

## LAMPIRAN

Source Code Program Alat :

```
#include "DHTesp.h"
#include "MUX74HC4067.h"
#include <ESP8266WiFi.h>

String apiKey = "FAXMPQ9N9H1DD774";
MUX74HC4067 mux(D0, D1, D2, D3, D4);
const char *ssid = "123";
const char *pass = "tujuan45";
const char* server = "api.thingspeak.com";
DHTesp dht;
#define pin_dht D5

//MQ135
float m = -0.3376;
float b = 0.7165;
float R0 = 29.83;

//MQ7
float m1 = -0.6527;
float b1 = 1.30;
float R01 = 25.64;
WiFiClient client;

void setup()
{
  Serial.begin(115200); // Initializes serial port
  delay(1000);
```

```

Serial.println("Connecting to ");
Serial.println(ssid);

WiFi.begin(ssid, pass);
while (WiFi.status() != WL_CONNECTED)
{
    delay(1000);
    Serial.print(".");
}
Serial.println("");
Serial.println("WiFi connected");

mux.signalPin(A0, INPUT, ANALOG);
dht.setup(pin_dht, DHTesp::DHT11);

}

void loop()
{
float mq135 = mux.read(1);
float mq135_gas;
float ratioA;
float value135 = mq135*(5.0/1023.0);
mq135_gas = ((5.0*10.0)/value135)-10.0;
ratioA = mq135_gas/R0;
double ppm_log = (log10(ratioA)-b)/m;
double ppm = pow(10, ppm_log);

float mq7 = mux.read(0);
float mq7_gas;
float ratio7;

```

```

float value7 = mq7*(5.0/1023.0);
mq7_gas = ((5.0*10.0)/value7)-10.0;
ratio7 = mq7_gas/R01;
double ppm_log1 = (log10(ratio7)-b1)/m1;
double ppm1 = pow(10, ppm_log1);

delay(dht.getMinimumSamplingPeriod());
float humidity = dht.getHumidity();
float temperature = dht.getTemperature();
    if (isnan(ppm) || isnan(ppm1) || isnan(humidity) ||
isnan(temperature))
    {
        Serial.println("Failed to read from DHT sensor!");
        return;
    }
    if (client.connect(server,80))
    {
        String postStr = apiKey;
        postStr += "&field1=";
        postStr += String(ppm);
        postStr += "&field2=";
        postStr += String(ppm1);
        postStr += "\r\n\r\n";
        postStr += "&field3=";
        postStr += String(temperature);
        postStr += "\r\n\r\n";
        postStr += "&field4=";
        postStr += String(humidity);
        postStr += "\r\n\r\n";

        client.print("POST /update HTTP/1.1\n");
    }

```

```

        client.print("Host: api.thingspeak.com\n");
        client.print("Connection: close\n");
        client.print("X-THINGSPEAKAPIKEY: "+apiKey+"\n");
        client.print("Content-Type: application/x-www-form-
urlencoded\n");

        client.print("Content-Length: ");
        client.print(postStr.length());
        client.print("\n\n");
        client.print(postStr);

        Serial.print ("Air Quality= ");
        Serial.println (ppm);
        Serial.print("CO-2 = ");
        Serial.println(ppm1);
        Serial.print("Temperatur: ");
        Serial.println(temperature);
        Serial.print("Humiditas: ");
        Serial.println(humidity);
        Serial.println("Mengirim data ke ThingSpeak");
    }
    client.stop();
    Serial.println("\n");
    Serial.println("Waiting...");
    delay(5000);
}

```

Source Kode Kalibrasi Sensor MQ-7 :

```
#include "MUX74HC4067.h"
MUX74HC4067 mux(D0, D1, D2, D3, D4);

void setup() {
  Serial.begin(9600);
  pinMode(A0,INPUT);
}
void loop() {
  float sensor_volt = mux.read(1);
  float RS_air;
  float R0;
  float sensorValue=0.0;
  for(int x = 0 ; x < 500 ; x++)
  { sensorValue = sensorValue + analogRead(A0); }
  sensorValue = sensorValue/500.0;
  Serial.print("Average = ");
  Serial.println(sensorValue);
  sensor_volt = sensorValue*(5.0/1023.0);
  RS_air = ((5.0*10.0)/sensor_volt)-10.0;
  R0 = RS_air/3.6;
  Serial.print("Sensor RAW value = ");
  Serial.println(analogRead(A0));
  Serial.print("R0 MQ-7 = ");
  Serial.println(R0);
  Serial.println(analogRead(A0));
  delay(1000);
}
```

Source Kode Kalibrasi MQ-135 :

```
#include "MUX74HC4067.h"
MUX74HC4067 mux(D0, D1, D2, D3, D4);
void setup() {
  Serial.begin(9600);
  pinMode(A0,INPUT);
}
void loop() {
  float sensor_volt = mux.read(0);
  float RS_air;
  float R0;
  float sensorValue=0.0;
  Serial.print("Sensor Reading = ");
  Serial.println(analogRead(A0));
```

```
for(int x = 0 ; x < 500 ; x++)
{
  sensorValue = sensorValue + analogRead(A0); //Add analog values of
sensor 500 times
}
sensorValue = sensorValue/500.0;
Serial.print("Average = ");
Serial.println(sensorValue);
sensor_volt = sensorValue*(5.0/1023.0);
RS_air = ((5.0*10.0)/sensor_volt)-10.0;
R0 = RS_air/3.7;
Serial.print("R0 MQ-135 = ");
Serial.println(R0);
delay(1000);
}
```