

LAMPIRAN

Kode Program Arduino ke Thingsboard

```
#include "ThingsBoard.h"
#include <ESP8266WiFi.h>
#include <Servo.h>

Servo myservo;
#include "DHT.h"

#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x3F, 16, 2);// sda scl pin d1/d2

#define DHTPIN 14
#define DHTTYPE DHT11
DHT dht(DHTPIN, DHTTYPE);

#define R1 0 // d 3
#define R2 2 // d 2

#define WIFI_AP      "yuday"
#define WIFI_PASSWORD "yuday123"

#define TOKEN "9xSqLqZG37xYrJ3elp1a"
#define THINGSBOARD_SERVER "thingsboard.cloud"

// Baud rate for debug serial
#define SERIAL_DEBUG_BAUD 115200

// Initialize ThingsBoard client
WiFiClient espClient;
```

```

// Initialize ThingsBoard instance
ThingsBoard tb(espClient);
// the Wifi radio's status
int status = WL_IDLE_STATUS;

void setup() {
  myservo.attach(16);
  pinMode (R1, OUTPUT);
  pinMode (R2,OUTPUT);
  // initialize serial for debugging
  Serial.begin(SERIAL_DEBUG_BAUD);
  WiFi.begin(WIFI_AP, WIFI_PASSWORD);
  InitWiFi();
  dht.begin();

  lcd.begin(); // run lcd
  lcd.backlight();
  lcd.setCursor(0,0);
  lcd.print("Inkubator Tempe");
  lcd.setCursor(6,1);
  lcd.print("IOT");
  delay(2000);
  lcd.clear();

  lcd.setCursor(0,0);
  lcd.print("Ahmad Yudi");
  lcd.setCursor(0,1);
  lcd.print("NPM:1 911068015p");
  delay(2000);
  lcd.clear();
}

```

```

void loop() {
    delay(1000);

    if (WiFi.status() != WL_CONNECTED) {
        reconnect();
    }

    if (!tb.connected()) {
        // Connect to the ThingsBoard
        Serial.print("Connecting to: ");
        Serial.print(THINGSBOARD_SERVER);
        Serial.print(" with token ");
        Serial.println(TOKEN);
        if (!tb.connect(THINGSBOARD_SERVER, TOKEN)) {
            Serial.println("Failed to connect");
            return;
        }
    }
    Serial.println("Sending data...");

    int humidity = dht.readHumidity();
    const int temperature = dht.readTemperature();

    if (isnan(temperature) || isnan(humidity)) {
        Serial.println("no sensor"); // jika sensor error
        lcd.setCursor(0,0);
        lcd.print("cek Sensor");
    }
}

```

```
tb.sendTelemetryFloat("temperature", temperature); // kirim data temperature
ke DB thingsboard
```

```
tb.sendTelemetryInt("humidity", humidity); // kirim data kelembapan ke DB
thingsboard
```

```
Serial.print("Suhu : ");
Serial.print(temperature);
Serial.print(" Kelembaban : ");
Serial.println(humidity);
```

```
lcd.setCursor(0,0);
lcd.print("Suhu : ");
lcd.print(temperature);
lcd.print(" *C ");
lcd.setCursor(0,1);
lcd.print("Kelembaban :");
lcd.print(humidity);
lcd.print(" &");
```

```
if ( temperature <=26 ){ // kurang 34 , kipas , pompa, servo ON !
    //myservo.write (90);
    digitalWrite(R1 ,HIGH); // lampu
}
else {
    digitalWrite(R1 ,LOW);
}
if(humidity <55){
    myservo.write (180);//
    digitalWrite(R2 ,HIGH);// kipas
}
else { // OFF semua !
    myservo.write (-90);
```

```

        digitalWrite(R1 ,LOW);
        digitalWrite(R2 ,LOW);
    }
    /* if (temperature <=27){ // pas 26 servo ,kipas 0N,    || pompa OFF !
        myservo.write (90);
        digitalWrite(kipas ,HIGH);
        digitalWrite(pompa ,LOW);*/
    tb.loop();

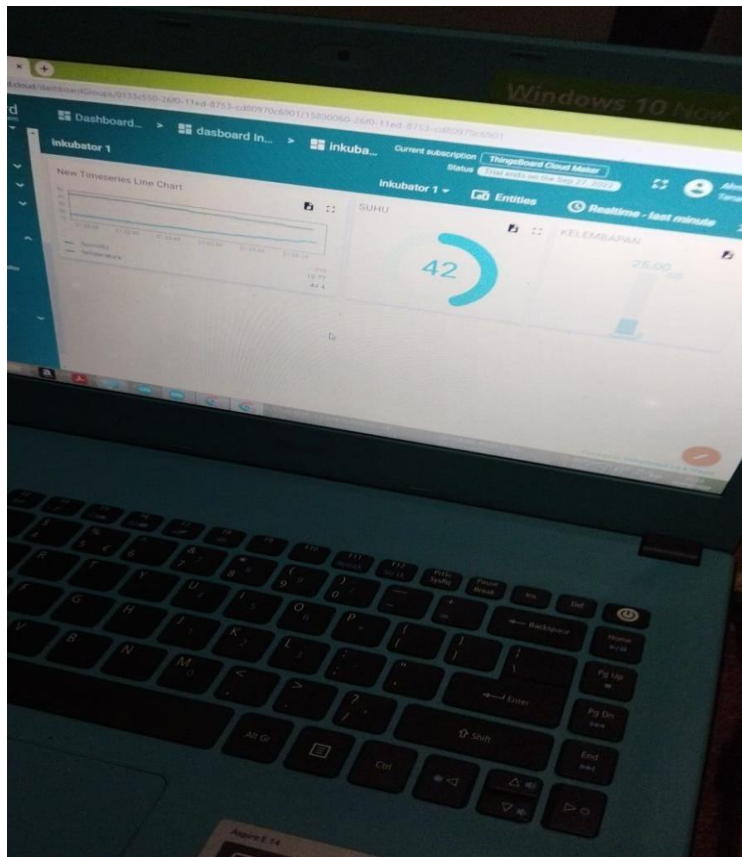
}

void InitWiFi(){
Serial.println("Connecting to AP ...");
    // attempt to connect to WiFi network
    WiFi.begin(WIFI_AP, WIFI_PASSWORD);
    while (WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.println("Connected to AP");
}

void reconnect(){
// Loop until we're reconnected
    status = WiFi.status();
    if ( status != WL_CONNECTED) {
        WiFi.begin(WIFI_AP, WIFI_PASSWORD);
        while (WiFi.status() != WL_CONNECTED) {
            delay(500);
            Serial.print(".");
        }
        Serial.println("Connected to AP");
    }
}

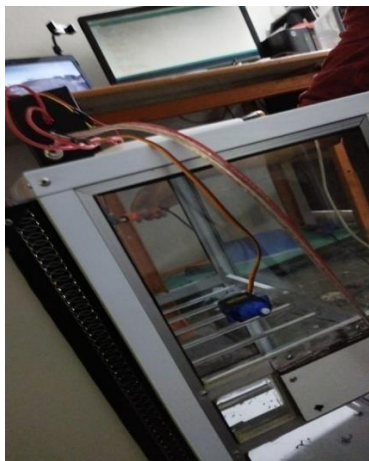
```


Hasil Percobaan pada Thingboard



Pemasangan Komponen-komponen Pembuatan Monitoring Suhu Dan Kelembapan Ruangn Tempe Berbasis Internet Of Things (IOT)

Pemasangan pada motor servo



Pembuatan black box untuk menyusun komponen didalamnya

