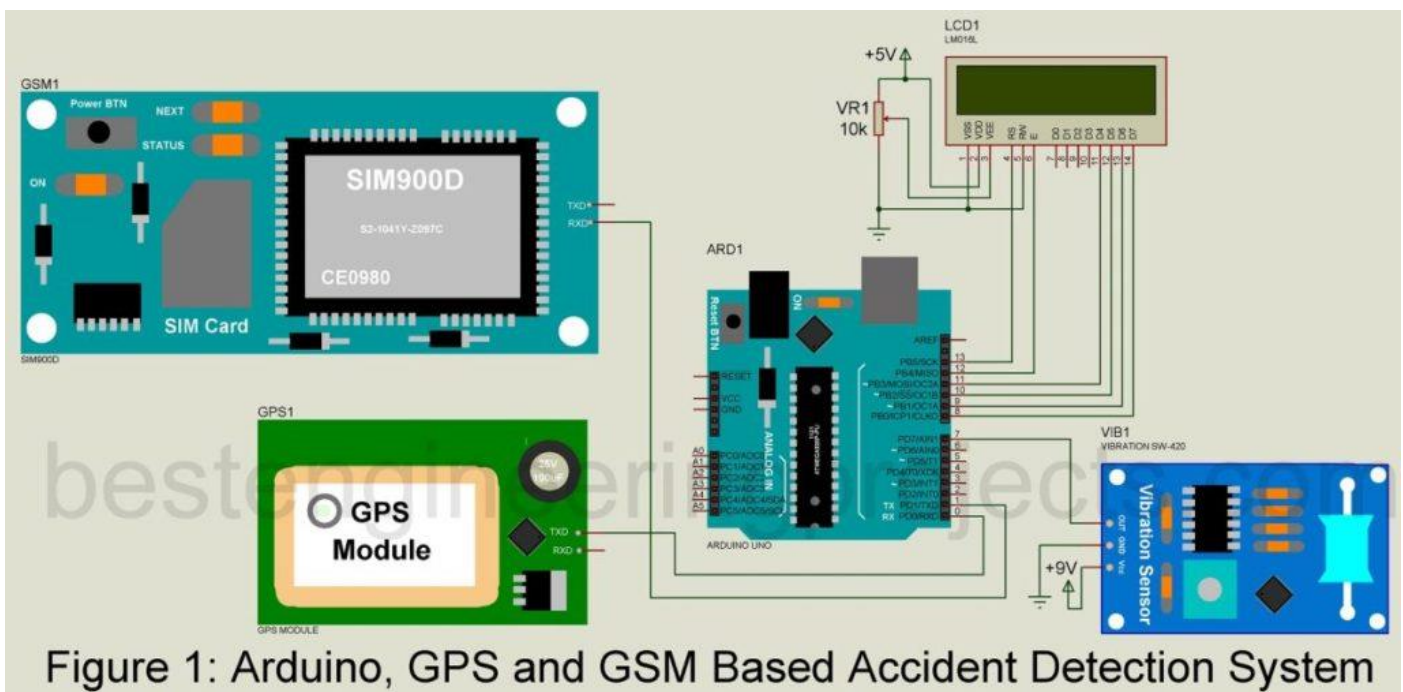


Figure 1: Arduino, GPS and GSM Based Accident Detection System

FURTHER INTEGRATION

So this was just a prototype of the actual system. In actual system following modifications can be done:

1. In place of vibration sensor module, we will have to use multiple MEMS accelerometer sensors which can detect that much value of shock/jerk produced during car accidents.
2. One more thing is that this prototype system send messages only to phone numbers pre-fed in it. With the help of artificial intelligence we can integrate this...so that after accident it automatically search for the nearest hospital/police station according to the location of accident and inform them too about this mishappening, so that proper action could be taken as early as possible.