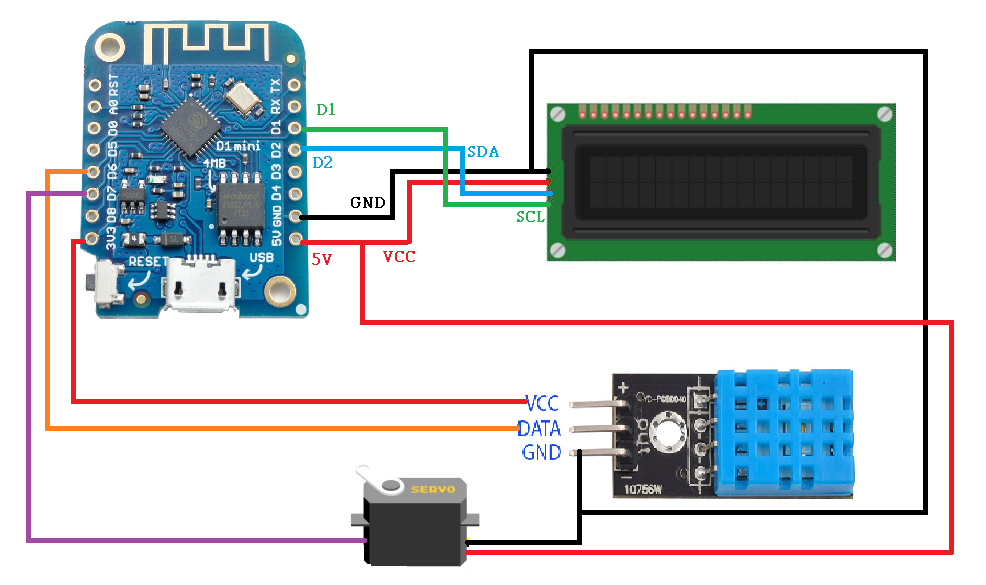
Arduino版1(D1 MINI)

元件:DHT11

LED字幕1602

伺服馬達



連線IP 192.168.60.199

可以透過192.168.60.199看IOT狀態

透過GET <http://192.168.60.199/openwindow> 打開窗戶

透過GET <http://192.168.60.199/closewindow> 關閉窗戶



// 開發版選Wemos D1 R1

//溫溼度感測器相關

// 你可能需要安裝下列的函式庫 Arduino libraries:

// - DHT Sensor Library: https://github.com/adafruit/DHT-sensor-library

// - Adafruit Unified Sensor Lib: https://github.com/adafruit/Adafruit\_Sensor

#include "DHT.h"

#define DHTPIN D6 // D1 mini的接口請接D6

//切換你的溫溼度感應模組

#define DHTTYPE DHT11 // DHT 11

//#define DHTTYPE DHT22

DHT dht(DHTPIN, DHTTYPE);

float h,t,f,hif,hic ;//設在這邊當全域變數

//溫溼度感測器結束

//伺服馬達相關

#include <Servo.h>

Servo myservo; // create servo object to control a servo

int windowstate;//窗戶開關狀態 0是關 1是開

//伺服馬達結束

//LED字幕相關

#include <Wire.h> // Arduino IDE 內建

// LCD I2C Library，從這裡可以下載：

// https://bitbucket.org/fmalpartida/new-liquidcrystal/downloads

#include <LiquidCrystal\_I2C.h>

// Set the pins on the I2C chip used for LCD connections:

// addr, en,rw,rs,d4,d5,d6,d7,bl,blpol

LiquidCrystal\_I2C lcd(0x27, 2, 1, 0, 4, 5, 6, 7, 3, POSITIVE); // 設定 LCD I2C 位址

//LED字幕結束

#include <ESP8266WiFi.h>

#include <ESP8266WebServer.h>

const char\* ssid = "ASUS\_iot\_2G";

const char\* password = "1121314151";

ESP8266WebServer server(80);

void homepage() {

server.send(200, "text/html", SendHTML(windowstate));

Serial.println("同學開啟了網頁");

}

void setup(void) {

//初始化串口

Serial.begin(9600);

Serial.println(F("DHTxx test!"));

dht.begin();

lcd.begin(16, 2); // 初始化 LCD，一行 16 的字元，共 2 行，預設開啟背光

// 閃爍三次

for(int i = 0; i < 3; i++) {

lcd.backlight(); // 開啟背光

delay(250);

lcd.noBacklight(); // 關閉背光

delay(250);

}

lcd.backlight();

// 輸出初始化文字

lcd.setCursor(0, 0); // 設定游標位置在第一行行首

lcd.print("Hello, world!");

delay(1000);

lcd.setCursor(0, 1); // 設定游標位置在第二行行首

lcd.print("davidou.org");

delay(3000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("System boot");

lcd.setCursor(0, 1);

lcd.print("Wait a sec..");

myservo.attach(D7); //把接腳接在D7上面

myservo.write(90); // 一開始先置中90度

//初始化網絡

WiFi.mode(WIFI\_STA);

WiFi.begin(ssid, password);

WiFi.config(IPAddress(192,168,60,199), // IP位址

IPAddress(192,168,60,254), // 閘道（gateway）位址

IPAddress(255,255,255,0)); // 網路遮罩（netmask）

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

delay(500);

Serial.print(".");

}

Serial.println("");

Serial.print("IP Address: ");

Serial.println(WiFi.localIP());

//初始化WebServer

server.on("/", homepage);

server.on("/openwindow", handle\_openwindow);//打開窗戶

server.on("/closewindow", handle\_closewindow);//關閉窗戶

server.begin();

Serial.println("HTTP server started");

handle\_closewindow() ;//初始關閉窗戶

}

void loop() {

// 等待幾秒讓感測器感測一下溫溼度

delay(2000);

// Reading temperature or humidity takes about 250 milliseconds!

// 感測器的感測秒數需要等待超過2秒才會有新的數值 (DHT系列是很慢的感測元件)

h = dht.readHumidity();

// Read temperature as Celsius (the default)

t = dht.readTemperature();

// Read temperature as Fahrenheit (isFahrenheit = true)

f = dht.readTemperature(true);

// Check if any reads failed and exit early (to try again).

if (isnan(h) || isnan(t) || isnan(f)) {

Serial.println(F("Failed to read from DHT sensor!"));

//return;

}

// Compute heat index in Fahrenheit (the default)

hif = dht.computeHeatIndex(f, h);

// Compute heat index in Celsius (isFahreheit = false)

hic = dht.computeHeatIndex(t, h, false);

Serial.print(F("濕度Humidity: "));

Serial.print(h);

Serial.print(F("% 溫度Temperature: "));

Serial.print(t);

Serial.print(F("°C "));

Serial.print(f);

Serial.print(F("°F 體感溫度Heat index: "));

Serial.print(hic);

Serial.print(F("°C "));

Serial.print(hif);

Serial.println(F("°F"));

lcd.setCursor(0, 0);

lcd.print("Humidity: " );

lcd.print( h,1);//顯示小數點後一位就好

lcd.print("%" );

lcd.setCursor(0, 1);

lcd.print("Temper: " );

lcd.print( t,1);

lcd.print(" C" );

//監聽客戶請求並處理

server.handleClient();

if(t>29){

Serial.print(F("高溫開窗"));

myservo.write(140);

windowstate=1;

server.send(200, "text/html", SendHTML(windowstate));

delay(1000);

}

if(t<29){

Serial.print(F("低溫關窗"));

myservo.write(20);

windowstate=0;

server.send(200, "text/html", SendHTML(windowstate));

delay(10000);//手動開窗停留10秒再回復抓溫度

}

}

void handle\_openwindow() {//打開窗戶

myservo.write(140);

windowstate=1;

Serial.print(F("手動開窗"));

server.send(200, "text/html", SendHTML(windowstate));

delay(3000);

}

void handle\_closewindow() {//關閉窗戶

myservo.write(20);

windowstate=0;

Serial.print(F("手動關窗"));

server.send(200, "text/html", SendHTML(windowstate));

delay(10000);//手動關窗停留10秒再回復抓溫度

}

String SendHTML(uint8\_t windowstate){

String ptr = "<!DOCTYPE html> <html>\n";

ptr +="<head><meta name=\"viewport\" content=\"width=device-width, initial-scale=1.0, user-scalable=no\"><meta charset=\"UTF-8\">\n";

ptr +="<title>雲端控制器</title>\n";

ptr +="<style>html { font-family: Helvetica; display: inline-block; margin: 0px auto; text-align: center;}\n";

ptr +="body{margin-top: 50px;} h1 {color: #444444;margin: 50px auto 30px;} h3 {color: #444444;margin-bottom: 50px;}\n";

ptr +=".button {display: block;width: 80px;background-color: #1abc9c;border: none;color: white;padding: 13px 30px;text-decoration: none;font-size: 25px;margin: 0px auto 35px;cursor: pointer;border-radius: 4px;}\n";

ptr +=".button-on {background-color: #1abc9c;}\n";

ptr +=".button-on:active {background-color: #16a085;}\n";

ptr +=".button-off {background-color: #34495e;}\n";

ptr +=".button-off:active {background-color: #2c3e50;}\n";

ptr +="p {font-size: 14px;color: #888;margin-bottom: 10px;}\n";

ptr +="</style>\n";

ptr +="</head>\n";

ptr +="<body>\n";

ptr +="<h1> ESP8266 網頁伺服器</h1>\n";

ptr +="<h3>勞動部勞動力發展署中彰投分署</h3>\n";

ptr +="<hr><h3>現在溫度 : "+ String(t) +"°C 濕度 : "+ String(h) +"% <br> 體感溫度Heat index : "+ String(hif) +"°F "+ String(hic) +"°C</h3>\n";

if(windowstate==1)

{ptr +="<p>窗戶狀態: 開啟</p><a class=\"button button-off\" href=\"/closewindow\">關窗戶</a>\n";}

else

{ptr +="<p>窗戶狀態: 關閉</p><a class=\"button button-on\" href=\"/openwindow\">開窗戶</a>\n";}

ptr +="<hr><h3>power by kunlex ,davidou 2019 </h3>\n";

ptr +="</body>\n";

ptr +="</html>\n";

return ptr;

}