#include <LiquidCrystal\_I2C.h>

#include <SoftwareSerial.h>

#include <DHT.h>

#include <Wire.h>

#include <Servo.h>

#define DHT11\_PIN A0 // Define the pin for DHT11

#define DHTTYPE DHT11

Servo myServo; // Define the type of DHT sensor

DHT dht(DHT11\_PIN, DHT11); // Correct initialization

LiquidCrystal\_I2C lcd(0x27, 16, 2);

SoftwareSerial mySerial(10, 11);

#define DHT11\_PIN A0

#define mq135\_pin A2

#define LDR A1

#define BUZZER\_PIN 9

void ReadDHT(void);

void ReadAir(void);

void ReadLight(void);

void send\_data(void);

bool DHT\_flag = false;

int tempThreshold=40;

void setup()

{

mySerial.begin(115200);

pinMode(mq135\_pin, INPUT);

pinMode(LDR, INPUT);

pinMode(BUZZER\_PIN, OUTPUT);

lcd.init();

lcd.backlight();

dht.begin(); // Initialize the DHT sensor

lcd.setCursor(0, 0);

lcd.print(" IoT Weather ");

lcd.setCursor(0, 1);

lcd.print("Monitor System");

delay(1500);

myServo.attach(9);

myServo.write(0);

}

void loop()

{

ReadDHT();

ReadAir();

ReadLight();

send\_data();

}

void ReadDHT(void)

{

float temperature = dht.readTemperature();

float humidity = dht.readHumidity();

if (!isnan(temperature) && !isnan(humidity))

{

DHT\_flag = true;

lcd.setCursor(0, 0);

lcd.print("Temp: ");

lcd.print(temperature, 1);

lcd.print(" \*C");

lcd.setCursor(0, 1);

lcd.print("Humi: ");

lcd.print(humidity, 1);

lcd.print(" %");

if(temperature>= tempThreshold)

myServo.write(90);

else

myServo.write(0);

}

}

void ReadAir(void)

{

int airqlty = analogRead(mq135\_pin);

lcd.setCursor(0, 0);

lcd.print("AIR QUALITY: ");

lcd.print(map(airqlty, 0, 1024, 0, 100));

lcd.print("%");

lcd.setCursor(0, 1);

if (airqlty <= 180) lcd.print("GOOD!");

else if (airqlty <= 225) lcd.print("POOR");

else if (airqlty <= 300) lcd.print("VERY BAD");

else

{ lcd.print("TOXIC");

digitalWrite(BUZZER\_PIN,HIGH);//turn on buzzer

}

if (airqlty<=300)

digitalWrite(BUZZER\_PIN,LOW);

delay(2000);

}

void ReadLight(void)

{

lcd.setCursor(0, 0);

lcd.print("LIGHT: ");

lcd.print(map(analogRead(LDR), 0, 1024, 0, 100));

lcd.print("%");

delay(2000);

}

void send\_data()

{

mySerial.print('\*'); // Starting char

if (DHT\_flag)

{

mySerial.print(dht.readTemperature(), 1);

mySerial.print(dht.readHumidity(), 1);

}

else

{

mySerial.print("00"); // Send dummy data

}

mySerial.print(map(analogRead(LDR), 0, 1024, 0, 100)); // Light data

mySerial.print(map(analogRead(mq135\_pin), 0, 1024, 100, 0)); // Air quality data

mySerial.println('#'); // Ending char

}