

LAMPIRAN

Lampiran 1. Code Program Keseluruhan

```
#include <OneWire.h>

#include <DallasTemperature.h>

#include <WiFiEsp.h>

#include <IRremote.h>

//=====DHT11=====

// Data wire is plugged into pin 2 on the Arduino

#define ONE_WIRE_BUS 3

// Setup a oneWire instance to communicate with any OneWire devices
// (not just Maxim/Dallas temperature ICs)
OneWire oneWire(ONE_WIRE_BUS);

// Pass our oneWire reference to Dallas Temperature.
DallasTemperature sensors(&oneWire);

float tempC;

float tempF;

//=====TCS3200=====

#define S0 4

#define S1 5

#define S2 6

#define S3 7
```

```
#define sensorOut 8
```

```
int redFrequency = 0;
```

```
int greenFrequency = 0;
```

```
int blueFrequency = 0;
```

```
int clearFrequency = 0;
```

```
int redColor = 0;
```

```
int greenColor = 0;
```

```
int blueColor = 0;
```

```
int clearColor = 0;
```

```
//=====IR Remote=====
```

```
IRsend irsend;
```

```
int khz = 38;
```

```
unsigned COOL[] = {3456, 1692, 436, 420, 460, 1276, 436, 416, 464, 400, 464, 408,  
440, 432, 440, 432, 440, 408, 436, 420, 432, 420, 464,
```

```
404, 432, 428, 436, 428, 464, 1288, 440, 432, 440, 416, 440, 408, 432, 432, 432, 424,  
432, 428, 436, 440, 432, 1312, 460, 1292,
```

```
436, 1292, 436, 416, 440, 416, 464, 1272, 440, 424, 436, 428, 464, 412, 432, 440,  
432, 424, 432, 416, 440, 416, 440, 424, 440,
```

```
424, 436, 428, 436, 436, 436, 440, 432, 424, 432, 408, 464, 400, 440, 416, 436, 428,  
436, 436, 436, 428, 464, 420, 432, 408,
```

```
440, 416, 440, 416, 440, 424, 436, 428, 436, 428, 436, 436, 436, 440, 432, 416, 440,  
416, 440, 1288, 464, 1280, 440, 428, 436,
```

```
428, 432, 440, 436, 436, 432, 392, 440, 10128, 3448, 1692, 440, 416, 436, 1300, 436,  
420, 432, 428, 436, 440, 436, 424, 440,
```

444, 436, 408, 440, 416, 436, 420, 432, 432, 432, 432, 432, 428, 464, 1292, 436, 436,
436, 408, 440, 416, 440, 416, 432, 432,

432, 432, 432, 432, 460, 1292, 436, 1308, 464, 1272, 436, 408, 464, 400, 440, 1296,
440, 428, 436, 428, 432, 440, 436, 436, 432,

424, 432, 424, 432, 416, 440, 416, 464, 400, 464, 412, 432, 440, 436, 436, 436, 412,
460, 1276, 432, 1300, 436, 420, 464, 1280,

440, 424, 440, 432, 440, 432, 440, 416, 436, 412, 460, 400, 440, 416, 464, 1280, 440,
424, 464, 1288, 440, 436, 436, 408, 436,

420, 436, 420, 460, 400, 440, 424, 440, 424, 464, 412, 436, 436, 464, 1272, 436,
1292, 432, 424, 460, 1276, 432, 428, 436, 436,

440, 1304, 440, 432, 464, 1264, 464, 1272, 440, 416, 436, 428, 436, 1304, 432, 440,
432, 428, 436, 436, 464, 392, 436, 420, 436,

420, 432, 432, 432, 432, 432, 432, 432, 436, 440, 436, 436, 416, 440, 416, 436, 1292,
460, 1284, 436, 1296, 440, 428, 460, 412,

436, 436, 436, 420, 436, 420, 432, 424, 432, 428, 436, 428, 436, 428, 464, 1280, 464,
1292, 460, 1264, 440, 416, 436, 420, 436,

424, 440, 424, 440, 424, 440, 436, 436, 436, 436, 420, 432, 424, 432, 420, 436, 428,
436, 428, 432, 432, 432, 440, 432, 440, 436,

420, 432, 1292, 436, 420, 436, 428, 436, 1300, 436, 436, 436, 428, 464, 416, 436,
1292, 436, 416, 440, 416, 440, 416, 464, 400,

464, 412, 432, 440, 432, 440, 432, 412, 436, 420, 436, 416, 464, 404, 432, 428, 436,
428, 460, 412, 436, 436, 464, 1272, 440, 408,

464, 1272, 464, 1272, 464, 1280, 464, 1284, 432, 440, 432, 1312, 436, 400, 436,};

unsigned OFF[] = {3516, 1680, 468, 396, 464, 1288, 464, 400, 464, 404, 472, 412,
464, 408, 464, 424, 468, 384, 468, 400, 464, 396, 468, 404, 464, 408, 464, 404,

496, 1276, 468, 416, 464, 388, 464, 400, 464, 396, 464, 408, 464, 404, 472, 404, 492,
1280, 464, 1292, 496, 1256, 472, 384, 496, 380, 464, 1284,

468, 404, 468, 404, 464, 416, 472, 412, 464, 396, 468, 396, 464, 396, 468, 396, 496,
376, 496, 384, 468, 412, 468, 412, 472, 380, 472, 396, 468,

396, 488, 380, 468, 404, 468, 400, 496, 388, 468, 412, 468, 396, 468, 392, 472, 392,
468, 404, 468, 404, 464, 408, 468, 416, 464, 412, 468, 396,
464, 388, 496, 1260, 492, 1260, 464, 408, 464, 412, 472, 412, 468, 412, 464, 372,
464, 10196, 3508, 1684, 464, 396, 472, 1272, 468, 404, 468, 404,
468, 404, 468, 412, 468, 412, 468, 392, 472, 396, 464, 400, 464, 404, 468, 404, 464,
408, 492, 1268, 472, 412, 492, 368, 468, 396, 464, 396, 468,
404, 468, 404, 468, 408, 488, 1276, 472, 1288, 496, 1252, 468, 392, 472, 396, 488,
1268, 472, 404, 464, 404, 468, 412, 472, 412, 464, 400, 464,
388, 464, 408, 464, 396, 472, 400, 468, 416, 464, 404, 468, 420, 472, 384, 468, 396,
492, 1256, 472, 396, 496, 1260, 496, 1268, 496, 1264, 472,
412, 464, 400, 464, 396, 464, 1288, 468, 396, 464, 408, 468, 412, 468, 1292, 468,
416, 464, 396, 464, 400, 464, 396, 472, 392, 468, 404, 468, 412,
468, 412, 468, 416, 464, 1276, 496, 1248, 496, 1256, 496, 1260, 488, 1272, 468, 404,
496, 1264, 496, 392, 472, 1272, 468, 396, 464, 396, 496, 1260,
492, 1268, 464, 408, 468, 408, 472, 412, 468, 396, 464, 388, 468, 404, 468, 392, 472,
404, 468, 412, 464, 408, 464, 424, 468, 388, 464, 400, 488,
1260, 468, 1284, 496, 1256, 496, 388, 468, 412, 468, 412, 464, 388, 496, 368, 468,
392, 496, 376, 472, 404, 464, 416, 464, 1296, 464, 1308, 464,
1280, 464, 396, 468, 396, 464, 396, 472, 400, 468, 416, 464, 416, 464, 412, 472, 384,
468, 392, 472, 392, 468, 408, 464, 404, 468, 404, 468, 416,
464, 416, 464, 396, 496, 1248, 468, 404, 464, 396, 496, 1268, 464, 408, 468, 416,
464, 412, 496, 1244, 472, 396, 464, 396, 468, 404, 472, 400, 468,
408, 464, 412, 468, 412, 472, 392, 468, 392, 472, 396, 464, 396, 496, 376, 496, 384,
468, 416, 464, 416, 464, 388, 496, 364, 472, 400, 472, 1280,
472, 400, 468, 1292, 472, 404, 468, 420, 468, 368, 468,
};

unsigned DRY[] = {3452, 1696, 436, 420, 464, 1272, 432, 424, 460, 400, 464, 408,
440, 432, 440, 436, 436, 412, 432, 420, 436, 420, 460, 404,

432, 432, 432, 432, 456, 1296, 436, 436, 436, 416, 440, 408, 436, 428, 436, 420, 436,
424, 440, 432, 440, 1308, 460, 1292, 436, 1292,

440, 416, 436, 420, 460, 1272, 440, 424, 440, 428, 460, 412, 432, 440, 432, 424, 432,
420, 436, 420, 436, 428, 432, 436, 428, 432,

432, 436, 440, 432, 440, 416, 440, 408, 460, 400, 440, 416, 440, 424, 436, 440, 432,
432, 460, 420, 432, 412, 436, 420, 432, 424, 432,

432, 432, 428, 436, 428, 440, 432, 440, 432, 440, 416, 436, 416, 440, 1288, 464,
1284, 436, 428, 432, 432, 432, 440, 436, 436, 436,

392, 436, 10124, 3452, 1692, 436, 424, 432, 1300, 436, 420, 432, 432, 432, 440, 432,
432, 436, 444, 436, 408, 440, 416, 436, 420, 436,

424, 440, 424, 440, 424, 464, 1292, 436, 436, 440, 408, 436, 416, 436, 420, 436, 428,
436, 428, 436, 428, 488, 1264, 436, 1312, 460,

1276, 460, 384, 464, 400, 436, 1300, 460, 400, 440, 424, 464, 412, 436, 436, 460,
396, 456, 396, 436, 420, 436, 420, 464, 400, 460,

412, 436, 432, 440, 432, 440, 408, 464, 1272, 464, 1276, 456, 396, 464, 1280, 440,
424, 440, 432, 436, 436, 436, 420, 436, 408, 464,

400, 436, 1304, 432, 432, 460, 1284, 436, 1308, 436, 440, 432, 420, 436, 420, 432,
420, 436, 428, 436, 428, 436, 428, 432, 440, 440,

432, 464, 1264, 460, 1264, 464, 400, 440, 1296, 436, 432, 432, 432, 460, 1292, 436,
436, 436, 1288, 464, 1264, 440, 428, 436, 416, 464,

1284, 432, 432, 436, 432, 440, 432, 440, 416, 440, 408, 460, 400, 440, 416, 440, 424,
436, 436, 436, 428, 468, 416, 436, 408, 436, 420,

464, 1272, 464, 1272, 488, 1256, 464, 404, 432, 436, 436, 436, 440, 416, 440, 408,
432, 428, 440, 416, 436, 428, 440, 432, 440, 1304, 488,

1268, 460, 1268, 460, 396, 432, 420, 460, 396, 488, 376, 488, 384, 436, 436, 436,
436, 436, 408, 464, 392, 464, 392, 464, 400, 460, 400,

440, 424, 464, 408, 440, 436, 464, 392, 484, 1240, 468, 396, 436, 420, 464, 1280,
436, 428, 440, 432, 440, 432, 464, 1264, 436, 416, 440,

416, 440, 424, 464, 400, 436, 428, 436, 440, 432, 440, 432, 420, 436, 420, 460, 396,
460, 404, 456, 404, 436, 428, 436, 436, 440, 432,

```
464, 1264, 440, 416, 464, 1272, 436, 416, 464, 1280, 440, 428, 464, 1288, 440, 1304,  
440, 400, 436,};
```

```
int irPin = 9;
```

```
//=====SSID&PASS=====
```

```
char ssid[] = "Dota 1";
```

```
char pass[] = "oke1234567";
```

```
//=====INISIALISASI I/O =====
```

```
WiFiEspServer server(80);
```

```
WiFiEspClient klien;
```

```
//Network : Static IP address
```

```
IPAddress ip(192,168,43,6);
```

```
int status = WL_IDLE_STATUS;
```

```
void setup() {
```

```
    // Setting Sensor DS18B20
```

```
    sensors.begin();
```

```
    // Setting output TCS3200
```

```
pinMode(S0, OUTPUT);
```

```
pinMode(S1, OUTPUT);
```

```
pinMode(S2, OUTPUT);
```

```
pinMode(S3, OUTPUT);
```

```
// setting IR remot
pinMode (irPin, OUTPUT);

// Setting sensorOut sebagai input
pinMode(sensorOut, INPUT);

// Setting frekuensi scaling
digitalWrite(S0,HIGH);
digitalWrite(S1,LOW);

// put your setup code here, to run once:
Serial1.begin(9600);
Serial.begin(115200);

//=====KONEKSI KE JARINGAN=====
WiFi.init(&Serial1);

if (WiFi.status() == WL_NO_SHIELD) {
Serial1.println("Tidak ada modul WiFi");
while (true);
}

while (status != WL_CONNECTED) {
delay(500);
Serial1.print("Koneksi ke SSID: ");
```



```
Serial1.println(ssid);
WiFi.config(ip);
status = WiFi.begin(ssid,pass);
delay(100);
}
//=====Start the Server=====
server.begin();
Serial.println("Server started");

// Print the IP address
Serial.print("Use this URL to connect: ");
Serial.print("http://");
Serial.print(WiFi.localIP());
Serial.println("/");
delay(100);
}
void loop() {

WiFiEspClient client = server.available();
if (!client){
return;
}

//tunggu client sends data
Serial.println("new client");
```

```
String request = "";
while (client.connected()) {
  if (client.available()>0 ){
    char c=client.read();
    request += c;
    if(c == '\n')
    {
      break;
    }
  }
}
```

```
Serial.println(request);
```

```
client.flush();
```

```
delay(100);
```

```
//=====BACA SENSOR DS18B20=====
```

```
// call sensors.requestTemperatures() to issue a global temperature
```

```
// request to all devices on the bus
```

```
sensors.requestTemperatures(); // Send the command to get temperatures
```

```
tempC = sensors.getTempCByIndex(0);
```

```
tempF = sensors.getTempFByIndex(0);
```

```
if (request.indexOf("COOL") > 0 ) {
    irsend.sendRaw(COOL, sizeof(COOL) / sizeof(int), 38);
}
if (request.indexOf("OFF")> 0 ){
    irsend.sendRaw(OFF, sizeof(OFF) / sizeof(int), 38);
}
if (request.indexOf("DRY")> 0 ){
    irsend.sendRaw(DRY, sizeof(DRY) / sizeof(int), 38);
}
delay(1000);

//=====BACA SENSOR TCS3200=====

// Setting Green filtered photodiodes to be read
digitalWrite(S2,HIGH);
digitalWrite(S3,HIGH);
// Reading the output frequency
greenFrequency = pulseIn(sensorOut, LOW);
greenColor = greenFrequency;
// Printing the value on the serial monitor

// Return the response
client.println("HTTP/1.1 200 OK");
client.println("Content-Type: text/html");
```

```
client.println(""); // do not forget this one
client.println("<!DOCTYPE html>");
client.println("<html lang='en'>");

Serial.println("G= ");
Serial.print(greenColor);
Serial.println(" ");

client.println("<head>");
client.println("<title>Air Conditioner Controller webserver</title>");
client.println("<meta charset='utf-8'>");
client.println("<meta name='viewport' content='width=device-width; initial-
scale=1.0; maximum-scale=1.0;'>");
client.println("<style>* { box-sizing: border-box;}");

client.println("body { font-family: Arial, Helvetica, sans-serif; background:
black;}");

/* Style the header */
client.println(".header { height:60px; background: black; padding: 3px; text-
align: center; font-size: 14px; font-family: Times New Roman; color: white;}");

/* Create three equal columns that floats next to each other */

client.println(".box{ width:250px; height:100px; background:#205081; padding:
15px; border-radius: 10px; display: inline-block; margin-left: 18%;-webkit-box-
```

```
shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.53);-moz-box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.53);box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.53); }");
```

```
client.println(".box2{ width:250px; height:100px; background:#205081; padding: 15px; border-radius: 10px; display: inline-block; margin-left: 50px;-webkit-box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.2);-moz-box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.2);box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.2);}");
```

```
client.println(".box3{ width:585px; height:100px; background:#205081; padding: 15px; border-radius: 10px;display: inline-block; margin-left: 18%;-webkit-box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.53);-moz-box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.53);box-shadow: inset 0px 0px 120px -33px rgba(0,0,0,0.53);}");
```

```
client.println(".button {background-color: #4CAF50; /* Green */border: none;color: white;padding: 16px 32px;text-align: center;text-decoration: none;display: inline-block;font-size: 16px;-webkit-transition-duration: 0.4s; /* Safari */transition-duration: 0.4s;cursor: pointer;}");
```

```
client.println(".button1 {background-color: #205081; color: black;margin-left: 23%;}");
```

```
client.println(".button1:hover {background-color: #008CBA; color: white;}");
```

```
client.println(".button2 {background-color: #205081; color: black; }");
```

```
client.println(".button2:hover {background-color: #808080;color: white;}");
```

```
client.println(".button3 {background-color: #205081; color: black; }");
```

```
client.println(".button3:hover {background-color: #f44336;color: white;}");

/* Clear floats after the columns */
client.println(".row:after {content: '';display: table;clear: both;}");

/* Style the footer */
client.println(".footer {padding: 4px;}");

/* Responsive layout - makes the three columns stack on top of each other instead
of next to each other */
client.println("@media (max-width: 600px) {.column {width: 100%;}}");
client.println("</style>");
client.println("</head>");
client.println("<body>");

client.println("<div class='header'>");
client.println(" <h2>Air Conditioner Controller webserver</h2>");
client.println("</div>");
client.println("<br>");
client.println("<div class='row'>");
client.println(" <div class='box'>");
client.println(" <div");
if(tempC > 25){
    client.println("style='font-size: 30px; color: #930000; text-align: center; font-
family: Times New Roman;'>");
```

```

    }
    else if(tempC <=25 && tempC >=5){
        client.println("style='font-size: 30px; color: #00FF00; text-align: center; font-
family: Times New Roman; '>");
    }
    else if(tempC <5){
        client.println("style='font-size: 30px; color: #009191; text-align: center; font-
family: Times New Roman; '>");
    }
client.println("<b>");
client.println(tempC);
client.println("</b>");
client.println("  <sup style='font-size: 25px'>°C</sup>");
client.println("  </div>");
client.println("  <p style='text-align: center; font-family: Times New Roman; font-
size: 18px; color: black'>");
client.println("    <b>Celcius</b></p>");
client.println("  </div>");

client.println(" <div class='box2'> ");
client.println("  <div");
if(tempF > 77){
    client.println("style='font-size: 30px; color: #930000; text-align: center; font-
family: Times New Roman; '>");
}
    else if(tempF <=77 && tempC >=41){

```

```

        client.println("style='font-size: 30px; color: #00FF00; text-align: center; font-
family: Times New Roman; '>");
    }
    else if(tempF <41){
        client.println("style='font-size: 30px; color: #009191; text-align: center; font-
family: Times New Roman; '>");
    }

client.println("<b>");
client.println(tempF);
client.println("</b>");
client.println("   <sup style='font-size: 25px'>°F</sup>");
client.println("   </div>");
client.println("   <p style='text-align: center; font-family: Times New Roman; font-
size: 18px; color: black'>");
client.println("   <b>Fahrenheit</b></p>");
client.println("</div>");
client.println("<br>");
client.println(" <div class='row'>");
client.println("   <br>");
client.println(" <div class='box3'> ");
client.println(" <div");
client.println("   style='font-size: 30px; color: white; text-align: center; font-family:
Times New Roman; '>");
client.println("<b>");
    if(greenColor < 2924){

```



```
    client.println("<div style='color: white;'>");
    client.println("ON");
}
else
{
    client.println("<div style='color: black;'>");
    client.println("OFF");
}
client.println("</b>");
client.println("  </div>");
client.println("  <p style='text-align: center; font-family: Times New Roman; font-size: 18px; color: black'>");
client.println("    <b>Status AC</b></p>");
client.println("</div>");
client.println("<br> ");
client.println("<br> ");
client.println(" <div class='row'> ");
client.println("<a href='/?COOL' class='button button1'>COOL</a>");
client.println("<a href='/?OFF' class='button button2'>OFF</a>");
client.println("<a href='/?DRY' class='button button3'>DRY</a>");
client.println("</div>");
client.println("</section>");
client.println(" </div>");
client.println("  </div>");
client.println("<br><br><br><br><br><br><br>");
```

```
client.println("<hr>");
client.println(" <footer class='footer'>");
client.println("    <div style='font-size: 12px; font-family: Arial; color: white'>");
client.println("    <strong>Copyright &copy; 2018-2099 <a
href='https://www.instagram.com/martadhidendra/'>Ardned</a>.</strong> All
rights reserved.");
client.println("    <span style='float:right;'><b>Credit</b> Martadhi Dendra
Permata </span>");
client.println("    </div>");
client.println("    </div>");
client.println(" </div>");
client.println(" </footer>");
client.println("<script>setTimeout(function(){window.location.href =
'http://192.168.43.6'},15000); </script>");
client.println("</body>");
client.println("</html>");

delay(1);
//client.stop();
}
```

Lampiran 2. Desain PCB

