

LAMPIRAN

1. *Sketch* program keseluruhan pada Arduino IDE

```
#include <SoftwareSerial.h>

#include <Wire.h>//ini library

SoftwareSerial BT(2,4); //definisikan pin tx rx

int kipas = 8;

//RGB Led pin

int PIN_RED = 3;

int PIN_GREEN = 5;

int PIN_BLUE = 6;

int PIN_WHITE = 9;

//RED LED at Pin 13

int RED_LED = 13;

String RGB = ""; //Ruang RGB dari BT

String RGB_Previous = "255.255.255"); //setting default

String ON = "ON"; //cek jika menerima perintah on

String OFF = "OFF"; //cek jika menerima perintah off

boolean RGB_Completed = false;
```

```
//lcd

#include <LiquidCrystal_I2C.h> // library untuk i2c

LiquidCrystal_I2C lcd(0x3F ,2,1,0,4,5,6,7,3, POSITIVE); //Ubah alamat 0x3F
dengan alamat i2C kamu

//DS 18B20

#include <OneWire.h>

#include <DallasTemperature.h>

#define DS18B20 10 // koneksi pada pin 2

OneWire oneWire(DS18B20);

DallasTemperature sensors(&oneWire);

DeviceAddress tempSensor = {0x28, 0xFF, 0x9E, 0x7E, 0x83, 0x17, 0x04,
0x85};

char hiSetPoint = 30;

char lowSetPoint = 20;

float tempC;

void setup ()

{
```

```
BT.begin(9600);//My HC-05 module default baud rate is 9600

RGB.reserve(30);

pinMode(RED_LED, OUTPUT);

// DS18B20

char alarmTemp;

sensors.begin();

pinMode (kipas, OUTPUT );

sensors.setHighAlarmTemp(tempSensor, hiSetPoint);

sensors.setLowAlarmTemp(tempSensor, lowSetPoint);

alarmTemp = sensors.getHighAlarmTemp(tempSensor);

sensors.setResolution(tempSensor, 12);

// LCD

Serial.begin(9600);//Inialisasi port serial arduino dengan komputer

lcd.begin (16,2);// disini menentukan ukuran LCD

// Loading

byte percentage_1[8] = { B10000, B10000, B10000, B10000, B10000, B10000,
B10000, B10000 };

byte percentage_2[8] = { B11000, B11000, B11000, B11000, B11000, B11000,
B11000, B11000 };
```

```
byte percentage_3[8] = { B11100, B11100, B11100, B11100, B11100, B11100,  
B11100, B11100 };
```

```
byte percentage_4[8] = { B11110, B11110, B11110, B11110, B11110, B11110,  
B11110, B11110 };
```

```
byte percentage_5[8] = { B11111, B11111, B11111, B11111, B11111, B11111,  
B11111, B11111 };
```

```
lcd.setBacklight(255); // ini penting untuk lcd
```

```
lcd.home();
```

```
lcd.clear();
```

```
lcd.setCursor(0,0);
```

```
lcd.write(" Welcome");
```

```
lcd.setCursor(0,1);
```

```
lcd.write(" Have a nice day ");
```

```
delay (5000);
```

```
lcd.clear ();
```

```
lcd.print ( " Start Program");
```

```
lcd.setCursor (0,1); lcd.print(" Please Wait");
```

```
delay (1000);
```

```
lcd.clear ();
```

```
lcd.setCursor (0,0);
```

```
lcd.createChar(0, percentage_1); // Animasi Loading

lcd.createChar(1, percentage_2);

lcd.createChar(2, percentage_3);

lcd.createChar(3, percentage_4);

lcd.createChar(4, percentage_5);

for(int i = 0; i <= 100; i++){

    lcd.setCursor(0,0);

    lcd.print(" Loading :");

    lcd.print(i);

    lcd.print("%");

    lcd_percentage(i, 0, 16, 1);

    delay(50);

}

delay(500);

lcd.clear();

lcd.setCursor (0,0);

analogWrite(3,255);

lcd.createChar(0, percentage_1); // Animasi Loading merah

lcd.createChar(1, percentage_2);

lcd.createChar(2, percentage_3);

lcd.createChar(3, percentage_4);
```

```
lcd.createChar(4, percentage_5);

for(int i = 0; i <= 100; i++)

{

    lcd.setCursor(0,0);

    lcd.print("RED :");

    lcd.print(i);

    lcd.print("%");

    lcd_percentage(i, 0, 16, 1);

    delay(10);}

    lcd.setCursor (14,0);lcd.print ("OK");analogWrite(3,0);delay(500);
```

```
lcd.clear();

lcd.setCursor (0,0);

analogWrite(5,255);

lcd.createChar(0, percentage_1); // Animasi Loading hijau

lcd.createChar(1, percentage_2);

lcd.createChar(2, percentage_3);

lcd.createChar(3, percentage_4);

lcd.createChar(4, percentage_5);

for(int i = 0; i <= 100; i++)

{
```

```
lcd.setCursor(0,0);  
  
lcd.print("GREEN :");  
  
lcd.print(i);  
  
lcd.print("%");  
  
lcd_percentage(i, 0, 16, 1);  
  
delay(10);}  
  
lcd.setCursor (14,0);lcd.print ("OK");analogWrite(5,0);delay(500);
```

```
lcd.clear();  
  
lcd.setCursor (0,0);  
  
analogWrite(6,255);  
  
lcd.createChar(0, percentage_1); // Animasi Loading biru  
  
lcd.createChar(1, percentage_2);  
  
lcd.createChar(2, percentage_3);  
  
lcd.createChar(3, percentage_4);  
  
lcd.createChar(4, percentage_5);  
  
for(int i = 0; i <= 100; i++)  
  
{  
  
    lcd.setCursor(0,0);  
  
    lcd.print("BLUE :");  
  
    lcd.print(i);
```

```
lcd.print("%");  
  
lcd_percentage(i, 0, 16, 1);  
  
delay(10);}  
  
lcd.setCursor (14,0);lcd.print ("OK");analogWrite(6,0);delay(500);
```

```
lcd.clear();  
  
lcd.setCursor (0,0);  
  
analogWrite(9,255);  
  
lcd.createChar(0, percentage_1); // Animasi Loading white  
  
lcd.createChar(1, percentage_2);  
  
lcd.createChar(2, percentage_3);  
  
lcd.createChar(3, percentage_4);  
  
lcd.createChar(4, percentage_5);  
  
for(int i = 0; i <= 100; i++)  
{  
  
    lcd.setCursor(0,0);  
  
    lcd.print("WHITE :");  
  
    lcd.print(i);  
  
    lcd.print("%");  
  
    lcd_percentage(i, 0, 16, 1);  
  
    delay(10);}
```



```

    lcd.setCursor (14,0);lcd.print ("OK");analogWrite(9,0);delay(500);

lcd.clear(); lcd.setCursor(0,0); lcd.print(" NOW BLUETOOTH");

lcd.setCursor(0,1); lcd.print("  READY TO USE ");

delay(5000);lcd.clear();

}

//Animasi Loading

void lcd_percentage(int percentage, int cursor_x, int cursor_x_end, int cursor_y){

int calc = (percentage*cursor_x_end*5/100)-(percentage*cursor_x*5/100);

while(calc >= 5){

    lcd.setCursor(cursor_x,cursor_y);

    lcd.write((byte)4);

    calc-=5;

    cursor_x++;

}

while(calc >= 4 && calc < 5){

    lcd.setCursor(cursor_x,cursor_y);

    lcd.write((byte)3);

    calc-=4;

```

```
}  
  
while(calc >= 3 && calc < 4){  
  
    lcd.setCursor(cursor_x,cursor_y);  
  
    lcd.write((byte)2);  
  
    calc-=3;  
  
}  
  
while(calc >= 2 && calc < 3){  
  
    lcd.setCursor(cursor_x,cursor_y);  
  
    lcd.write((byte)1);  
  
    calc-=2;  
  
}  
  
while(calc >= 1 && calc < 2){  
  
    lcd.setCursor(cursor_x,cursor_y);  
  
    lcd.write((byte)0);  
  
    calc-=1;  
  
}  
  
}
```

```
void loop ()

{

//matikan pin putih

analogWrite ( 9,0 );

//DS18B20

sensors.requestTemperaturesByAddress(tempSensor); // Send the command to get
temperatures

if (sensors.hasAlarm(tempSensor))

{

  lcd.clear();

  lcd.setCursor (0,0);

  lcd.print ("Temp :");

  lcd.print (sensors.getTempC(tempSensor),2);

  lcd.print (" 'C");

  lcd.setCursor (0,1);

  Serial.println("alarm");

  lcd.print("Fan Active");

  digitalWrite (kipas, HIGH);

  delay(2000);
```

```
}  
  
else{  
  
    lcd.clear();  
  
    lcd.setCursor (0,0);  
  
    lcd.print ("Temp :");  
  
    lcd.print (sensors.getTempC(tempSensor),2);  
  
    lcd.print (" 'C");  
  
    lcd.setCursor (0,1);  
  
    Serial.println ("no alarm");  
  
    lcd.print("Fan NonActive");  
  
    digitalWrite (kipas,LOW);  
  
    delay(2000);  
  
}
```

```
while(BT.available()){
```

```
char ReadChar = (char)BT.read();
```

```
// tanda kurung tutup menyatakan penyelesaian string
```

```
if(ReadChar == '){
```

```
    RGB_Completed = true;

}else{

    RGB += ReadChar;

}

}

// Ketika kode perintah diterima sepenuhnya dengan karakter akhir ')'

if(RGB_Completed){

//print out ke window

    Serial.print("RGB:");

    Serial.print(RGB);

    Serial.print("  PreRGB:");

    Serial.println(RGB_Previous);

    if(RGB==ON){

        digitalWrite(13,HIGH);

        RGB = RGB_Previous; //LED 13 di on kan

        Light_RGB_LED();

    }else if(RGB==OFF){

        digitalWrite(13,LOW);
```

```

        RGB = "0.0.0"); //kirim string off

        Light_RGB_LED();

    }else{

        //Hidupkan warna sesuai kode warna dari Bluetooth Serial Port

        Light_RGB_LED();

        RGB_Previous = RGB;

    }

    //Reset RGB String

    RGB = "";

    RGB_Completed = false;

    delay (10); // aslinya 1000

} //akhiri check bila RGB selesai

}

void Light_RGB_LED(){

    int SP1 = RGB.indexOf('.');

    int SP2 = RGB.indexOf('.', SP1+1);

    int SP3 = RGB.indexOf('.', SP2+1);

    String R = RGB.substring(0, SP1);

```

```
String G = RGB.substring(SP1+1, SP2);

String B = RGB.substring(SP2+1, SP3);

//Cetak info debug pada jendela output Serial

Serial.print("R=");

Serial.println( constrain(R.toInt(),0,255));

Serial.print("G=");

Serial.println(constrain(G.toInt(),0,255));

Serial.print("B=");

Serial.println( constrain(B.toInt(),0,255));

//nyalakan LED dengan kode

// pengaturan cerah redup pilihan, sett dari 0-255

analogWrite(PIN_RED, (0+R.toInt()));

analogWrite(PIN_GREEN, (0+G.toInt()));

analogWrite(PIN_BLUE, (0+B.toInt()));

}
```