D.C
Design. Create

LinkIt 7697

教學

Arduino 安裝

01 安裝Arduino IDE

D.C
Design. Create

Download the Arduino IDE

ARDUINO 1.8.5

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software.
This software can be used with any Arduino board.
Refer to the Getting Started page for Installation instructions.

Windows Installer
Windows ZIP file for non admin install

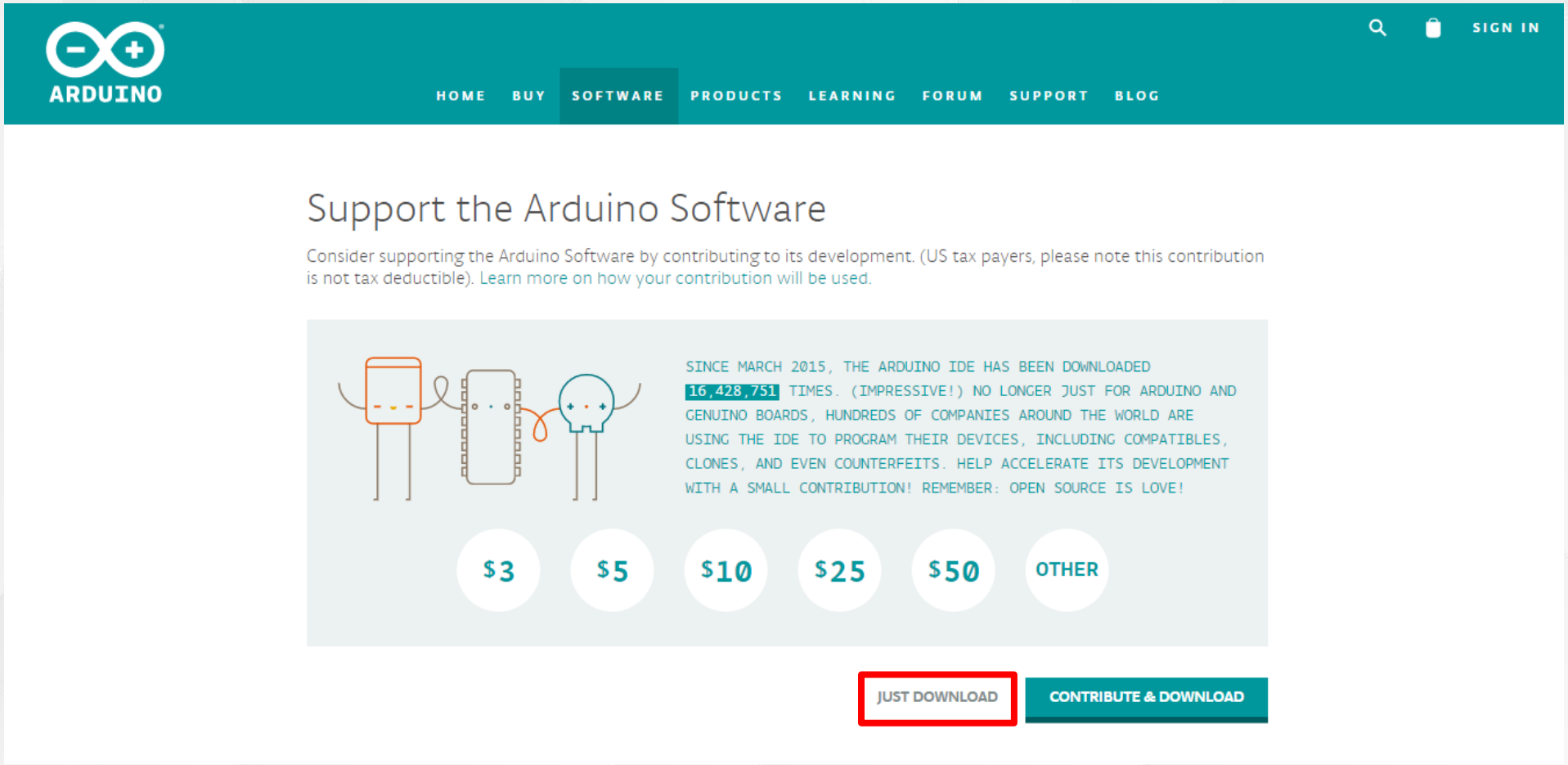
Windows app Requires Win 8.1 or 10
Get

Mac OS X 10.7 Lion or newer

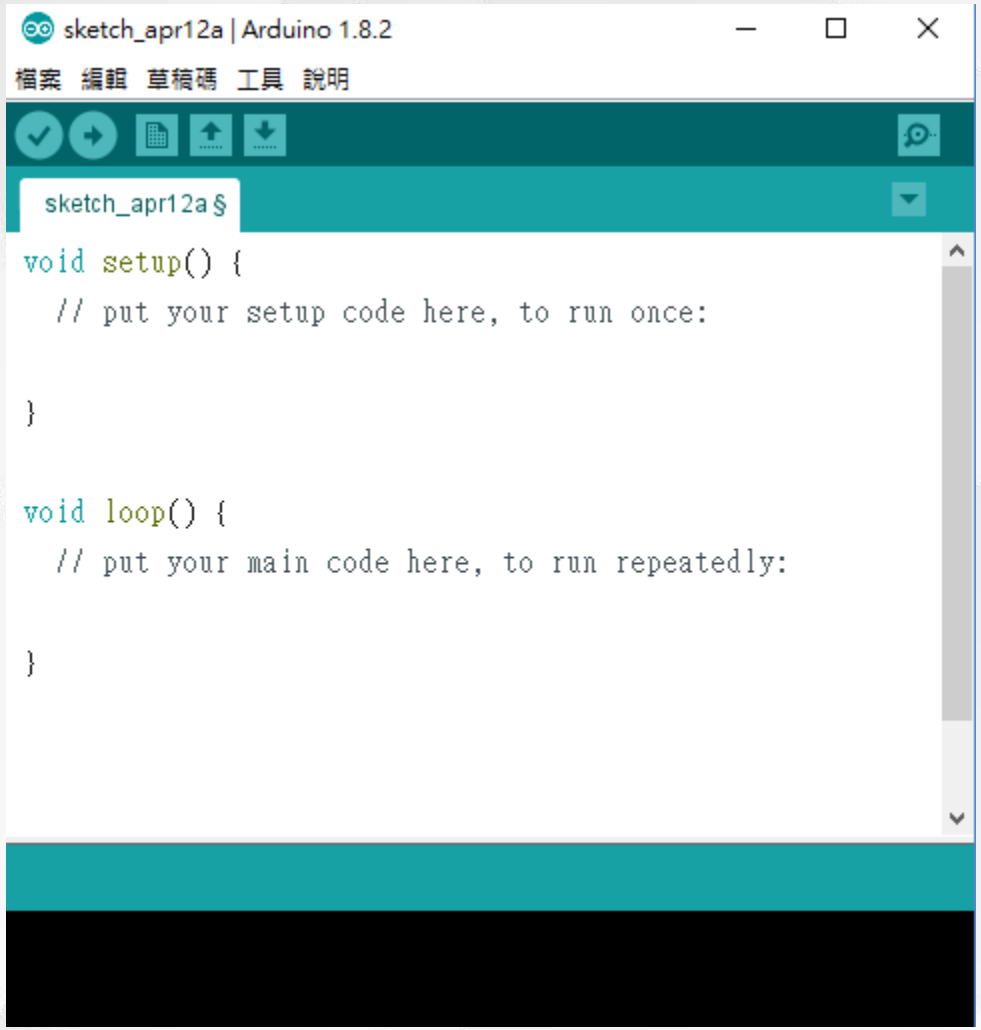
Linux 32 bits
Linux 64 bits
Linux ARM

Release Notes
Source Code
Checksums (sha512)

01 安裝Arduino IDE



01 開啟Arduino IDE



void setup(){ 只會執行一次 }

void loop(){ 不斷重複做直到關機為止 }

D.C
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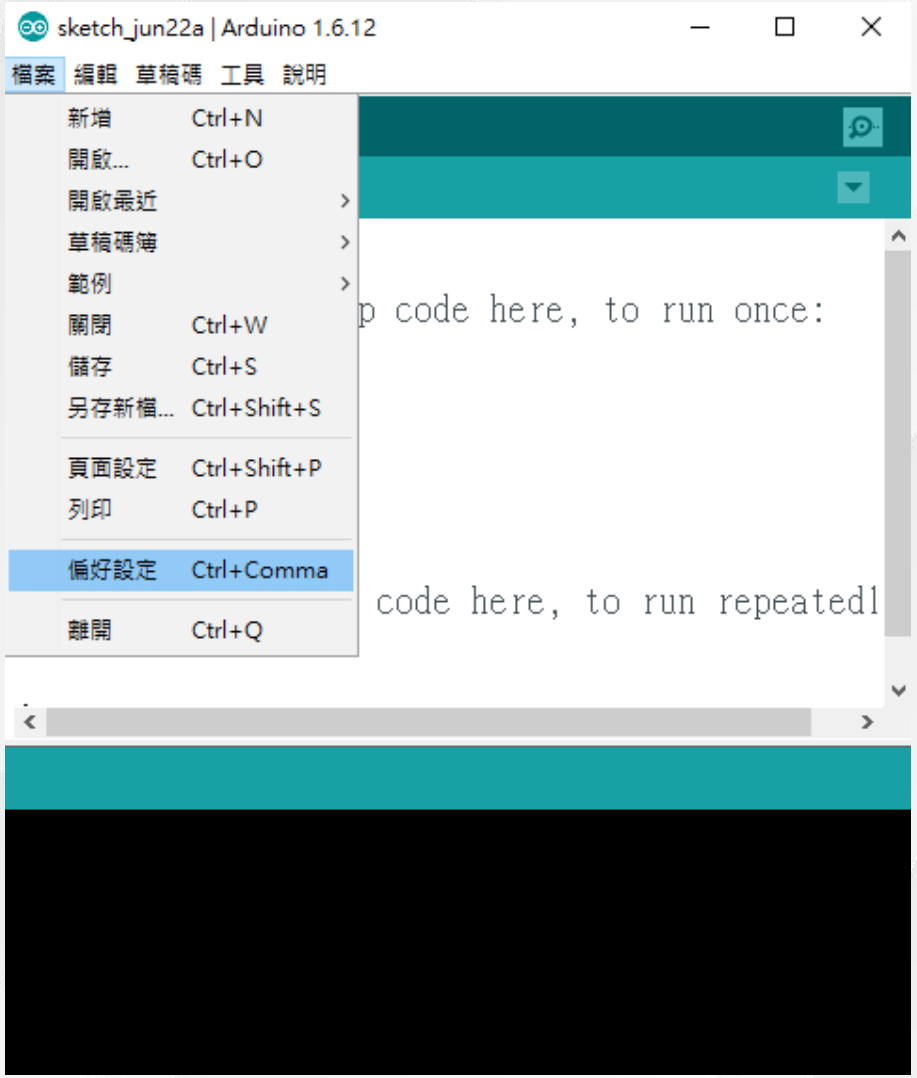
Arduino
擴充 LinkIt 7697

02 安裝 LinkIt 7697 套件包



檔案>>偏好設定

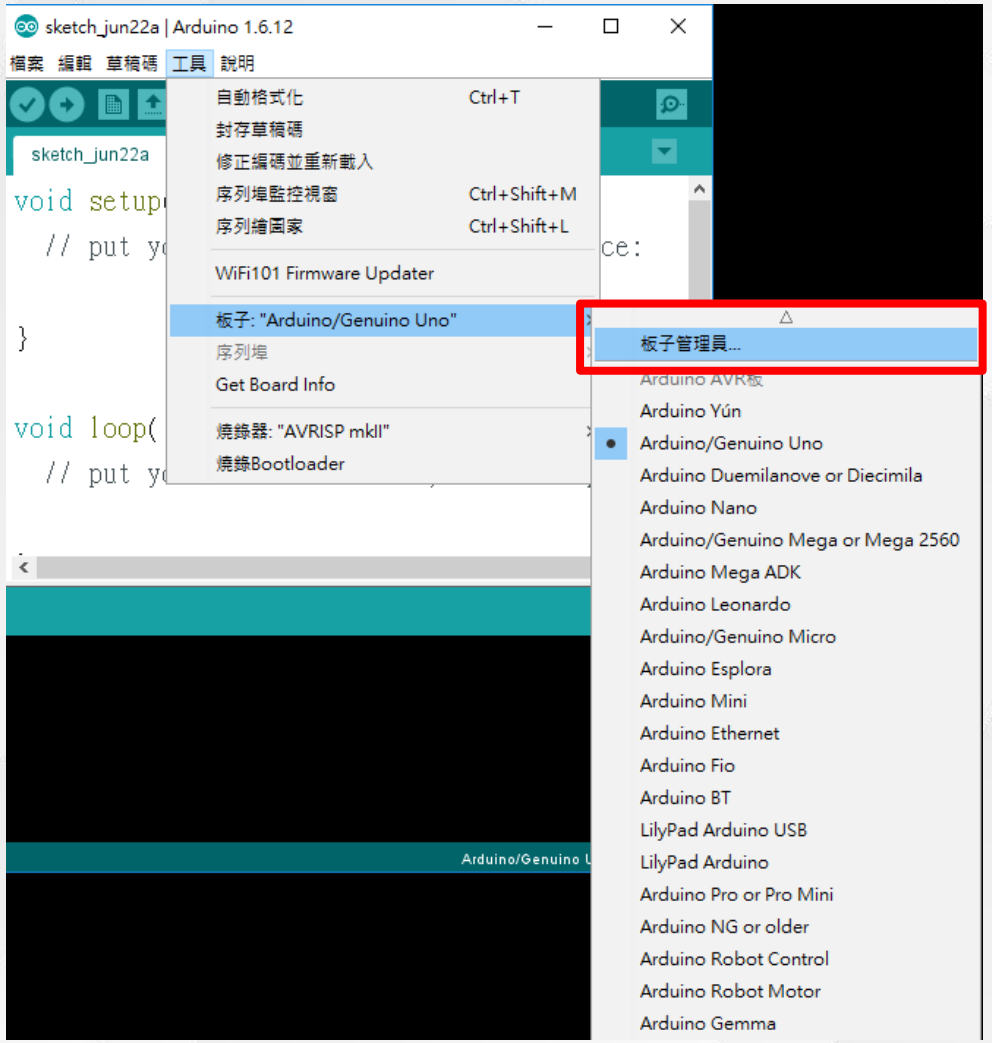
02

安裝 LinkIt 7697 套件包

貼上網址:

http://download.labs.mediatek.com/package_mtk_linkit_7697_index.json

02 安裝 LinkIt 7697 套件包



工具>>板子>>板子管理員

02 安裝 LinkIt 7697 套件包

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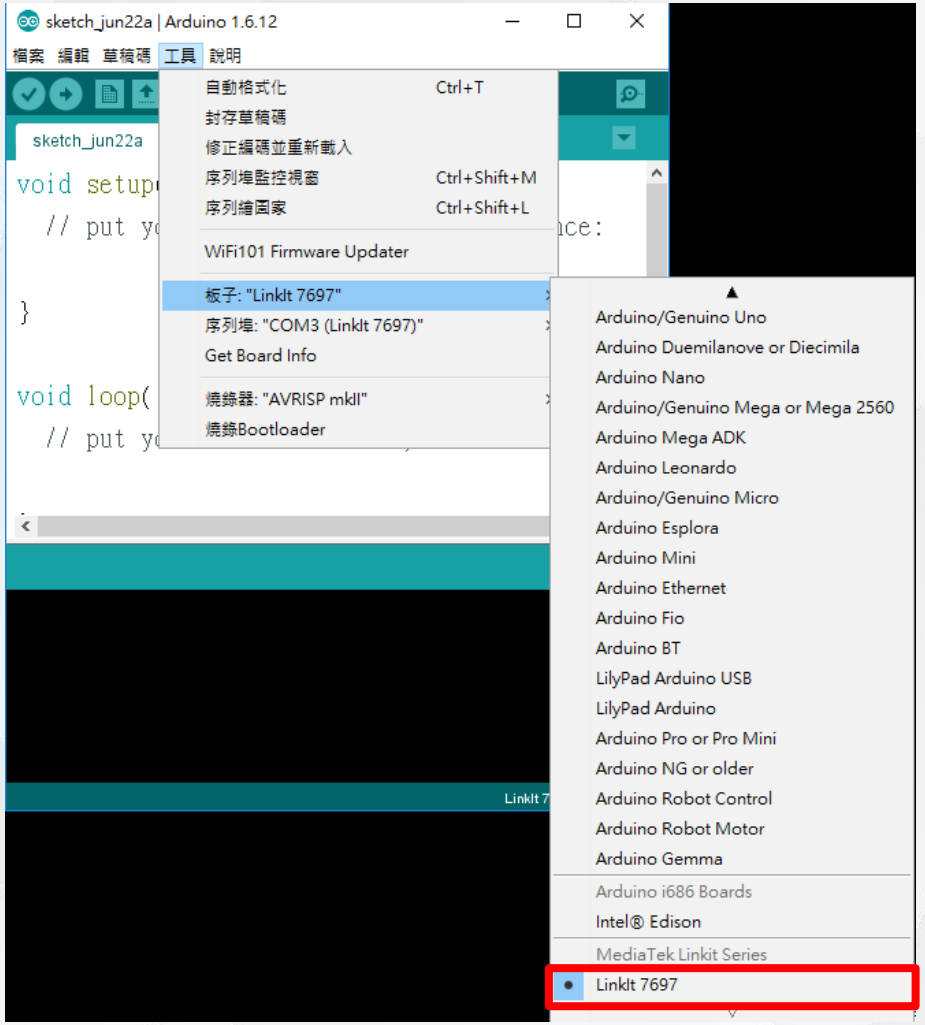
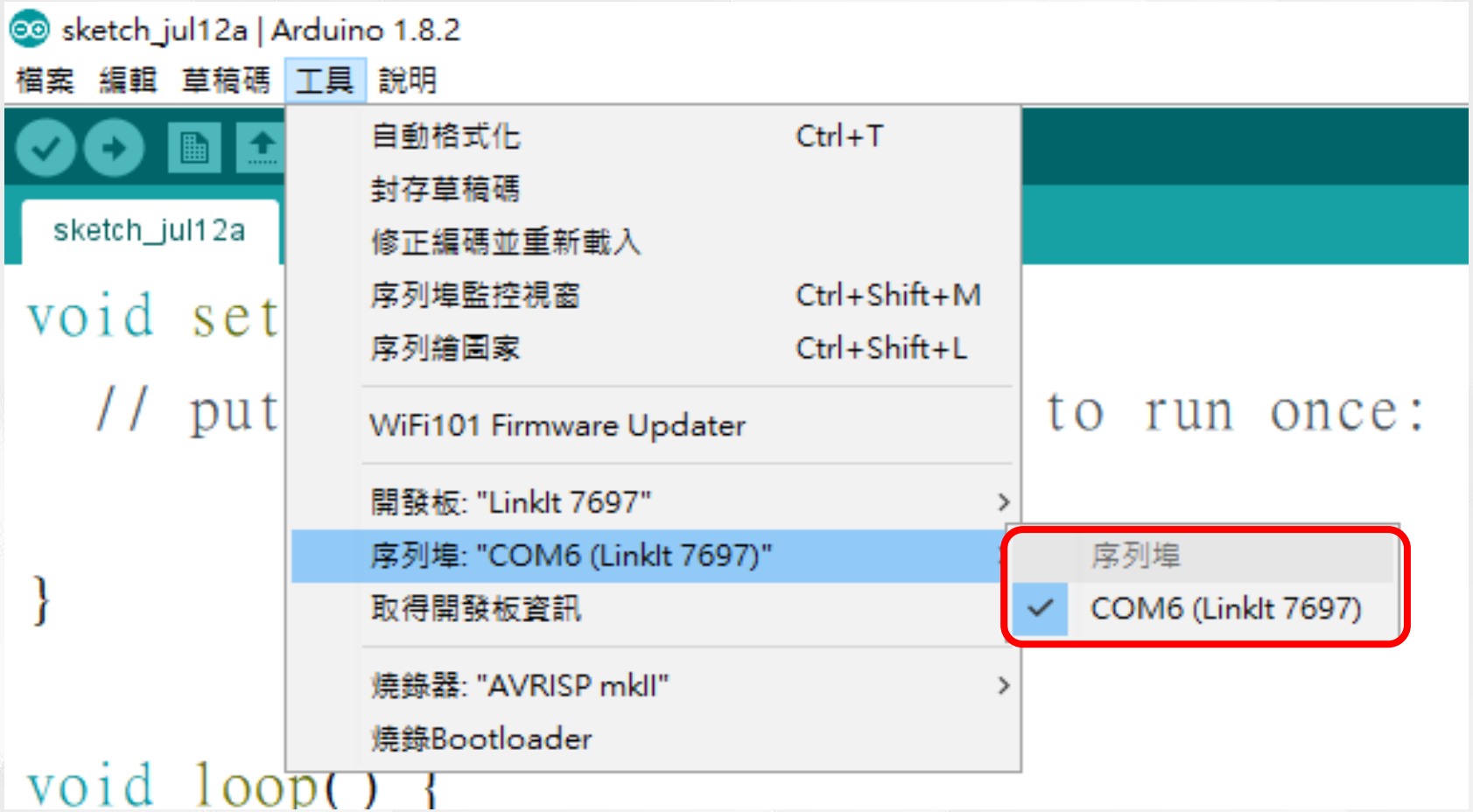


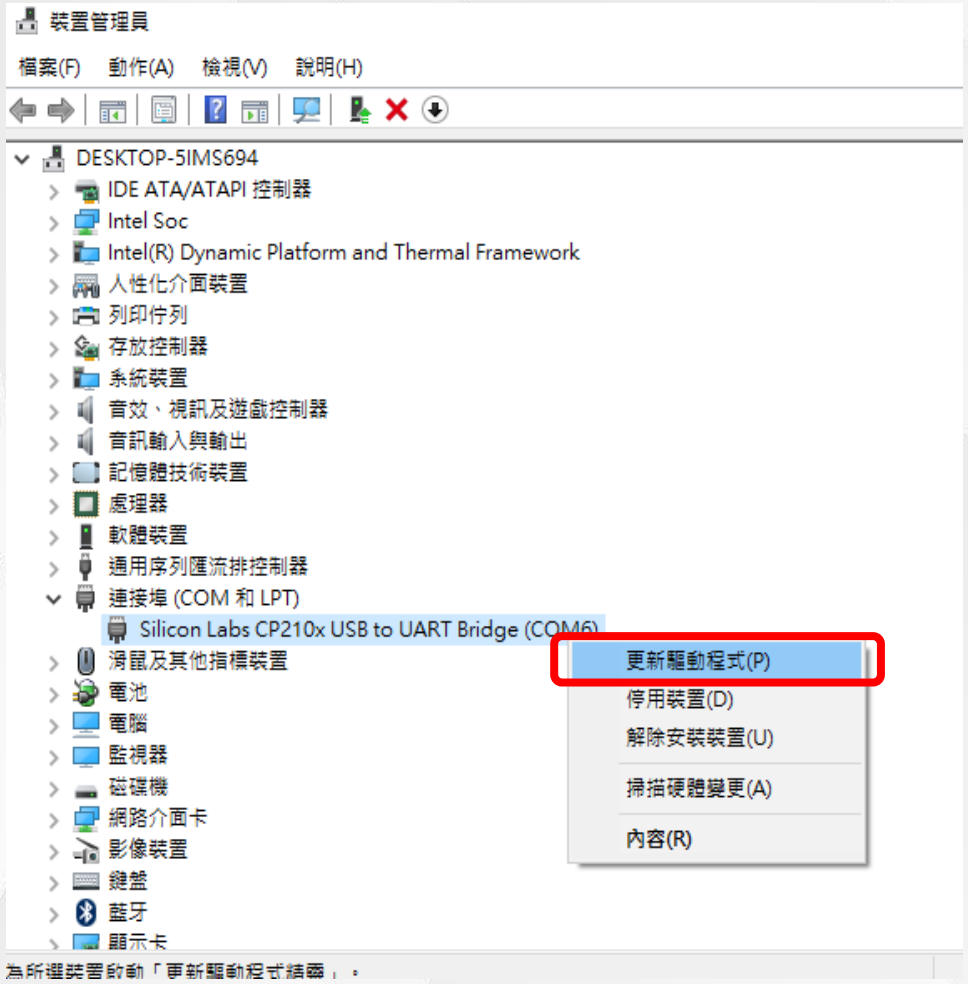
工具>>板子>>選擇開發板

02 LinkIt 7697連接電腦



連接成功!

02 LinkIt 7697驅動程式

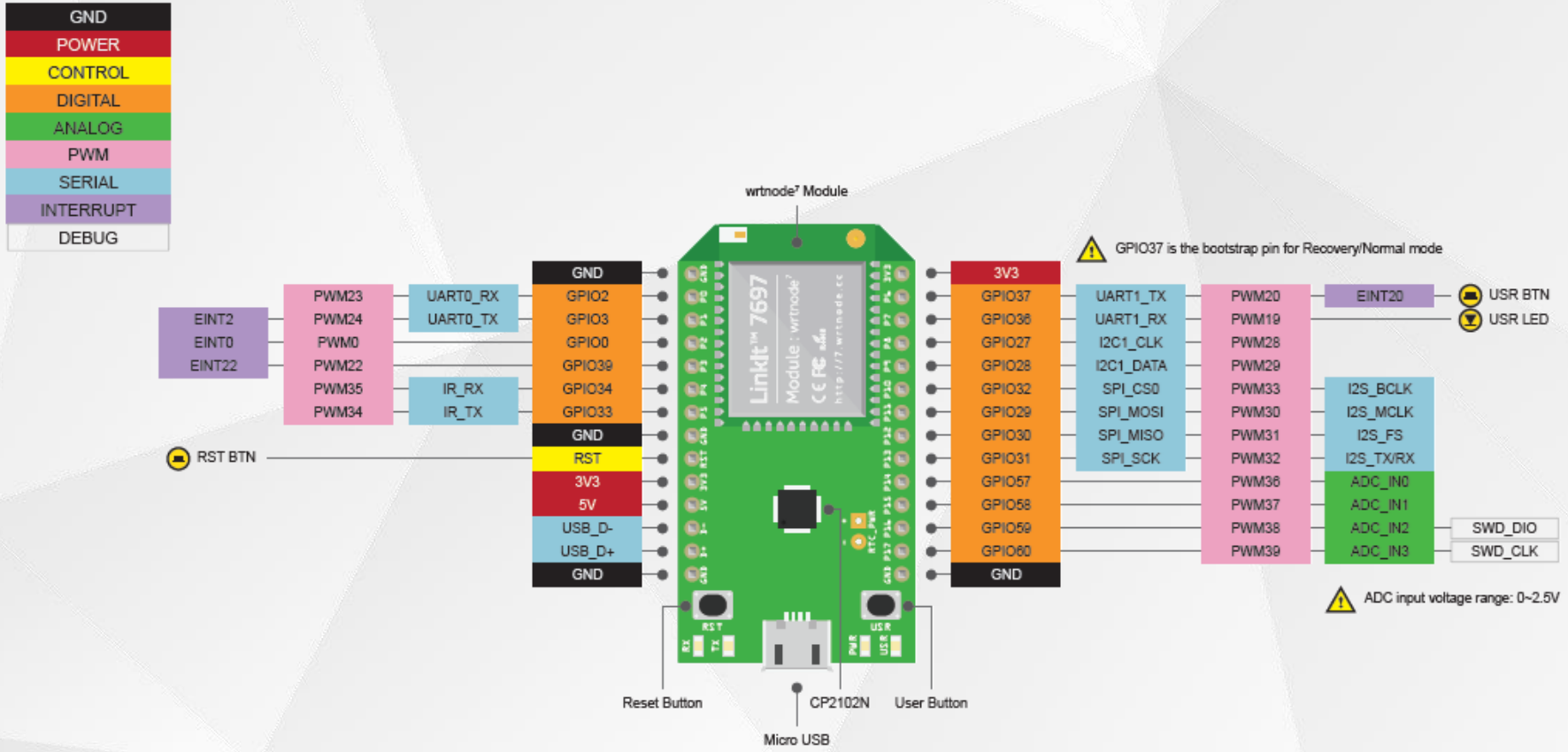


LINKIT 7697 I/O 介紹

LinkIt 7697 I/O 介紹

LinkIt™ 7697

seeed wrtnode MEDIATEK labs



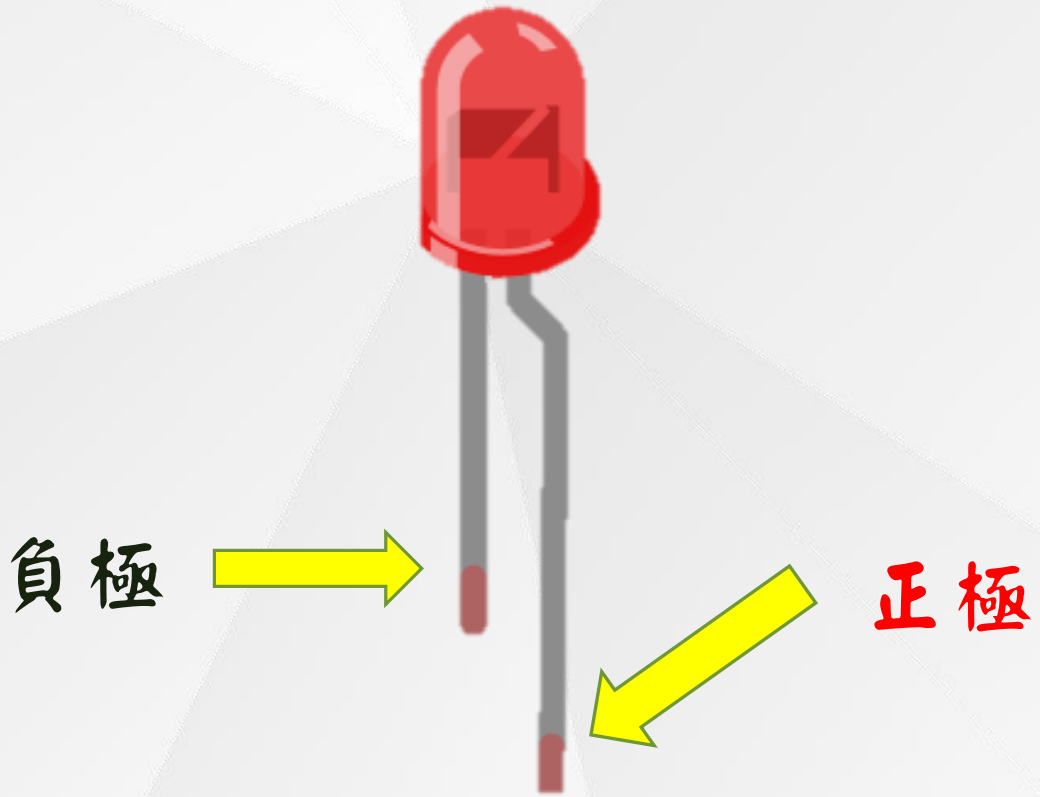
LINKIT 7697 程式設計

怎麼讓 LED 亮?

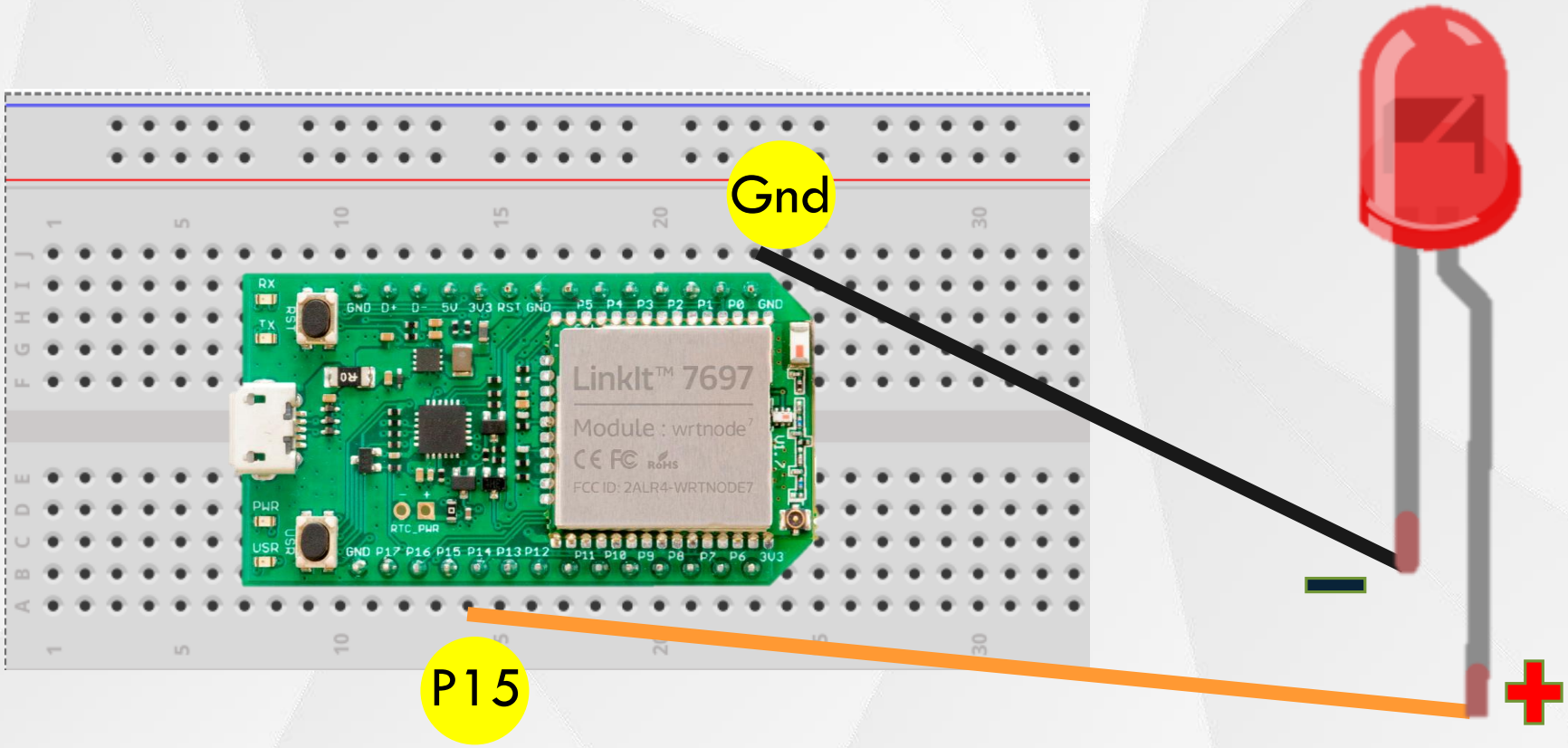
03 LED 燈是什麼

LED 正負腳位

長短接腳



03 LED硬體接線

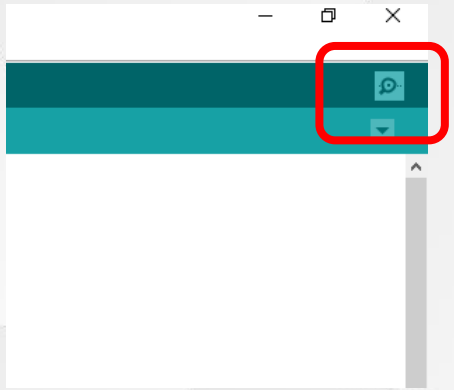

Gnd
P15
LinkIt™ 7697
Module : wrtnode7
FCC ID: 2ALR4-WRTNODE7
RX
TX
RST
PWR
USR
RTC_PWR
GND D+ D- 5V 3V3 RST GND P5 P4 P3 P2 P1 P0 GND
GND P17 P16 P15 P14 P13 P12 P11 P10 P9 P8 P7 P6 3V3

03 LED閃爍程式

```
int led=15;
void setup() {
  pinMode(led, OUTPUT); //宣告腳位
}
void loop() {
  digitalWrite(led, HIGH);   // 輸出高電位(開燈)
  delay(1000); //延遲1秒
  digitalWrite(led, LOW);    // 輸出低電位(關燈)
  delay(1000);
}
```

如何跟電腦序列埠溝通?

1. Serial.begin()
2. Serial.available()
3. Serial.read()
4. Serial.print()
5. Serial.println()



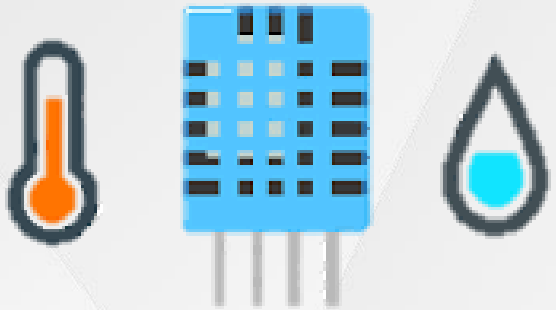
與電腦通訊速率

讀取序列埠資料程式

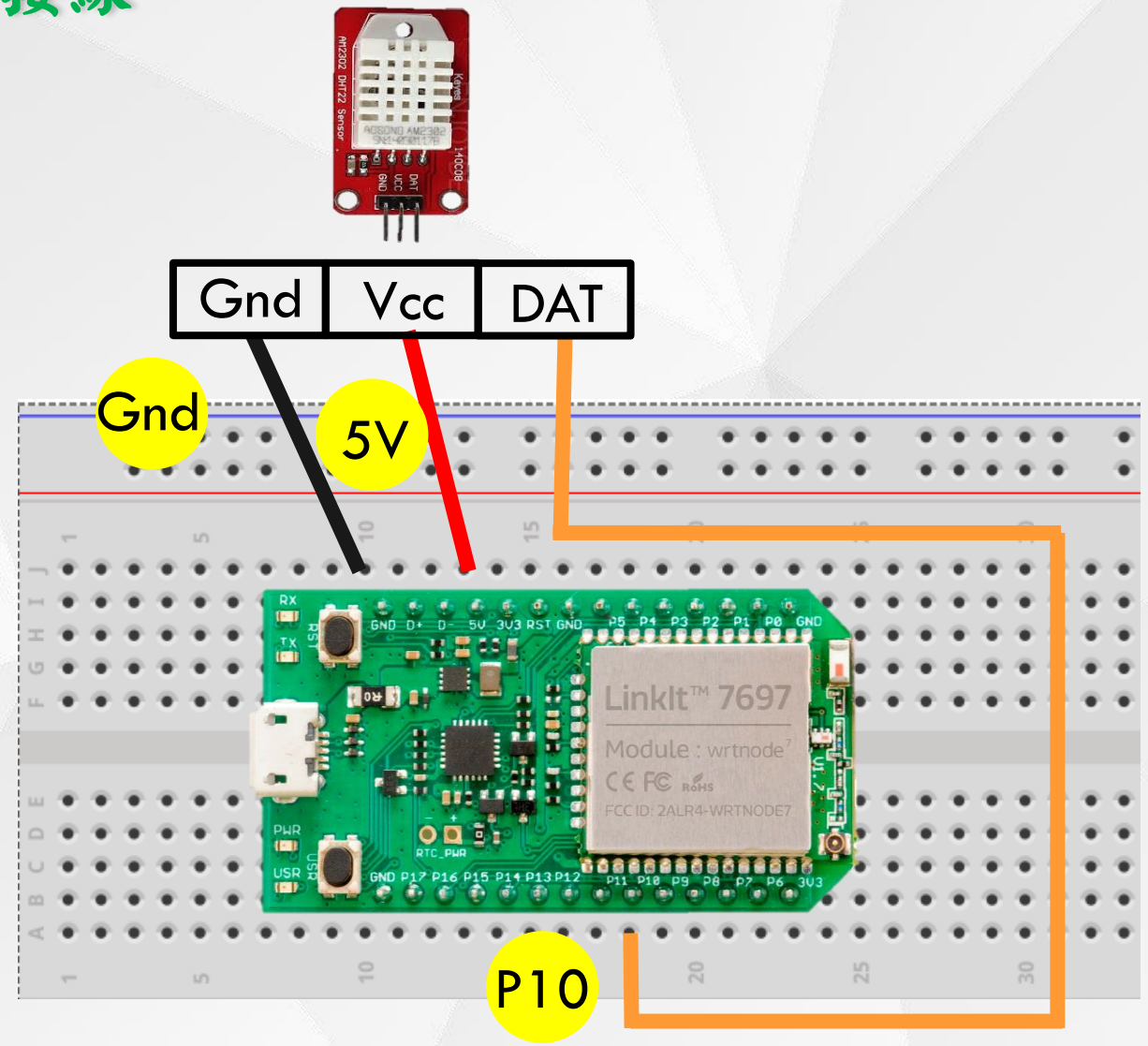
```
char  a;
void setup() {
  Serial.begin(9600); //設定通訊速率
}
void loop() {
  if(Serial.available()>0) //檢查 資料緩衝區是否有東西
  {   a = Serial.read(); //讀取輸入的值
      if(a=='1'){Serial.println("hello!~");}
      if(a=='2'){Serial.println("good morning");}
}
}
```

溫溼度模組

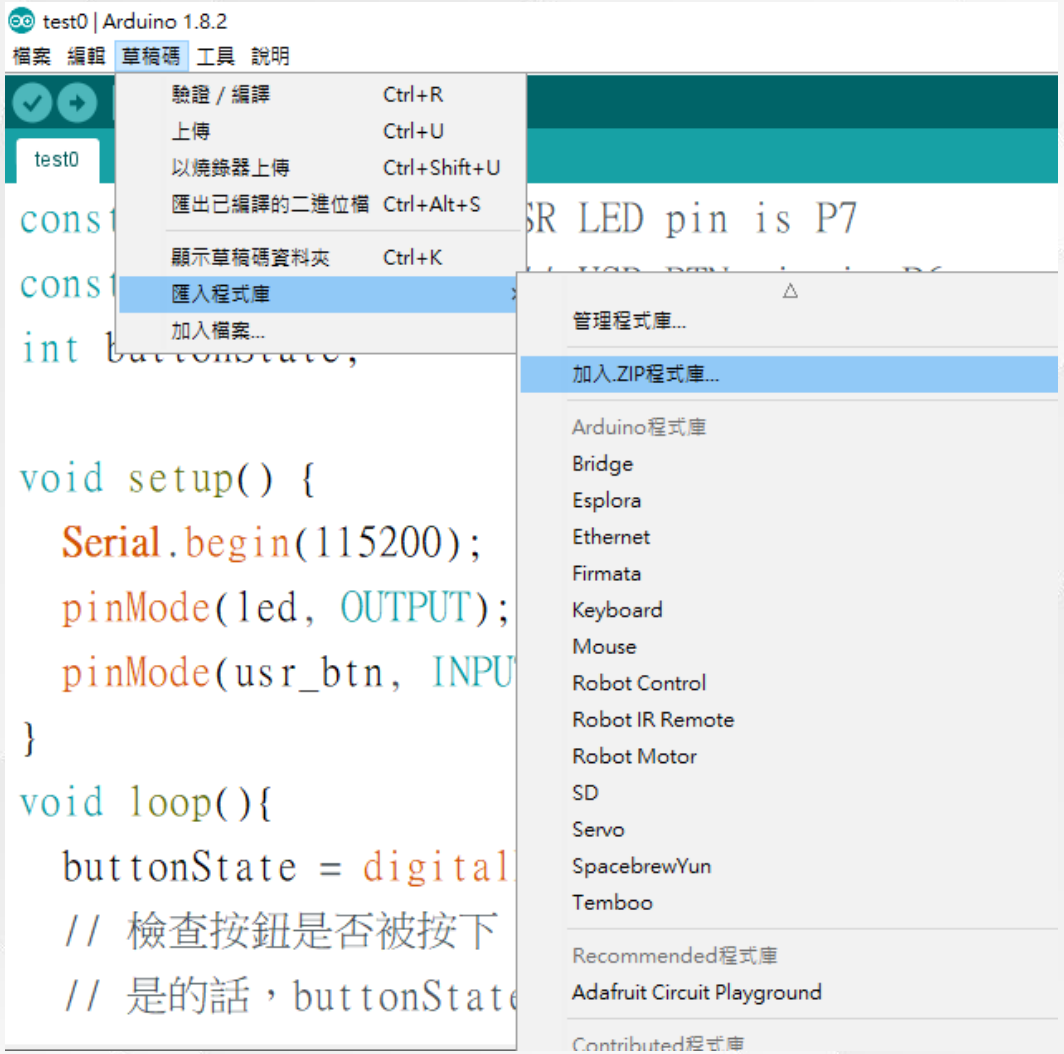
如何獲得溫溼度呢?



05 溫溼度模組硬體接線



05 加入程式庫



匯入 DHT Library

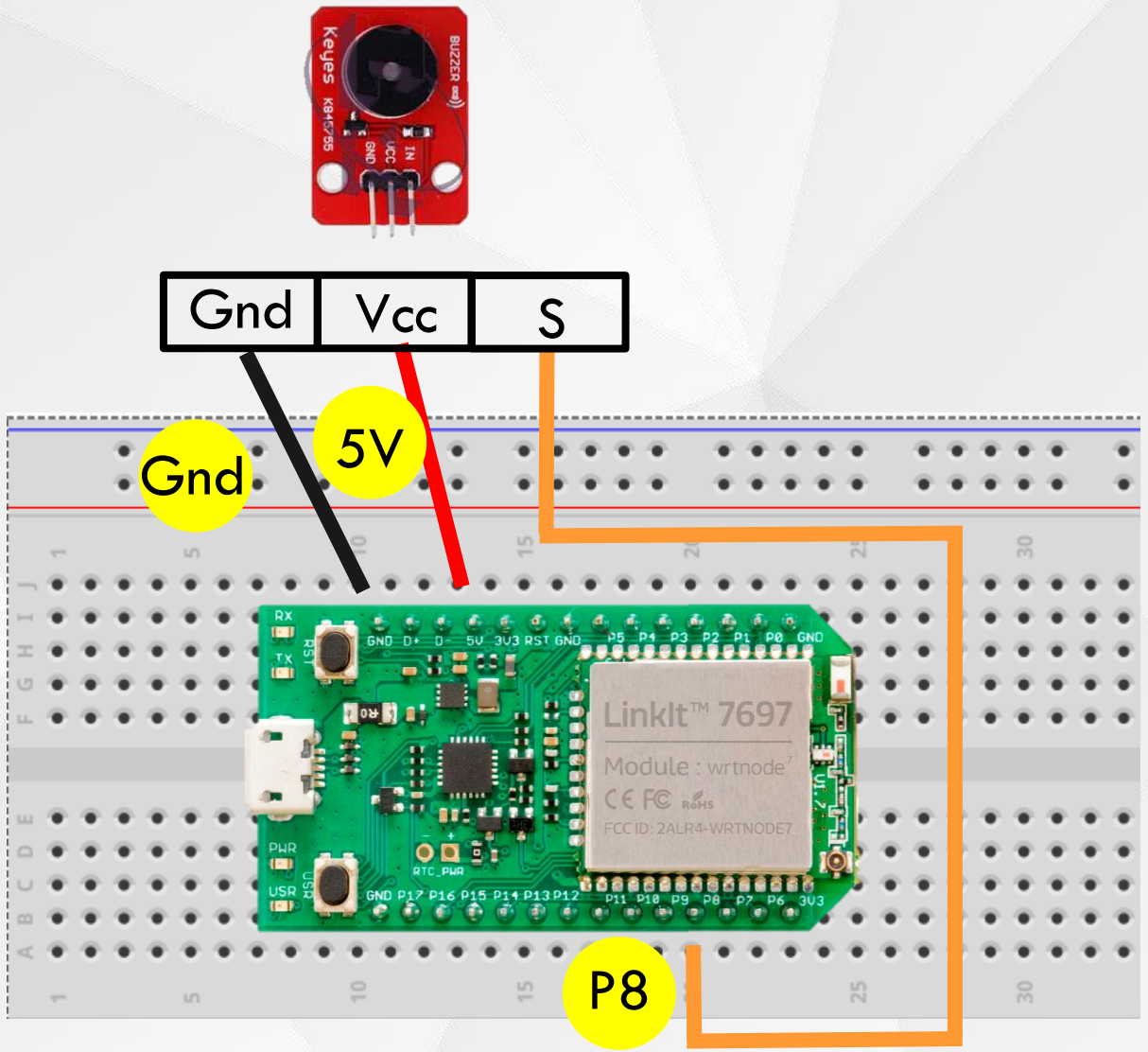
05 獲得溫溼度程式

```
#include <dht.h>
#define dht_dpin 10
dht DHT;
void setup() {
  Serial.begin(9600);
}
void loop() {
  DHT.read11(dht_dpin);   //去library裡面找DHT.read11
  Serial.print("Humidity = ");
  Serial.print(DHT.humidity);   //獲得 濕度資料
  Serial.print("% ");
  Serial.print("temperature = ");
  Serial.print(DHT.temperature); //獲得 溫度資料
  Serial.println("C ");
  delay(2000);
}
```

D.C
Design. Create

蜂鳴器

06 蜂鳴器硬體接線


Keyes
BUZZER
GND
VCC
IN
Gnd
Vcc
S
Gnd
5V
P8
LinkIt™ 7697
Module : wrtnode7
FCC ID: 2ALR4-WRTNODE7

06 ARDUINO 內建函式

1. tone(腳位,頻率,時間)

2. tone(腳位,頻率)

3. noTone(腳位)

06 蜂鳴器程式

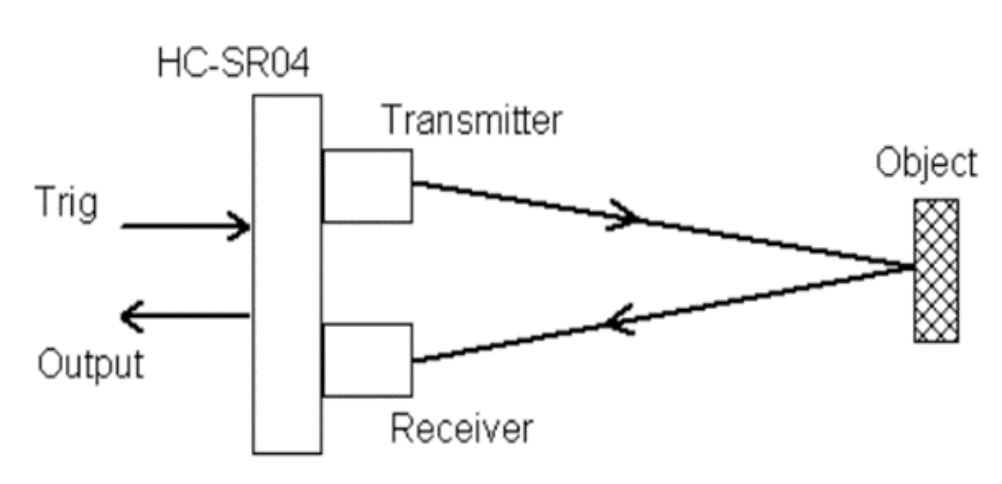
```
int buzzer=8;

void setup() {
 pinMode(buzzer, OUTPUT);
 }
```

```
void loop() {
  tone(buzzer, 1000, 100);
  delay(200);
  tone(buzzer, 1000, 100);
  delay(200);
  tone(buzzer, 1000, 100);
  delay(200);
  tone(buzzer, 1000, 100);
  delay(200);
  noTone(buzzer);
  delay(1000);
  }
```

超音波感測器介紹

07 超音波感測器原理

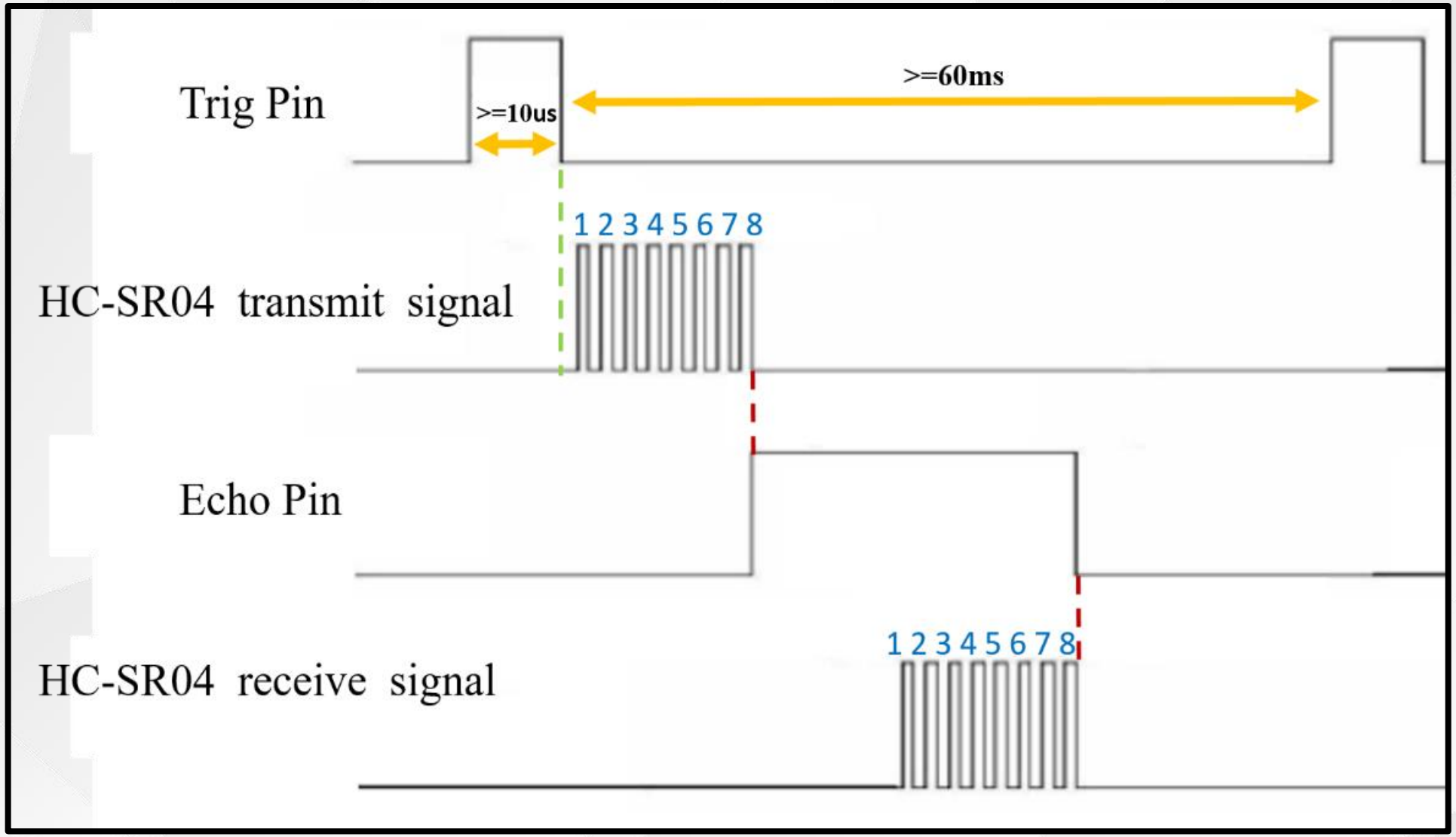


聲音在空氣中傳播速度為:344公尺/秒

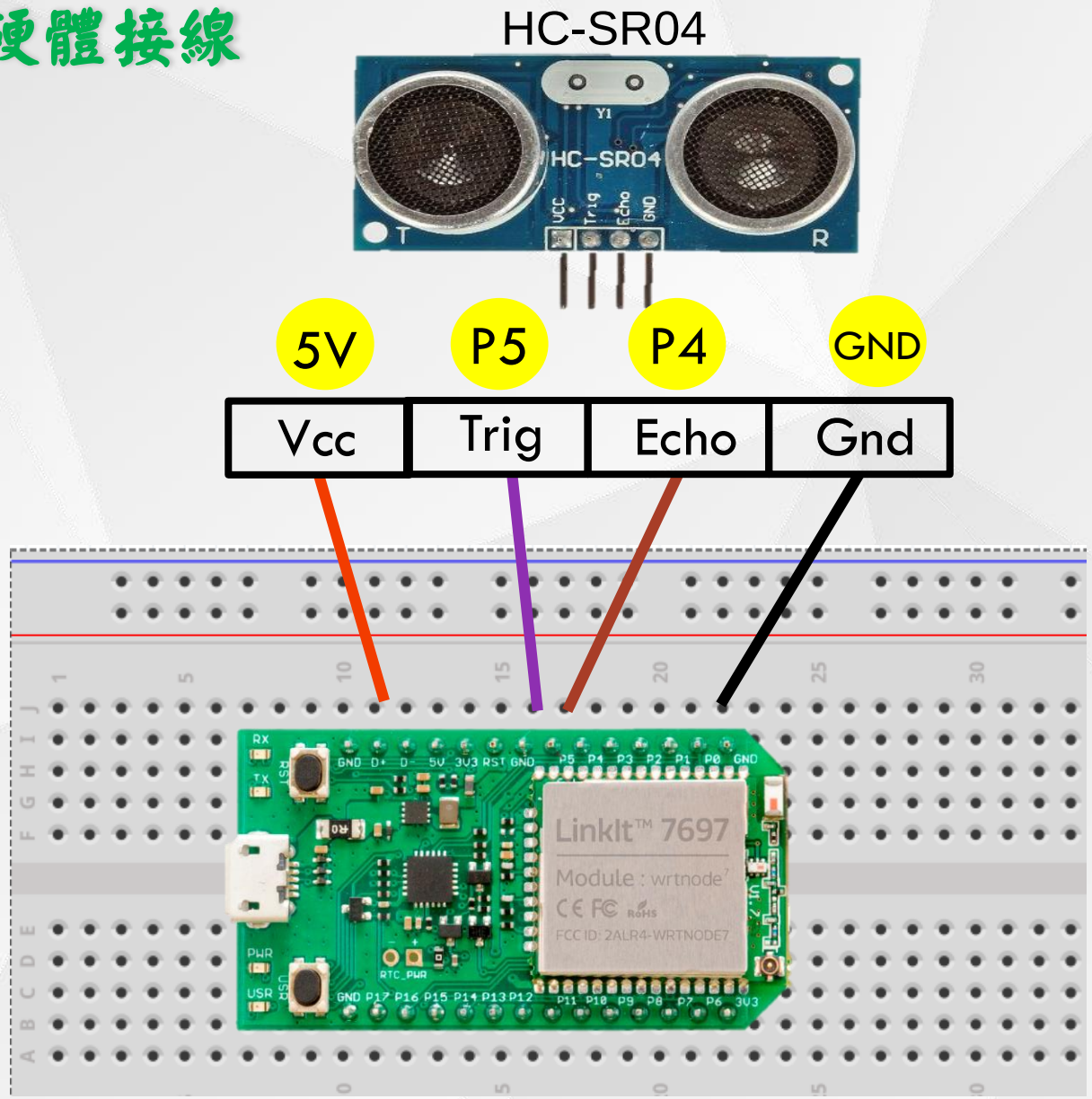
約 29.1×10^{-6}秒/公分

$$\text{距離(cm)} = \frac{\text{傳播時間}}{2} \div 29.1$$

07 超音波感測器原理


Trig Pin
>=10us
>=60ms
1 2 3 4 5 6 7 8
HC-SR04 transmit signal
Echo Pin
1 2 3 4 5 6 7 8
HC-SR04 receive signal

07 超音波模組硬體接線



07 超音波測量距離程式(1)

```
int TrigPin=5;
int EchoPin=4;

void setup() {
    Serial.begin(9600);
    pinMode(TrigPin, OUTPUT);//設定TrigPin輸出
    pinMode(EchoPin, INPUT); //設定EchoPin輸入
}
```

07 超音波測量距離程式(2)

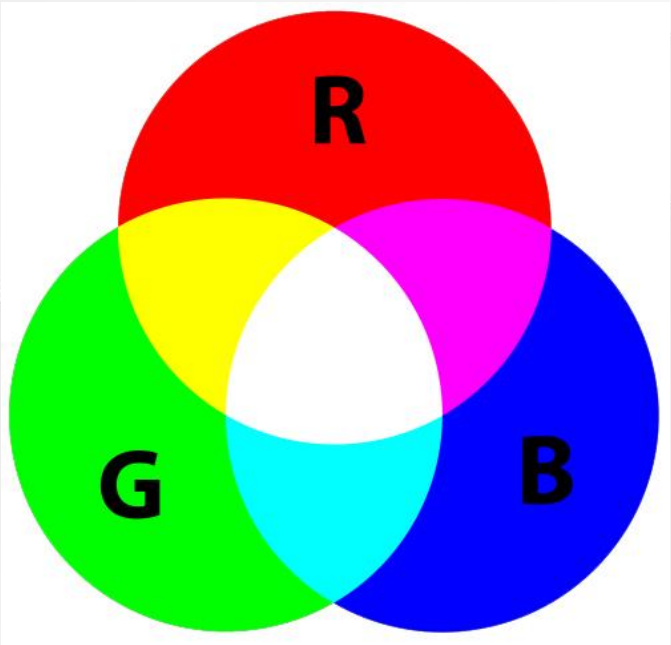
```
void loop() {
  long duration, distance;
  digitalWrite(TrigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(TrigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(TrigPin, LOW);
  duration = pulseIn(EchoPin, HIGH); //獲得所經時間
  distance = (duration/2) / 29.1; //計算距離
  Serial.print("distance=");
  Serial.print(distance);Serial.println ("cm");
  delay(1000);
}
```

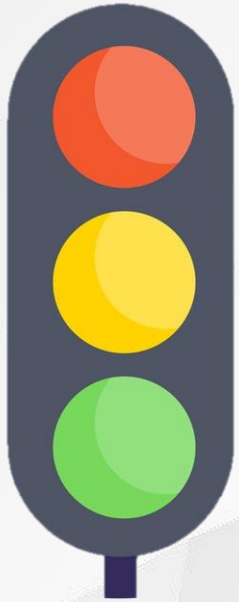
RGB三色LED

介紹

08 RGB 原理

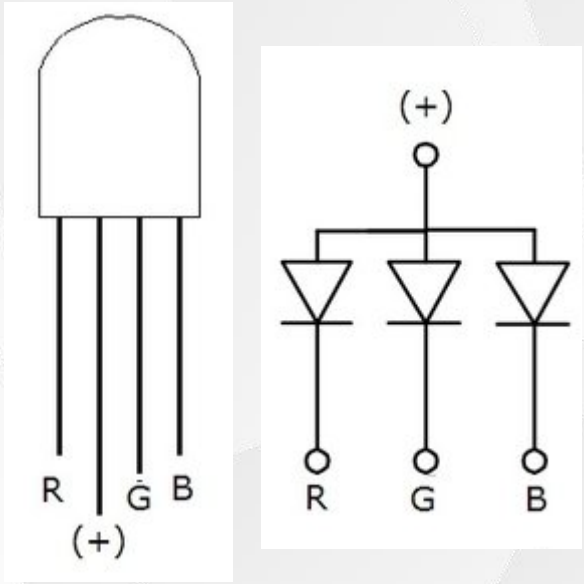
由 基色（紅　藍　綠）的強度呈現全彩的混色效果



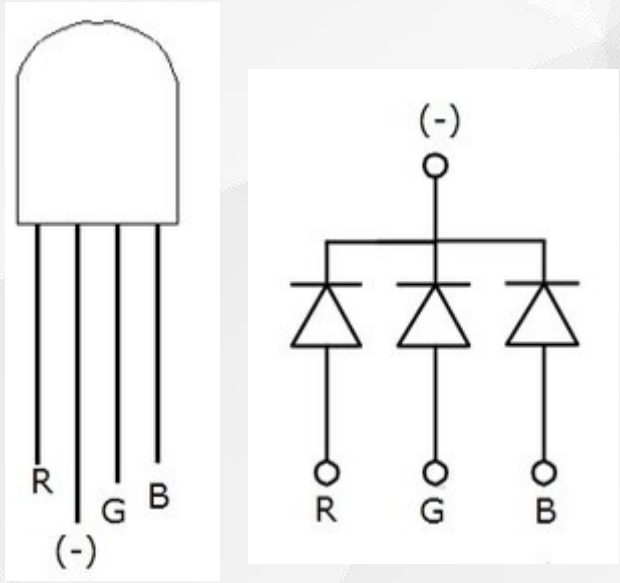


08 RGB 三色 LED 硬體腳位

共陽極



共陰極

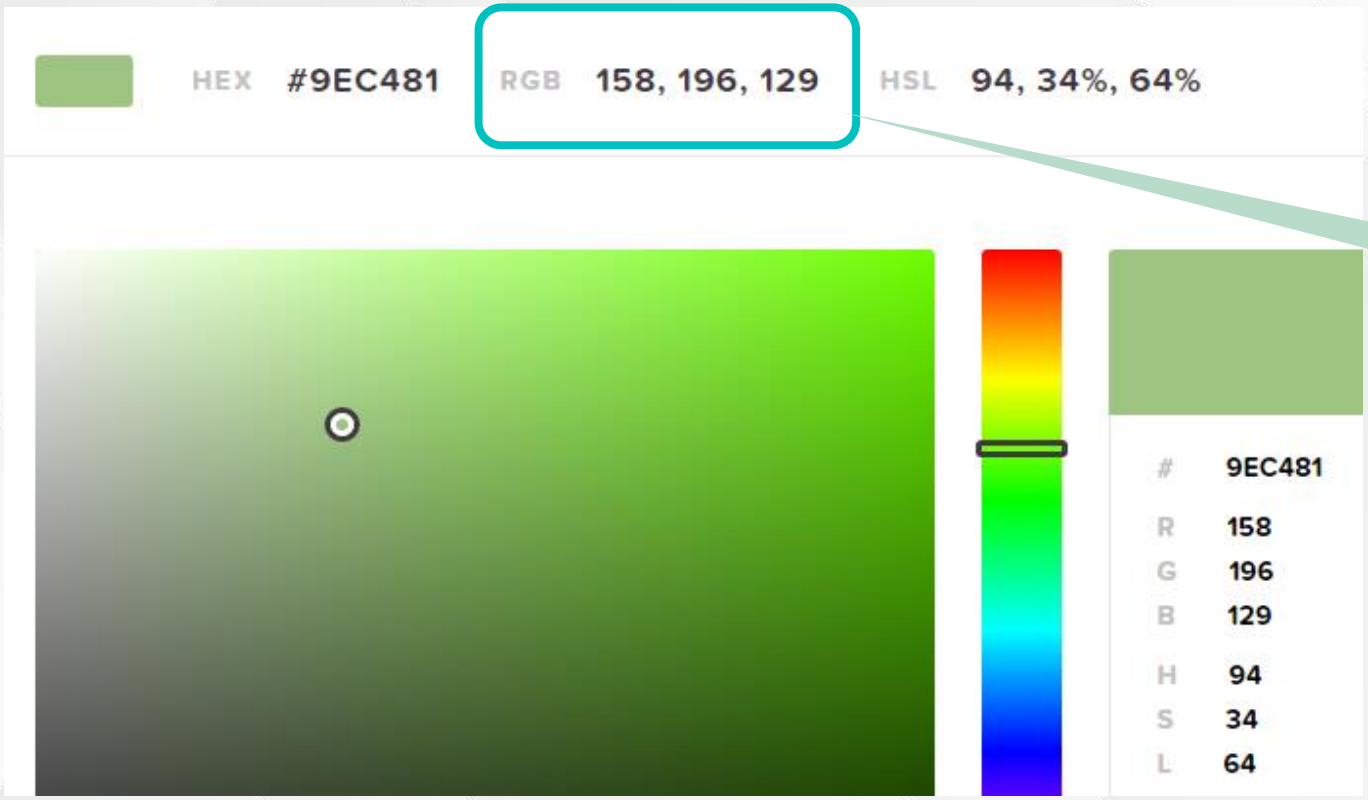


V	R	B	G

+

08 RGB數值選取

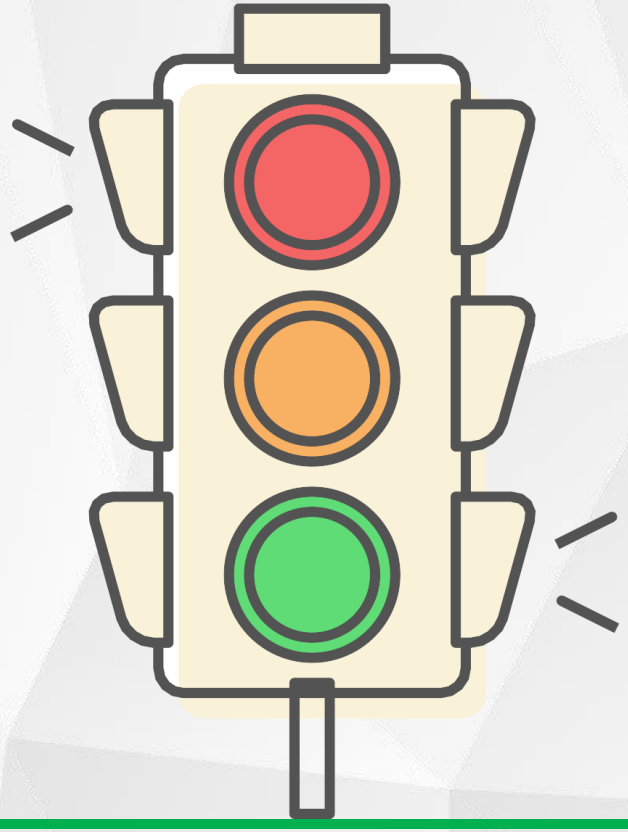
RGB 數值選取



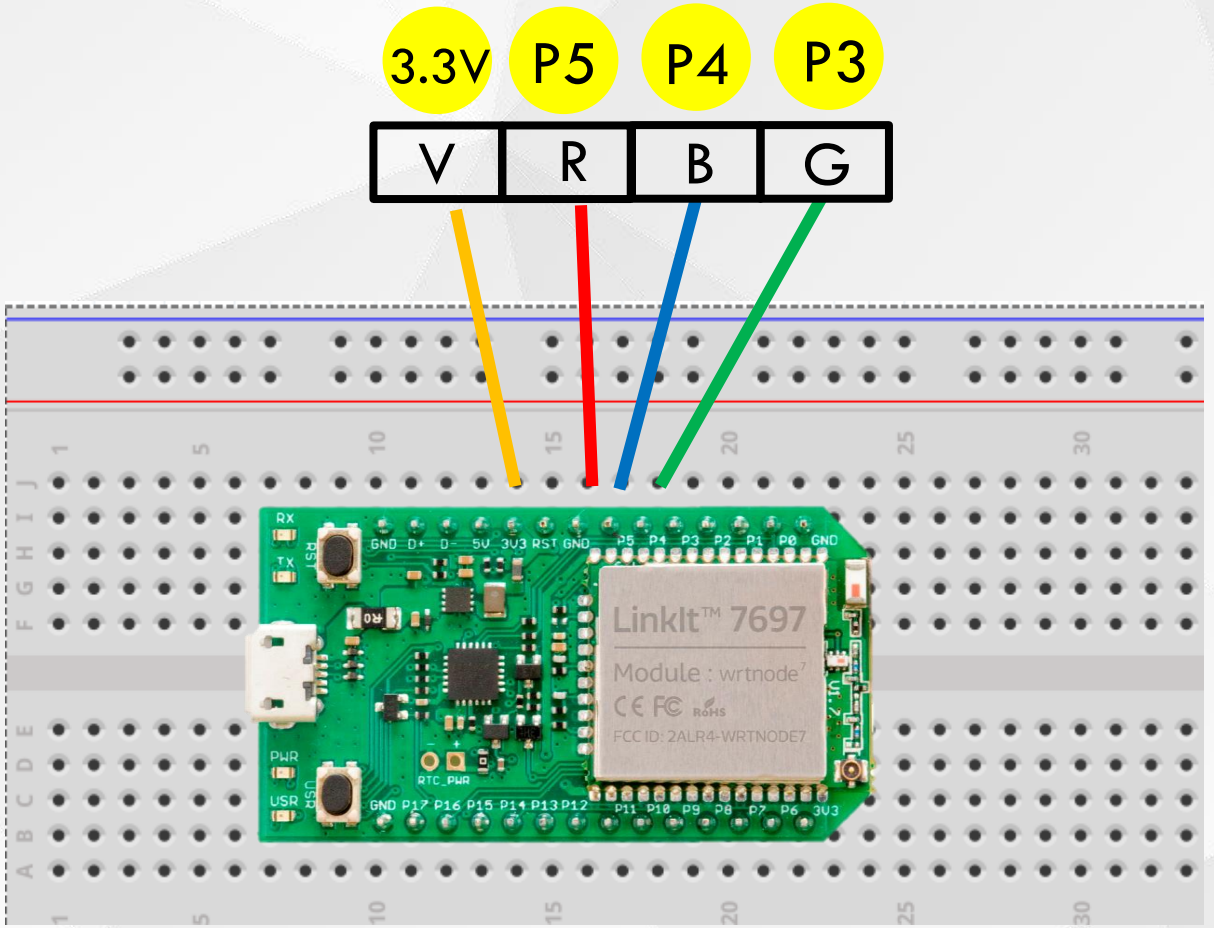
RGB 顏色選取網址:
https://htmlcolorcodes.com/color-picker/

類比數值範圍: 0~255

08 RGB三色LED應用



3色RGB LED



RGB三色LED程式(1)

```
int R=5,B=4,G=3;//腳位
char control;

void setup() {
 Serial.begin(9600);
 pinMode(R,OUTPUT);
 pinMode(G,OUTPUT);
 pinMode(B,OUTPUT);
}

void loop() {
  if(Serial.available()>0){
    control=Serial.read();
  }
```

08 RGB三色LED程式(2)

```
switch(control)
  {case 'r': //顯示紅色
      analogWrite(R,0);
      analogWrite(G,255);
      analogWrite(B,255);
  break;
  case 'g'://顯示綠色
      analogWrite(R,255);
      analogWrite(G,0);
      analogWrite(B,255);
  break;
  case 'b'://顯示藍色
      analogWrite(R,255);
      analogWrite(G,255);
      analogWrite(B,0);
  break;}
}
```