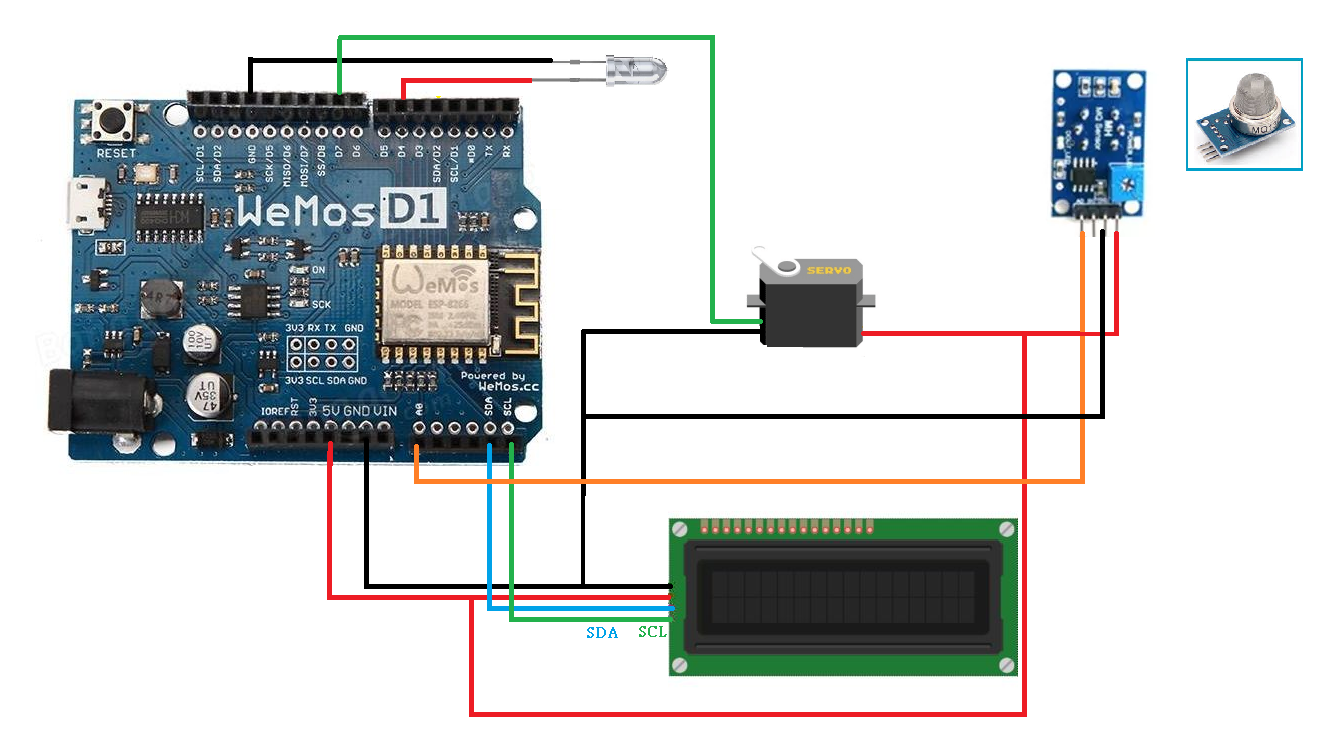
Arduino版2(D1)

元件:MQ135 LED字幕1602 伺服馬達 LED

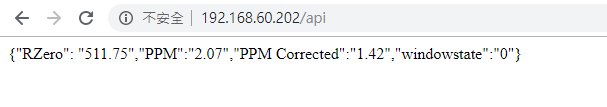


可以透過192.168.60.202看IOT狀態

透過GET <http://192.168.60.202/openwindow> 打開窗戶

透過GET <http://192.168.60.202/closewindow> 關閉窗戶

透過GET <http://192.168.60.202/api> 取得ppm的json資料





// 開發版選Wemos D1 R1

#include <MQ135.h> //https://github.com/MurrayBoz/NodeMCU-MQ135/blob/master/libraries/MQ135-master.zip 需要下載library來用

//本項測試用打火機放瓦斯出來 就可以得到很高的ppm了

#define ANALOGPIN A0

int PPMStatus = 0;

int PPMStatusOld = 0;

float airTemperature, airHumidity, ppm, ppmbalanced, rzero;

int initStep=1; // 1 = Connection in progress / 2 = Connection Done

MQ135 gasSensor = MQ135(ANALOGPIN);

int led = 2; //LED 2是接D4

//伺服馬達相關

#include <Servo.h>

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

int windowstate=0;//窗戶開關狀態 0是關 1是開

//伺服馬達結束

//LED字幕相關套件

#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字幕套件結束

#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() {

Serial.begin(9600);

pinMode(led, OUTPUT);

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();

myservo.attach(D7);//把接腳接在D7上面

myservo.write(90); //一開始先置中90度

// 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("Kunlex corp.");

//初始化網絡

WiFi.mode(WIFI\_STA);

WiFi.begin(ssid, password);

WiFi.config(IPAddress(192,168,60,202), // 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.on("/api", handle\_api);//api

server.begin();

Serial.println("HTTP server started");

handle\_closewindow() ;//初始關閉窗戶

delay(5000);

lcd.clear();

}

void loop() {

// 當時室內大約的溫度跟濕度，讓 getCorrectPPM進行校正

airTemperature = 28;

airHumidity = 50;

rzero = gasSensor.getRZero(); //取得rzero 校準值

Serial.print("RZero=");

Serial.println(rzero); // 持續顯示 rzero 值

ppm = gasSensor.getPPM(); // 取得 ppm 值

Serial.print("PPM=");

Serial.println(ppm);

ppmbalanced = gasSensor.getCorrectedPPM(airTemperature, airHumidity); // 取得修正的 ppm 值

Serial.print("PPM Corrected=");

Serial.println(ppmbalanced);

Serial.println();

if(ppm>100){

digitalWrite(led, HIGH);

// 閃爍5次

for(int i = 0; i < 5; i++) {

lcd.noBacklight(); // 關閉背光

delay(100);

lcd.backlight(); // 開啟背光

delay(100);

}

Serial.print(F("瓦斯外洩開窗"));

myservo.write(140);

windowstate=1;

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

}else{

Serial.print(F("關窗"));

myservo.write(20);

windowstate=0;

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

digitalWrite(led, LOW);

}

lcd.setCursor(0, 0); // 設定游標位置在第一行行首

lcd.print("RZero=");

lcd.print(rzero);

delay(1000);

lcd.setCursor(0, 1); // 設定游標位置在第二行行首

lcd.print("PPM =");

lcd.print(ppmbalanced);

delay(1000);

//監聽客戶請求並處理

server.handleClient();

}

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

}

void handle\_api() {//api

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

}

String api(uint8\_t windowstate){

String ptr ="{\"RZero\": \""+ String(rzero) +"\"";

ptr +=",\"PPM\":\""+ String(ppm) +"\",\"PPM Corrected\":\""+ String(ppmbalanced)+"\"";

ptr +=",\"windowstate\":\""+ String(windowstate)+"\"}";

return ptr;

}

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>RZero : "+ String(rzero) +" PPM="+ String(ppm) +" <br>PPM Corrected= "+ String(ppmbalanced) +"</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;

}