```
#include<LiquidCrystal.h>
LiquidCrystal lcd(9,8,7,6,5,4);
#include <DFRobot_sim808.h>
#include <SoftwareSerial.h>
#include <Wire.h>
#include <MPU6050.h>
MPU6050 mpu;
char MESSAGE[300];
#define PIN_TX    10
#define PIN_RX    11
SoftwareSerial mySerial(PIN_TX,PIN_RX);
DFRobot_SIM808 sim808(&mySerial);//Connect RX,TX,PWR,
#define PHONE_NUMBER  "0969214523"
int lednguon,ledxinhan;
int btnchongtrom, btnnguon;
int buzzer;
char lat[12];
char lon[12];
char wspeed[12];
char datetime[24];
int pitch;
#define MESSAGE_LENGTH 160
char message[MESSAGE_LENGTH];
int roll,chongtrom,nguon,nguon1;
unsigned long thoigianrung;
int messageIndex = 0;
void setup()
{
  Serial.begin(9600);
  mySerial.begin(9600);
  lcd.begin(16,2);
  pinMode(23,INPUT);
  pinMode(25,INPUT);
  pinMode(31,OUTPUT);
  pinMode(33,OUTPUT);
  pinMode(3,INPUT);
  pinMode(18,OUTPUT);
  pinMode(13,OUTPUT);
  lcd.print("Init MPU6050");

  while(!mpu.begin(MPU6050_SCALE_2000DPS, MPU6050_RANGE_2G))
  {
    Serial.println("Could not find a valid MPU6050 sensor, check
wiring!");
    delay(500);
  }
  lcd.setCursor(0,0);
  lcd.print("MPU SUCCESS         ");
  delay(200);
  //lcd.clear();
  while(!sim808.init()) {
      delay(1000);
      Serial.print("Sim808 init error\r\n");
  }
```

```
  lcd.print("SIM SUCCESS             ");
  delay(200);
  lcd.clear();
  delay(50);
  //lcd.print(" chay chuong trinh");

}
void loop()
{
  int rung = digitalRead(3);
  btnchongtrom = digitalRead(23);
  btnnguon = digitalRead(25);
  nhanchongtrom();
  nhannguon();
  get_mpu();
  Get_Gps();
 Serial.println(rung);
  //Serial.println(thoigianrung);
 lcd.setCursor(0,0);
 lcd.print(chongtrom);
  if(nguon%2 ==1)
    digitalWrite(33,HIGH);
  else  digitalWrite(33,LOW);
  //Serial.println(thoigianrung);
  lcd.setCursor(2,0);
    lcd.print("          ");
    int z;
    if(pitch <0)
      z = -pitch;
    else
      z= pitch;
    if(z <10)
      {lcd.setCursor(15,0);
      lcd.print(z);
        }
        else if(z <100)
      {lcd.setCursor(14,0);
      lcd.print(z);
        }
        else if(z <1000)
      {lcd.setCursor(13,0);
      lcd.print(z);
        }
  if(chongtrom%2 ==0)
  {
    digitalWrite(13,0);
    if( pitch > 50||pitch <-50)
      {
        send_sms(2);
        sim808.callUp(PHONE_NUMBER);
        lcd.setCursor(0,1);
        lcd.print("xe bi nga        ");
        digitalWrite(31,HIGH);
        }
```

```
     else
     {
      lcd.setCursor(0,1);
        lcd.print("                    ");
        digitalWrite(31,LOW);
     }
     //delay(200);
  }
  else if(chongtrom%2 ==1)
  {
    if(nguon ==1)
      digitalWrite(33,HIGH);
    else  digitalWrite(33,LOW);
     thoigianrung =pulseIn(rung,HIGH);
    Serial.println(thoigianrung);

      if(rung ==1 )
      {
        lcd.setCursor(2,0);
        lcd.print("             ");
        lcd.setCursor(13,1);
        lcd.print(thoigianrung);
        if (millis()%1000 > 500)
        {
          lcd.setCursor(0,1);
          lcd.print("xe bi rung      ");
          send_sms(1);
          tone(18,1000);
        }
      }
       else if(rung ==0)
        {
          noTone(18);
          lcd.setCursor(0,1);
          lcd.print("            ");
         }

      if( pitch > 50)
      {
        send_sms(2);
        sim808.callUp(PHONE_NUMBER);

        lcd.setCursor(0,1);
        lcd.print("xe bi nga       ");
        digitalWrite(31,HIGH);
      //  delay(50);
    //    digitalWrite(31,LOW);
  //      delay(50);
//        `int t = millis();
        delay(1000);
        lcd.setCursor(0,1);
        lcd.print("                ");
      }
      else if(pitch<50)
```

```
      {
        digitalWrite(31,LOW);
      }
      if(nguon ==1)
      {
        //lcd.clear();
        //delay(100);
        lcd.setCursor(0,1);
        lcd.print("xe bi trom       ");
        digitalWrite(18,1);
        send_sms(3);
        delay(3000);

        //sim808.callUp(PHONE_NUMBER);
        nguon =0;
        lcd.setCursor(0,1);
        lcd.print("              ");
      }

      //delay(200);
  }
  if(chongtrom%2 ==1)
  {
    digitalWrite(13,HIGH);
    delay(50);
    digitalWrite(13,LOW);
    delay(50);
  }
  else if(chongtrom%2 ==0) digitalWrite(13,LOW);
  delay(200);
}

void send_sms(int i)
{
  if(i ==1)
    {
      sim808.sendSMS(PHONE_NUMBER," xe bi rung");
    }
   if(i == 2)
   {
      //MESSAGE = " xe ban bi nga";
      sim808.sendSMS(PHONE_NUMBER, " xe ban bi nga");
   }
   if(i== 3)
   {
      sprintf(MESSAGE, "Latitude : %s\nLongitude : %s\nWind Speed : %s
kph\nMy Module Is Working. Mewan Indula Pathirage. Try With This
Link.\nhttp://www.latlong.net/Show-Latitude-
Longitude.html\nhttp://maps.google.com/maps?q=%s,%s\n", lat, lon, wspeed,
lat, lon);
      sim808.sendSMS(PHONE_NUMBER,MESSAGE);
   }

}
```

```
void get_mpu()
{
  Vector normAccel = mpu.readNormalizeAccel();

  // Calculate Pitch & Roll
  pitch = -(atan2(normAccel.XAxis, sqrt(normAccel.YAxis*normAccel.YAxis +
normAccel.ZAxis*normAccel.ZAxis))*180.0)/M_PI;
  roll = (atan2(normAccel.YAxis, normAccel.ZAxis)*180.0)/M_PI;
}
void Get_Gps()
{

      float la = sim808.GPSdata.lat;
      float lo = sim808.GPSdata.lon;
      float ws = sim808.GPSdata.speed_kph;

      dtostrf(la, 6, 2, lat); //put float value of la into char array of
lat. 6 = number of digits before decimal sign. 2 = number of digits after
the decimal sign.
      dtostrf(lo, 6, 2, lon); //put float value of lo into char array of
lon
      dtostrf(ws, 6, 2, wspeed);  //put float value of ws into char array
of wspeed
      sim808.detachGPS();
}
void nhanchongtrom()
{
    if(btnchongtrom==0)
    {
        chongtrom ++;
  }
}
void nhannguon()
{

    if(btnnguon ==0)
    {
        nguon ++;
    }
}
```