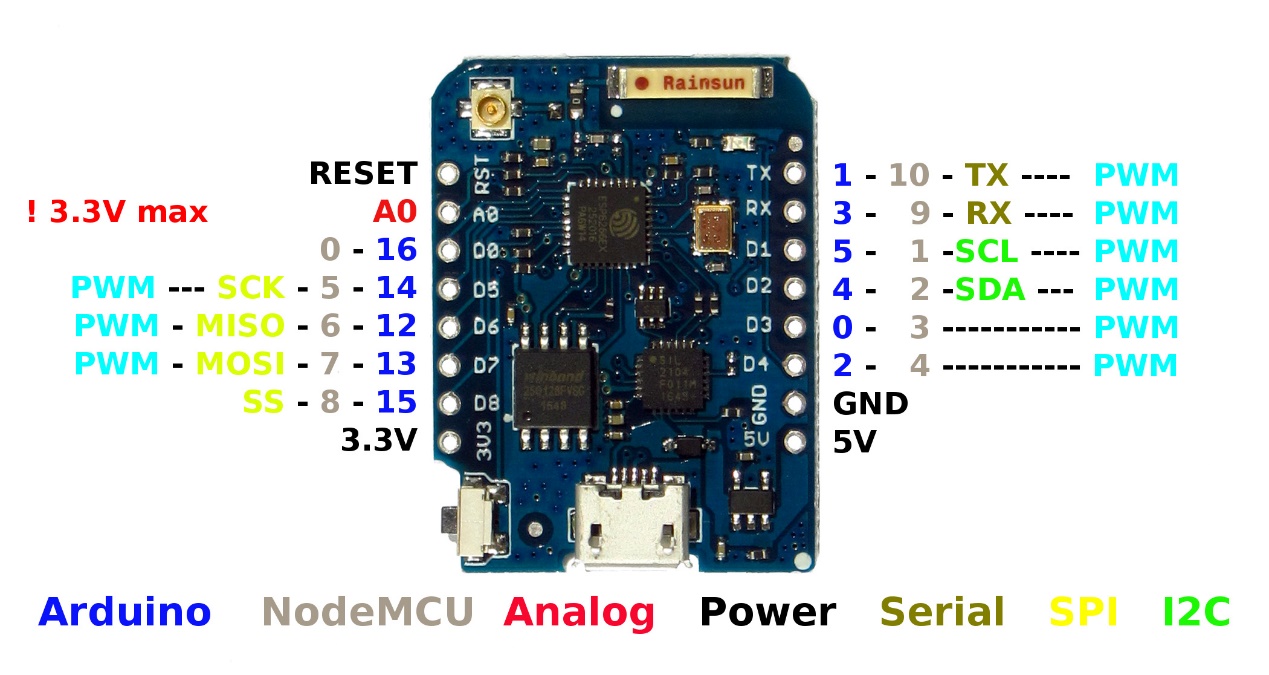
# 書

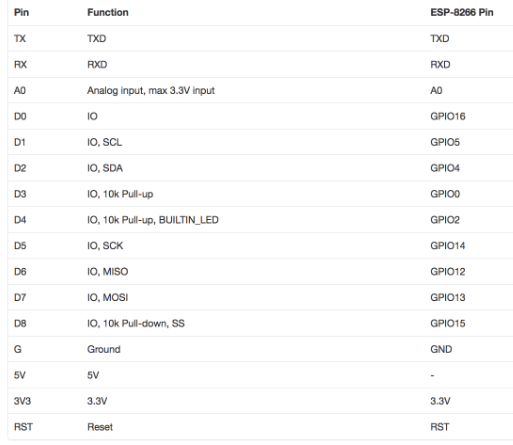
[超圖解ARDUINO 互動設計入門](https://swf.com.tw/?p=986) <https://swf.com.tw/?p=986>

<https://swf.com.tw/?p=930>

# d1 mini arduino

開發板 ESP8266 Arduino 相容開發NodeMCU, 是一塊便宜且附 Wifi 的 Arduino.





ESP8266

<https://github.com/esp8266/Arduino>

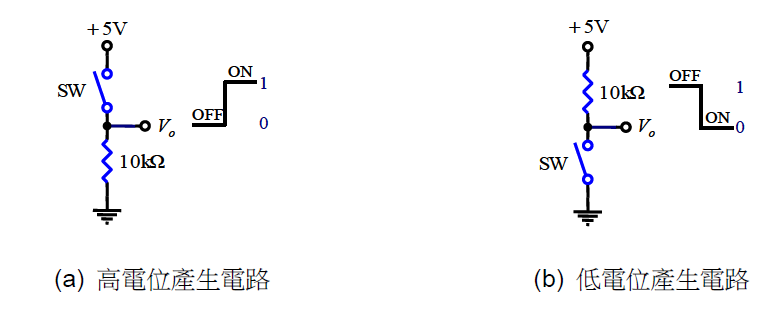
To support for ESP8266 chip to the Arduino environment. It lets you write sketches using familiar Arduino functions and libraries, and run them directly on ESP8266, no external microcontroller required.

Install driver <http://arduino.esp8266.com/stable/package_esp8266com_index.json>

Note:

D3, D4 有支援 pull-up

# pushButton



高電位產生電路

Pin 🡪 switch A 🡪 220 電阻 🡪 G

5V 🡪 switch B

低電位產生電路

* 上拉電阻

Pin 🡪 switch A 🡨🡪 switch B 🡪 G

|  |
| --- |
| void setup() {  // put your setup code here, to run once:  pinMode(READ\_PIN, INPUT\_PULLUP) ;  }  void loop() {  int switchValue = !digitalRead(READ\_PIN);  Serial.println(switchValue);  if (switchValue)  …  else  …  } |

# Relay

5V 🡪 Relay: VCC

G 🡪 Relay: G

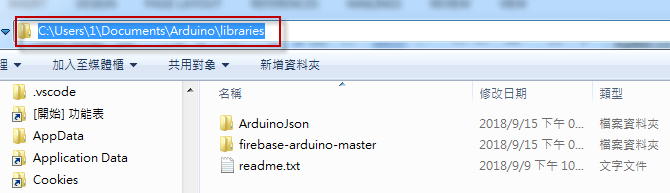
Pin 🡪 int1

* GND: goes to ground
* IN1: controls the first relay. Should be connected to an Arduino digital pin
* IN2: controls the second relay. Should be connected to an Arduino digital pin
* VCC: goes to 5V

# Firebase Arduino

加入程式庫的方式有三種

1. 自行複製到library 目錄

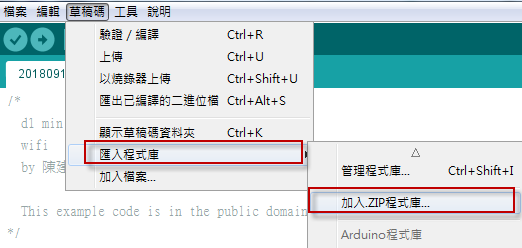


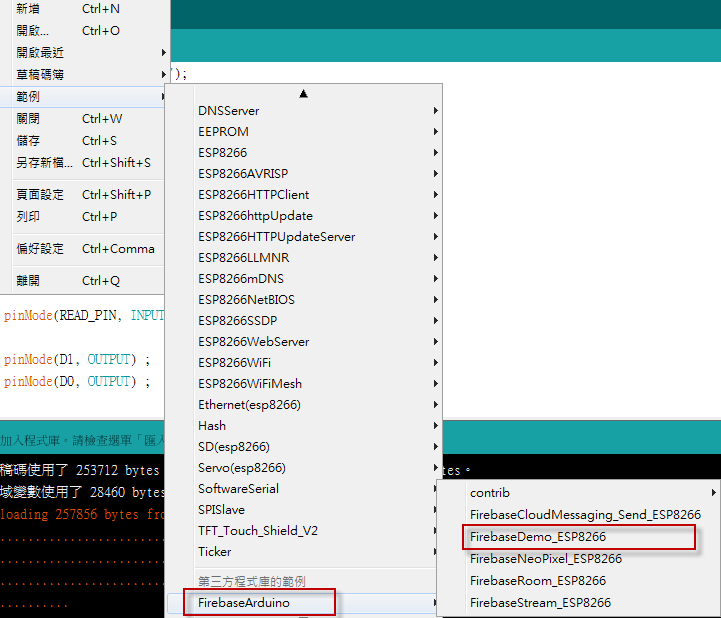
1. 利用匯入程式庫🡪加入 ZIP
2. 利用管理程式庫

* Import firebase-arduino library

Git: <https://github.com/FirebaseExtended/firebase-arduino>

Doc: <https://firebase-arduino.readthedocs.io/en/latest/>





Note:

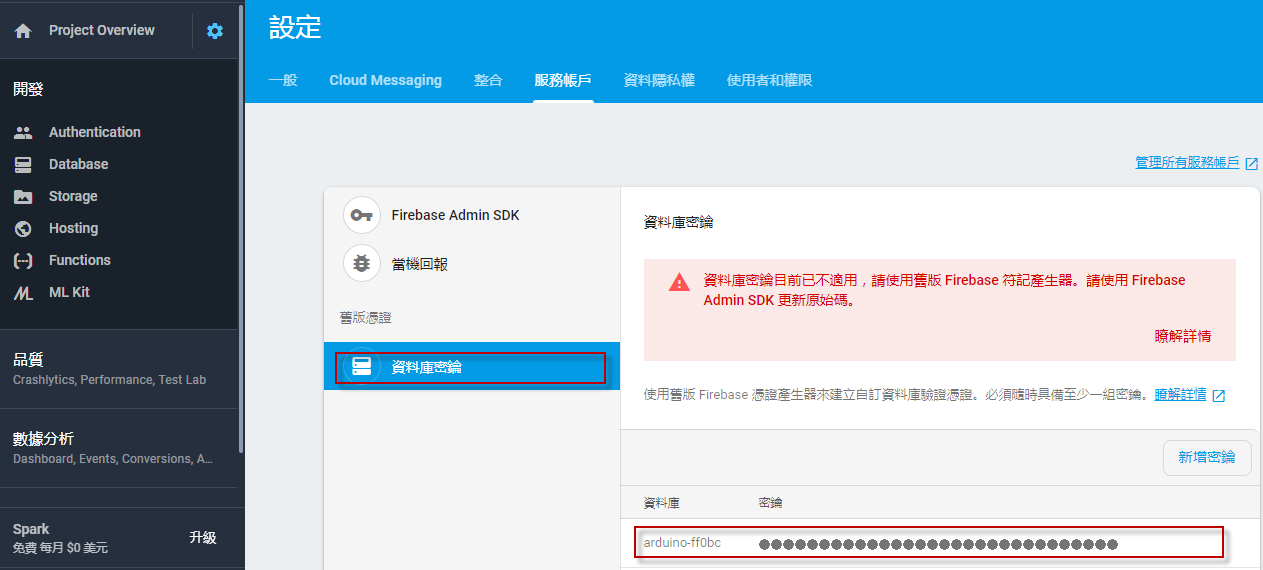
需要事先匯入 ArduinoJSON 程式庫

|  |
| --- |
| // Set connection information.  #define FIREBASE\_HOST "arduino-ff0bc.firebaseio.com"  #define FIREBASE\_AUTH "qGXsCir7KVVbAe2H4DVwWJBgulLThlfHBiA1inqZ"  #define WIFI\_SSID "505-AP"  #define WIFI\_PASSWORD "mis505505" |

* FIREBASE\_HOST



* FIREBASE



# Arduino JSON

|  |
| --- |
| jsonBuffer.clear();  // prepare send data to firebase  JsonObject& cardObject = jsonBuffer.createObject();  cardObject["casrdID"] = cardID;  JsonObject& timeStampObject = jsonBuffer.createObject();  timeStampObject[".sv"] = "timestamp";  cardObject["timeStamp"] = timeStampObject;  Firebase.push("iot0901/records/", cardObject); |

https://github.com/bblanchon/ArduinoJson/issues/72

使用jsonBuffer.createObject 時, 因為是 static , 所以使用之前需要自清除之前占用的記憶體. jsonBuffer.clear();

## Time stamp

Pushing an JsonObject (instead of a string) should work.  
For example:

StaticJsonBuffer<50> jsonBuffer;

JsonObject& timeStampObject = jsonBuffer.createObject();

timeStampObject[".sv"] = "timestamp";

Firebase.push(path, timeStamp);

Seesaw🡺

# Firebase Web Hosting

<https://firebase.google.com/docs/hosting/quickstart?authuser=0>

1. Install the Firebase CLI
   * Install Node.js and npm
     1. Node --version
   * npm install -g firebase-tools
2. Access your Firebase projects
   * firebase login
3. Initialize your site
   * firebase init
4. Deploy your site
   * firebase deploy

Local debug

firebase serve

Create a new web page:

1. <http://getbootstrap.com/>

# 磁簧

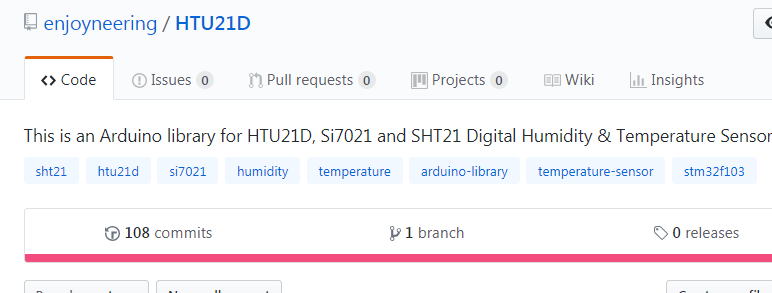
磁簧開關一般常被用在住家或商店的門窗防盜系統上。如下圖所示，磁簧開關防盜系統會以兩個長方塊為一組的方式存在，一邊的長方塊裡含有磁簧開關且會被裝置於門框或窗緣固定，而另一邊長方塊裡則含有磁鐵會被黏在門或窗戶上。當門窗關閉時兩個長方塊是接近的，因此磁簧開關是一種狀態(可能為true，也可能為false，要看磁簧開關的硬體設計)，而當門窗被打開時，磁簧開關狀態便會被改變，此時就會觸發防盜系統的警報...

Pin 🡪 G

Pin 🡪 Pin (read – pullup) (esp8266 Pin 3 or pin4)

# HTU21D (溫度)

<https://github.com/enjoyneering/HTU21D>



### 溫濕度感測器 DHT11

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

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



直接讀取 Digital Pin. 依據Unified Sensor Library Example

# Sound Sensor

Sensor

G 🡪 G

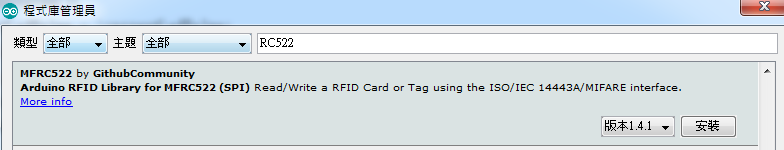
VCC 🡪 5V

OUT 🡪 Analog PIN (A0)

# RFID

1. Install Library

RC522



1. Pin mapping

(SS) NSS 🡪 D8

MOSI🡪D7

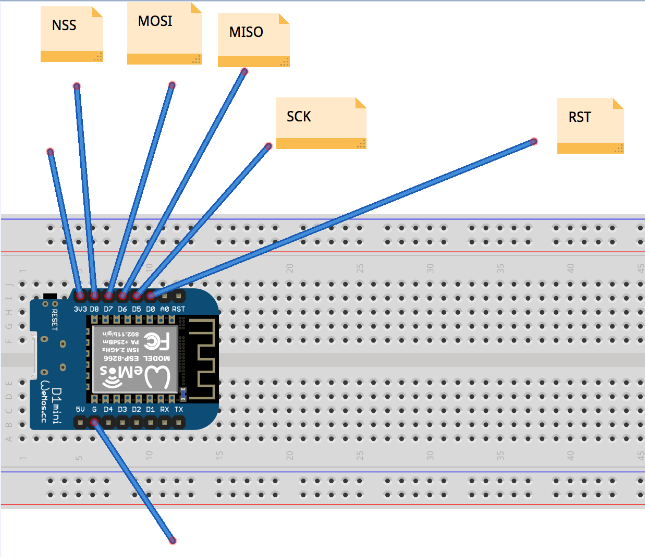
MISO 🡪 D6

SCK 🡪 D5

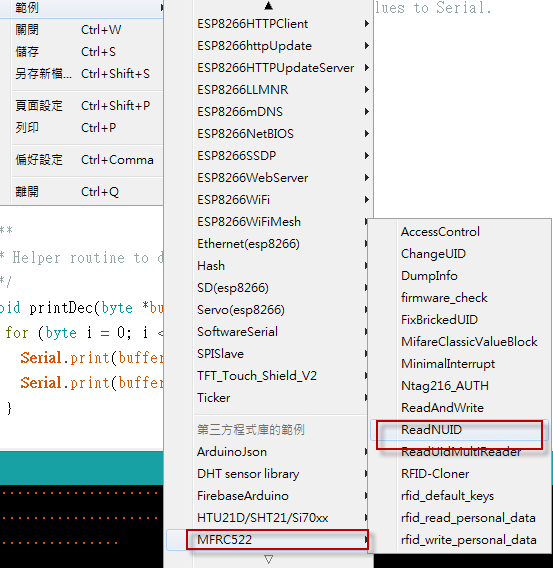
RST 🡪 D0

G 🡪 G

VCC 🡪3.3 V



1. Example



# LCD

* Library

LiquidCrystal-I2C

<https://github.com/arduino-libraries/LiquidCrystal>

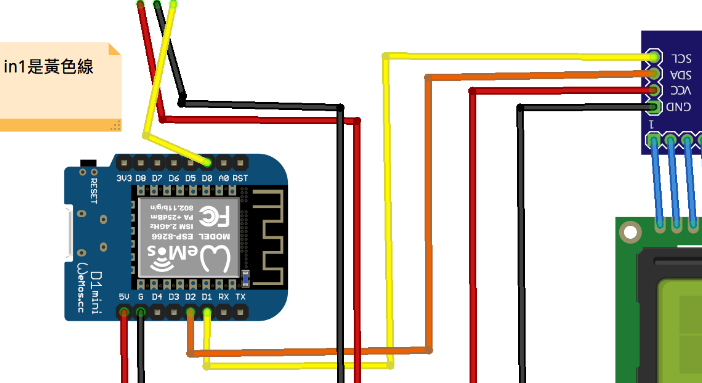
* Mapping

SCL -> D1

SDA ->D2

VCC -> 5V

GND -> GND



# PM 2.5

Although the Sharp sensor has a RxD terminal, you don’t need to send it any commands in order to begin receiving serial UART data from the sensor’s TxD terminal.