#include <DHT.h>

#include <ESP8266WiFi.h>

#include <PubSubClient.h>

#include <Wire.h>

#define TRIG\_PIN1 D0 // GPIO0 pin connected to the first ultrasonic sensor's trig pin

#define ECHO\_PIN1 D7 // GPIO13 pin connected to the first ultrasonic sensor's echo pin

#define TRIG\_PIN2 D5 // GPIO14 pin connected to the second ultrasonic sensor's trig pin

#define ECHO\_PIN2 D6 // GPIO12 pin connected to the second ultrasonic sensor's echo pin

#define SMOKE\_SENSOR\_PIN A0 // GPIO4 (A0) pin connected to the smoke sensor

#define LDR\_SENSOR\_PIN D8 // GPIO4 (A0) pin connected to the LDR sensor

#include "DHT.h"

#define DHTPIN 0 // Digital pin connected to the DHT sensor

#define DHTTYPE DHT11 // DH

DHT dht(DHTPIN, DHTTYPE);

const char\* ssid = "Airel\_9842878776"; // Your WiFi SSID

const char\* password = "air88581"; // Your WiFi password

const char\* mqttServer = "broker.emqx.io";

const int mqttPort = 1883;

const char\* mqttClientID = "259a800e-1ac5-4109-aa6e-3714cbeefa14";

const char\* mqttTopic = "Sensor";

WiFiClient wifiClient;

PubSubClient client(wifiClient);

void setupWiFi() {

delay(10);

Serial.println();

Serial.print("Connecting to ");

Serial.println(ssid);

WiFi.begin(ssid, password);

while (WiFi.status() != WL\_CONNECTED) {

delay(500);

Serial.print(".");

}

Serial.println("");

Serial.println("WiFi connected");

Serial.println("IP address: ");

Serial.println(WiFi.localIP());

}

void reconnect() {

while (!client.connected()) {

Serial.print("Attempting MQTT connection...");

if (client.connect(mqttClientID)) {

Serial.println("connected");

} else {

Serial.print("failed, rc=");

Serial.print(client.state());

Serial.println(" try again in 5 seconds");

delay(5000);

}

}

}

void setup() {

Serial.begin(9600);

pinMode(TRIG\_PIN1, OUTPUT);

pinMode(ECHO\_PIN1, INPUT);

pinMode(TRIG\_PIN2, OUTPUT);

pinMode(ECHO\_PIN2, INPUT);

Serial.println(F("DHTxx test!"));

dht.begin();

setupWiFi();

client.setServer(mqttServer, mqttPort);

}

void loop() {

long duration1, distance1;

digitalWrite(TRIG\_PIN1, LOW);

delayMicroseconds(2);

digitalWrite(TRIG\_PIN1, HIGH);

delayMicroseconds(10);

digitalWrite(TRIG\_PIN1, LOW);

duration1 = pulseIn(ECHO\_PIN1, HIGH);

distance1 = duration1 \* 0.034 / 2;

delay(500);

long duration2, distance2;

digitalWrite(TRIG\_PIN2, LOW);

delayMicroseconds(2);

digitalWrite(TRIG\_PIN2, HIGH);

delayMicroseconds(10);

digitalWrite(TRIG\_PIN2, LOW);

duration2 = pulseIn(ECHO\_PIN2, HIGH);

distance2 = duration2 \* 0.034 / 2;

delay(500);

int smokeValue = analogRead(SMOKE\_SENSOR\_PIN);

int ldrValue = digitalRead(LDR\_SENSOR\_PIN);

float h = dht.readHumidity();

float t = dht.readTemperature();

float f = dht.readTemperature(true);

if (isnan(h) || isnan(t) || isnan(f)) {

Serial.println(F("Failed to read from DHT sensor!"));

return;

}

float hif = dht.computeHeatIndex(f, h);

float hic = dht.computeHeatIndex(t, h, false);

Serial.print(F("Humidity: "));

Serial.print(h);

Serial.print(F("% Temperature: "));

Serial.print(t);

Serial.print(F("°C "));

// Print sensor data to the Serial Monitor

Serial.print("Distance 1: ");

Serial.print(distance1);

Serial.print(" cm, Distance 2: ");

Serial.print(distance2);

Serial.print(" cm, Smoke Value: ");

Serial.print(smokeValue);

Serial.print(", LDR Value: ");

Serial.print(ldrValue);

Serial.println("");

delay(2000);

if (!client.connected()) {

reconnect(); // Adjust the delay as needed

}

String data = String(h) + ","+ String(t) + "," + String(distance1) + "," + String(distance2)+ "," + String(smokeValue)+ "," + String(ldrValue);

client.publish(mqttTopic, data.c\_str());

Serial.println("Published to MQTT: " + data);

delay(2000);

}