AIR POLLUTION DETECTION

#include <ESP8266WiFi.h>

#include <DHT.h>

#include <ThingSpeak.h>

DHT dht(D5, DHT11);

#define LED\_GREEN D2

#define LED\_YELLOW D3

#define LED\_RED D4

#define MQ\_135 A0

int ppm=0;

float m = -0.3376; //Slope float b = 0.7165; //Y-Intercept

float R0 = 3.12; //Sensor Resistance in fresh air from previous code

WiFiClient client;

long myChannelNumber = 1843530; // Channel id

const char myWriteAPIKey[] = "VQFF2MY163VO264M";

void setup() {

// put your setup code here, to run once: Serial.begin(9600);

pinMode(LED\_GREEN,OUTPUT);

pinMode(LED\_YELLOW,OUTPUT);

pinMode(LED\_RED,OUTPUT);

pinMode(MQ\_135, INPUT);

WiFi.begin("preethi", "hello123");

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

{

delay(200);

Serial.print(".");

}

Serial.println();

Serial.println("NodeMCU is connected!");

Serial.println(WiFi.localIP());

dht.begin();

ThingSpeak.begin(client);

}

void loop() {

float sensor\_volt; //Define variable for sensor voltage float RS\_gas; //Define variable for sensor resistance float ratio; //Define variable for ratio int sensorValue;//Variable to store the analog values from MQ-135 float h; float t; float ppm\_log; //Get ppm value in linear scale according to the the ratio value float ppm; //Convert ppm value to log scale h = dht.readHumidity(); delay(4000); t = dht.readTemperature(); delay(4000);

sensorValue = analogRead(MQ\_135); //Read analog values of sensor sensor\_volt = sensorValue\*(5.0/1023.0); //Convert analog values to voltage RS\_gas = ((5.0\*1.0)/sensor\_volt)-1.0; //Get value of RS in a gas ratio = RS\_gas/R0; // Get ratio RS\_gas/RS\_air

ppm\_log = (log10(ratio)-b)/m; //Get ppm value in linear scale according to the ratio value ppm = pow(10, ppm\_log); //Convert ppm value to log scale

Serial.println("Temperature: " + (String) t);

Serial.println("Humidity: " + (String) h);

Serial.println("Our desired PPM = "+ (String) ppm);

ThingSpeak.writeField(myChannelNumber, 1, t, myWriteAPIKey); delay(20000);

ThingSpeak.writeField(myChannelNumber, 2, h, myWriteAPIKey); delay(20000);

ThingSpeak.writeField(myChannelNumber, 3, ppm, myWriteAPIKey); delay(20000);

if(ppm<=100)

{

digitalWrite(LED\_GREEN,HIGH); digitalWrite(LED\_YELLOW,LOW); digitalWrite(LED\_RED,LOW);

}

else if(ppm<=200)

{

digitalWrite(LED\_GREEN,LOW); digitalWrite(LED\_YELLOW,HIGH); digitalWrite(LED\_RED,LOW);

} else

{

digitalWrite(LED\_GREEN,LOW); digitalWrite(LED\_YELLOW,LOW); digitalWrite(LED\_RED,HIGH);

}

delay(2000);}