ACCIDENT PREVENTION AND ALERT SYSTEM REVIEW - 3

Components :

USB Cable
Arduino UNO
Breadboard
Battery
Car kit
motor driver
LCD Screen
Audio Speaker
Sensor Switch
Micro Sim Card Quad Band Module
Communication equipment
Ultrasonic Sensor
Micro Motor
Cart Board

Tools and Function Of the tool :

Arduino board: An open-source electronics platform that is used to create interactive electronic projects. The board can be programmed using the Arduino programming language and is popular for its ease of use and versatility

LCD screen: A liquid crystal display screen that is used to display text or graphics. LCD screens come in various sizes and can be used in a variety of electronic projects.

Audio speaker: A device that converts electrical signals into sound waves. Speakers are commonly used in electronic projects that require sound output.

Micro motor: A small motor that can be used in electronic projects that require movement. Micro motors are commonly used in robotics and automation projects.

Sensor switch: A switch that is triggered by a physical change in the environment, such as motion or light. Sensor switches can be used in a variety of electronic projects that require automatic triggering

Micro Sim Card Quad Band Module: A module that allows electronic devices to communicate using a cellular network. This module is commonly used in projects that require wireless communication.

Communication equipment: A device that allows electronic devices to communicate with each other. Examples of communication equipment include Wi-Fi modules and Bluetooth modules.

Ultrasonic sensor: A sensor that uses sound waves to detect the distance of objects. Ultrasonic sensors are commonly used in robotics and automation projects.

Working:

This project involves an accident alert system implemented with Arduino. It utilizes an ultrasonic sensor to detect approaching obstacles and promptly notifies the user through a beeping sound, as such case the car slows down and stops after some time. The ultrasonic sensor is strategically positioned at both the front and back of the setup to ensure comprehensive accident detection. In the event of an accident, the GSM900 module comes into play, promptly sending an SMS to a designated emergency mobile numbers. This number is pre-configured within the module using a SIM card housed within it.

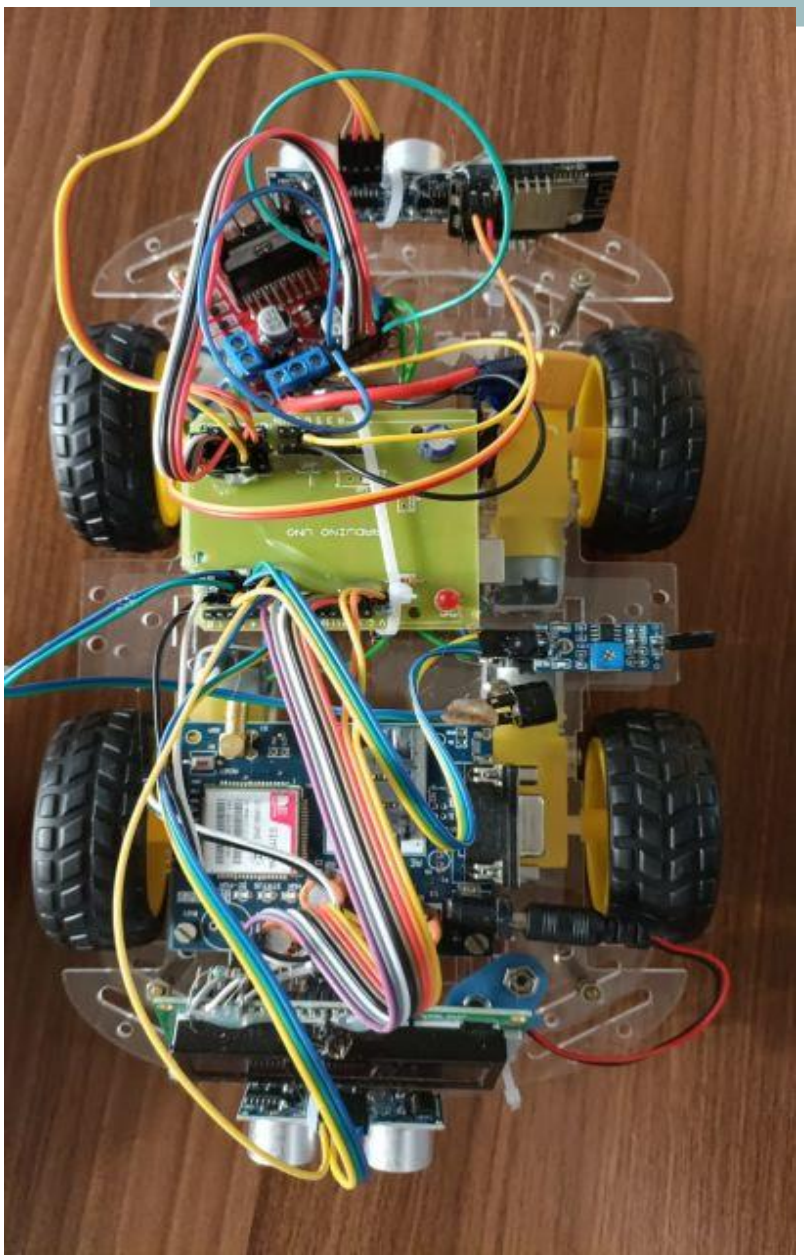
CODE :

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(8, 9, 10, 11, 12, 13);
int m1=A3;
int m2=A2;
int m3=A5;
int m4=A4;
int i=0;
int tr=A1;
int ec=A0;
int tr1=7;
int ec1=6;
int buz =3;
int sw =4;
int dist()
{
 digitalWrite(tr,1);
 delayMicroseconds(10);
 digitalWrite(tr,0);
 delayMicroseconds(2);
 int dst=pulseIn(ec,1)/58.2;
 return dst;
}

int dist1()
{
 digitalWrite(tr1,1);
 delayMicroseconds(10);
 digitalWrite(tr1,0);
 delayMicroseconds(2);
 int dst1=pulseIn(ec1,1)/58.2;
 return dst1;
}
```

```
void setup() {
 // put your setup code here, to run once:
pinMode(m1,OUTPUT);
pinMode(m2,OUTPUT);
pinMode(m3,OUTPUT);
pinMode(m4,OUTPUT);
lcd.begin(16,2);
lcd.print("WELCOME");
Serial.begin(9600);
 pinMode(tr,OUTPUT);
 pinMode(ec,INPUT);

  pinMode(tr1,OUTPUT);
 pinMode(ec1,INPUT);
 pinMode(sw,INPUT);

 pinMode(buz,OUTPUT);
 digitalWrite(buz,0);

Serial.begin(9600);
}
```

```
void loop() {
  // put your main code here, to run repeatedly:

    digitalWrite(m1,1);
    digitalWrite(m2,0);
    digitalWrite(m3,1);
    digitalWrite(m4,0);

    int dst1=dist();
    int dst2=dist1();
    int vib=digitalRead(sw);

    Serial.println("F:"+String(dst1) + "  B:"+String(dst2)
+ "  V:"+String(vib));
    lcd.clear();
    lcd.print("F:"+String(dst1) + "  B:"+String(dst2) + "
V:"+String(vib));
   delay(500);

   if(dst1<10)
   {

    digitalWrite(buz,1);
    delay(1000);
    digitalWrite(buz,0);
    int kk=0;
    while(kk<2000)
    {

    digitalWrite(m1,1);
    digitalWrite(m2,0);
    digitalWrite(m3,1);
    digitalWrite(m4,0);
    delay(1);
       digitalWrite(m1,0);
     digitalWrite(m2,0);
     digitalWrite(m3,0);
     digitalWrite(m4,0);
     delay(1);
     }
    }
   if(dst2<10)
   {
      digitalWrite(buz,1);
     delay(100);
     digitalWrite(buz,0);
      delay(100);
   }

   if(vib==0)
   {
    lcd.setCursor(0,1);
    lcd.print("ACCIDENT DETECTED");
    digitalWrite(m1,0);
    digitalWrite(m2,0);
    digitalWrite(m3,0);
    digitalWrite(m4,0);
    send_sms();
   }
}
```

```
void send_sms()
{

 digitalWrite(buz,1);


Serial.println("Sending SMS...");
Serial.println("AT");
delay(1000);
Serial.println("ATE0");
delay(1000);
Serial.println("AT+CMGF=1");
delay(1000);
Serial.print("AT+CMGS=\"6304863902\"\r\n");// Replace x with mobile number
delay(1000);
Serial.println("Alert: Accident detected  ");
delay(100);
Serial.println((char)26);// ASCII code of CTRL+Z
delay(5000);

Serial.println("Sending SMS...");
Serial.println("AT");
delay(1000);
Serial.println("ATE0");
delay(1000);
Serial.println("AT+CMGF=1");
delay(1000);
Serial.print("AT+CMGS=\"6304863902\"\r\n");// Replace x with mobile number
delay(100);
Serial.println("Alert: Accident detected");
delay(100);
Serial.println((char)26);// ASCII code of CTRL+Z
delay(5000);
digitalWrite(buz,0);
while(1);
}
```



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