```
#include<LiquidCrystal.h>
#include <SoftwareSerial.h>

#include <DallasTemperature.h>



LiquidCrystal lcd(A2, A3, A4, A5, 2, 3);
SoftwareSerial wifi(8, 9); // RX, TX



String apiKey = "H9AROW703ETIO561";//UPY099IS3UF0TQ0O


// Data wire is plugged into digital pin 2 on the Arduino
#define ONE_WIRE_BUS 4

// Setup a oneWire instance to communicate with any OneWire device
OneWire oneWire(ONE_WIRE_BUS);

// Pass oneWire reference to DallasTemperature library
DallasTemperature sensors(&oneWire);




int ldr_data ;

const int buzzer = 13;
```

```
const int relay_light = 12;//relay_mot
const int relay_fan = 11; //relay_liht
const int relay_socket = 10; //relay_liht
const int smoke_sen = 7;
const int pir_sen = 6;




void setup() {
  lcd.begin(16, 2);
  Serial.begin(9600);
  project_Name();

  pinMode(pir_sen, INPUT);
  pinMode(smoke_sen, INPUT);
  pinMode(buzzer, OUTPUT);
  digitalWrite(buzzer, LOW);//off

  pinMode(relay_light, OUTPUT);
  pinMode(relay_socket, OUTPUT);
  pinMode(relay_fan, OUTPUT);



  digitalWrite(relay_light, LOW); //OFF
  digitalWrite(relay_socket, LOW); //OFF
  digitalWrite(relay_fan, LOW); // OFF

  sensors.begin();  // Start up the library
  //----------------------gsm-----------------
```

```
lcd.setCursor(0, 0);
lcd.print("Gsm Module      ");
lcd.setCursor(0, 1);
lcd.print("Initilizing.... ");
Serial.begin(9600);
delay(1000);
Serial.println("AT+CNMI=2,2,0,0,0");
delay(3000);
Serial.println("AT+CMGF=1");
delay(3000);
Serial.println("AT+CMGS=\"+919493242002\"\r"); // Replace x with mobile number
delay(3000);
Serial.println("System is ready to send Messages.");// The SMS text you want to send
delay(3000);
Serial.println((char)26); // ASCII code of CTRL+Z
delay(2000);
lcd.setCursor(0, 0);
lcd.print("Gsm Module       ");
lcd.setCursor(0, 1);
lcd.print("Initilized..... ");
delay(500);
lcd.clear();
//----------------------wifi-----------------
lcd.setCursor(0, 0);
lcd.print("WiFi module     ");
lcd.setCursor(0, 1);
lcd.print("Initilizing.... ");
wifi.begin(115200);
wifi.println("AT+RST");//reset
delay(3000);
wifi.println("AT+CWMODE=3");//hotspot
```

```
  delay(3000);
  wifi.print("AT+CWJAP=");
  wifi.write('"');
  wifi.print("a");
  wifi.write('"');
  wifi.write(',');
  wifi.write('"');
  wifi.print("1234567890");
  wifi.write('"');
  wifi.println();
  delay(1000);
  lcd.setCursor(0, 0);
  lcd.print("WiFi module     ");
  lcd.setCursor(0, 1);
  lcd.print("Initilized..... ");
  delay(500);
  lcd.clear();
}//setup




void loop()
{
  lcd.clear();

  // Send the command to get temperatures
  sensors.requestTemperatures();
  ldr_data = analogRead(A0);

  lcd.setCursor(0, 0);
```

```
lcd.print("TE   LDR  SK PIR");
lcd.setCursor(0, 1);
lcd.print(int(sensors.getTempCByIndex(0)));
lcd.setCursor(6, 1);
lcd.print(ldr_data);
lcd.setCursor(8, 1);
lcd.print(digitalRead(smoke_sen));
lcd.setCursor(13, 1);
lcd.print(digitalRead(pir_sen));
delay(1500);
lcd.clear();

// -------------comparision----------------------------

// -------------gas Data-----------------------------
if (digitalRead(smoke_sen) == 0)
{
  digitalWrite(buzzer, HIGH);
  lcd.setCursor(0, 0);
  lcd.print("    Smoke      ");
  lcd.setCursor(0, 1);
  lcd.print("   Detected     ");
  smoke_sms();
  lcd.clear();
  digitalWrite(buzzer, LOW);
}
else
{
  lcd.setCursor(0, 0);
  lcd.print("     Smoke      ");
  lcd.setCursor(0, 1);
```

```
  lcd.print(" Not Detected    ");
  delay(500);
  lcd.clear();
}



// -------------pir----------------------------
if (digitalRead(pir_sen) == 1)
{
  digitalWrite(buzzer, HIGH); //
  lcd.setCursor(0, 0);
  lcd.print("    Motion       ");
  lcd.setCursor(0, 1);
  lcd.print("   Detected      ");
   pir_sms();
  digitalWrite(buzzer, LOW); //
  lcd.clear();
}
else
{
  lcd.setCursor(0, 0);
  lcd.print("     Motion      ");
  lcd.setCursor(0, 1);
  lcd.print("  Not Detected   ");
  delay(500);
  lcd.clear();
}

// -------------temp----------------------------
```

```
if (sensors.getTempCByIndex(0) > 45)
{
  digitalWrite(relay_fan, HIGH);
  lcd.setCursor(0, 0);
  lcd.print(" Temperature   ");
  lcd.setCursor(0, 1);
  lcd.print(" is High       ");
  delay(1000);
  //temp_sms();
  lcd.clear();

}
else
{
  digitalWrite(relay_fan, LOW);
  lcd.setCursor(0, 0);
  lcd.print(" Temperature   ");
  lcd.setCursor(0, 1);
  lcd.print("  is Normal    ");
  delay(500);
  lcd.clear();
}
// -------------ldr----------------------------


if (ldr_data < 100)
{
  digitalWrite(relay_light, LOW); //n
  lcd.setCursor(0, 0);
  lcd.print("Light:LOW     ");
  lcd.setCursor(0, 1);
```

```
   lcd.print("Bulb:ON       ");
   delay(1000);
   lcd.clear();

  }
  else
  {
   digitalWrite(relay_light, HIGH); //on
   lcd.setCursor(0, 0);
   lcd.print("Light:Normal  ");
   lcd.setCursor(0, 1);
   lcd.print("Bulb:OFF      ");
   delay(500);
   lcd.clear();
  }


  lcd.setCursor(15, 1);
  lcd.print("*");
  sendwifi_Data();//upload
  lcd.clear();
}//loop




void sendwifi_Data() {
  String= "AT+CIPSTART=\"TCP\",\"";
```

```
  cmd += "184.106.153.149"; // api.thingspeak.com
  cmd += "\",80";
  wifi.println(cmd);
  delay(1500);

  String getStr = "GET /update?api_key=";
  getStr += apiKey;
  getStr += "&field1=";
  getStr += String(sensors.getTempCByIndex(0));
  getStr += "&field2=";
  getStr += String(ldr_data);
  getStr += "&field3=";
  getStr += String(digitalRead(smoke_sen));
  getStr += "&field4=";
  getStr += String(digitalRead(pir_sen));
  getStr += "\r\n\r\n";

  // send data length
  cmd = "AT+CIPSEND=";
  cmd += String(getStr.length());
  wifi.println(cmd);
  delay(1500);
  wifi.println(getStr);//imp
  delay(500);
}



void project_Name() {
  lcd.setCursor(0, 0);
  lcd.print("GSM BASED LAB   ");
```

```
  lcd.setCursor(0, 1);
  lcd.print("AUTOMATION-IOT  ");
  delay(2000);
}



void temp_sms()
{
  lcd.setCursor(0, 0);
  lcd.print(" Message       ");
  lcd.setCursor(0, 1);
  lcd.print("Sending.....");
  Serial.begin(9600);
  delay(1000);
  Serial.println("AT+CNMI=2,2,0,0,0");
  delay(3000);
  Serial.println("AT+CMGF=1");
  delay(3000);
  Serial.println("AT+CMGS=\"+919493242002\"\r"); // Replace x with mobile number
  delay(3000);
  Serial.println("Alert!High temperature detected at Lab.Check immediately");// The SMS text you
want to send
  delay(3000);
  Serial.println((char)26); // ASCII code of CTRL+Z
  delay(2000);
  lcd.setCursor(0, 0);
  lcd.print("Message       ");
  lcd.setCursor(0, 1);
  lcd.print("Sent.....");
  delay(500);
```

```
  lcd.clear();
}

void pir_sms()
{
  lcd.setCursor(0, 0);
  lcd.print(" Message       ");
  lcd.setCursor(0, 1);
  lcd.print("Sending.....");
  Serial.begin(9600);
  delay(1000);
  Serial.println("AT+CNMI=2,2,0,0,0");
  delay(3000);
  Serial.println("AT+CMGF=1");
  delay(3000);
  Serial.println("AT+CMGS=\"+919493242002\"\r"); // Replace x with mobile number
  delay(3000);
  Serial.println("Alert!suspicious activity detected at Lab.Check immediately");// The SMS text you
want to send
  delay(3000);
  Serial.println((char)26); // ASCII code of CTRL+Z
  delay(2000);
  lcd.setCursor(0, 0)
  lcd.print("Message       ");
  lcd.setCursor(0, 1);
  lcd.print("Sent.....");
  delay(500);
  lcd.clear();
}
void smoke_sms()
{
```

```
 lcd.setCursor(0, 0);
 lcd.print(" Message       ");
 lcd.setCursor(0, 1);
 lcd.print("Sending.....");
 Serial.begin(9600);
 delay(1000);

 delay(3000);
 Serial.println("AT+CMGF=1");
 delay(3000);
 Serial.println("AT+CMGS=\"+919493242002\"\r"); // Replace x with mobile number
 delay(3000);
 Serial.println("Alert!Smoke detected at Lab.Check immediately");// The SMS text you want to send
 delay(3000);
 Serial.println((char)26); // ASCII code of CTRL+Z
 delay(2000);
 lcd.setCursor(0, 0);
 lcd.print("Message       ");
 lcd.setCursor(0, 1);
 lcd.print("Sent.....");
 delay(500);
 lcd.clear();
}
```