Arduino課程
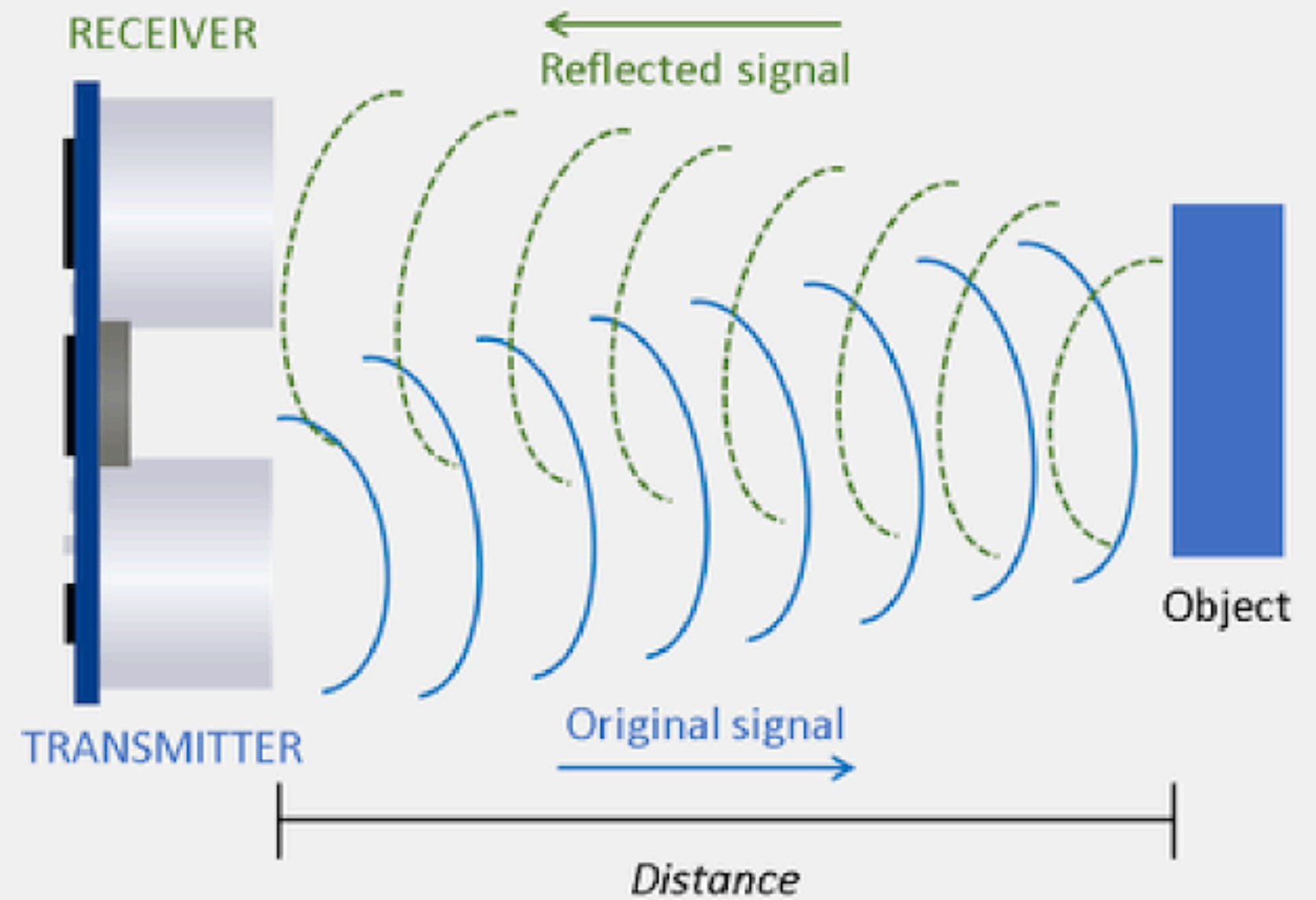
2023/12/22

內容

涵蓋主題

按鍵

超聲波

蜂鳴器-有源、無源

實作
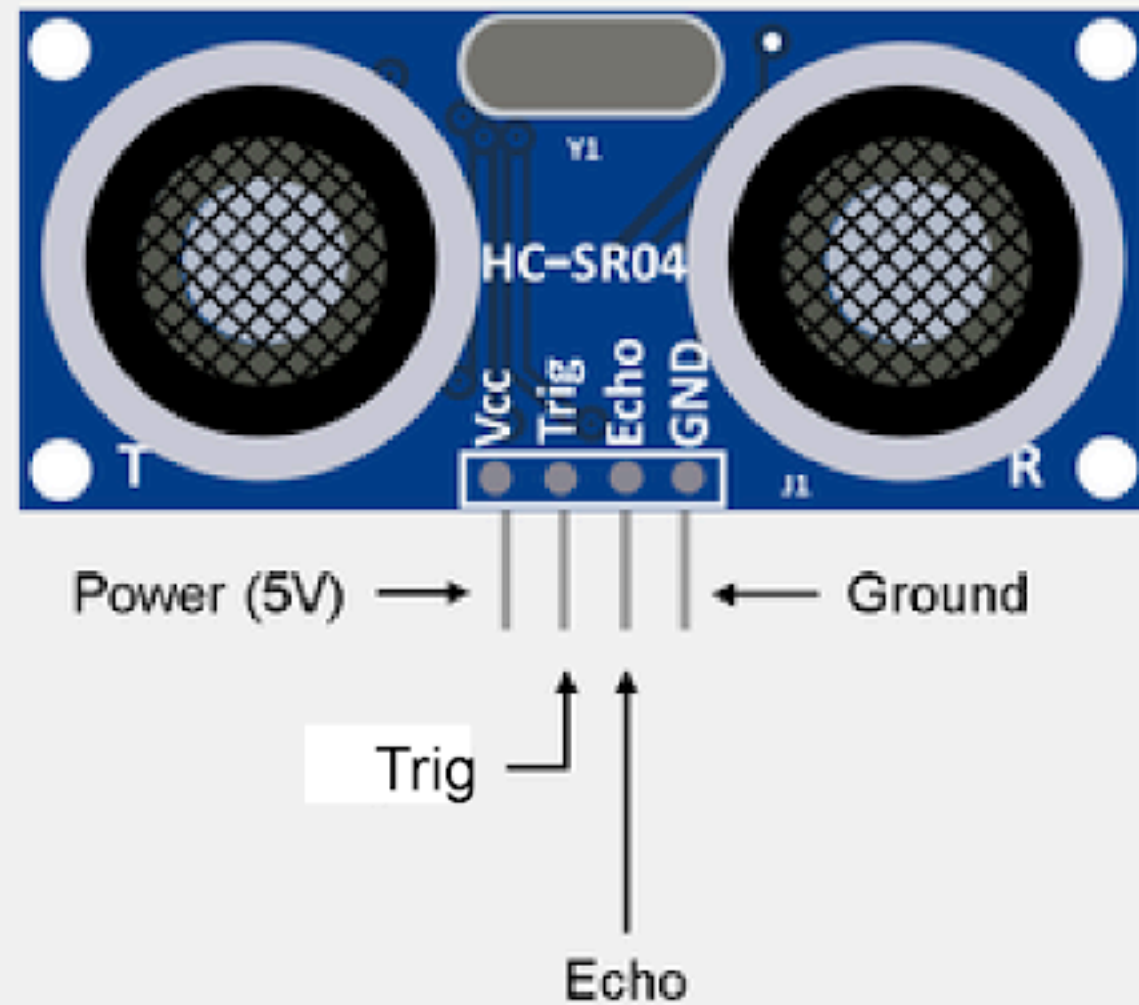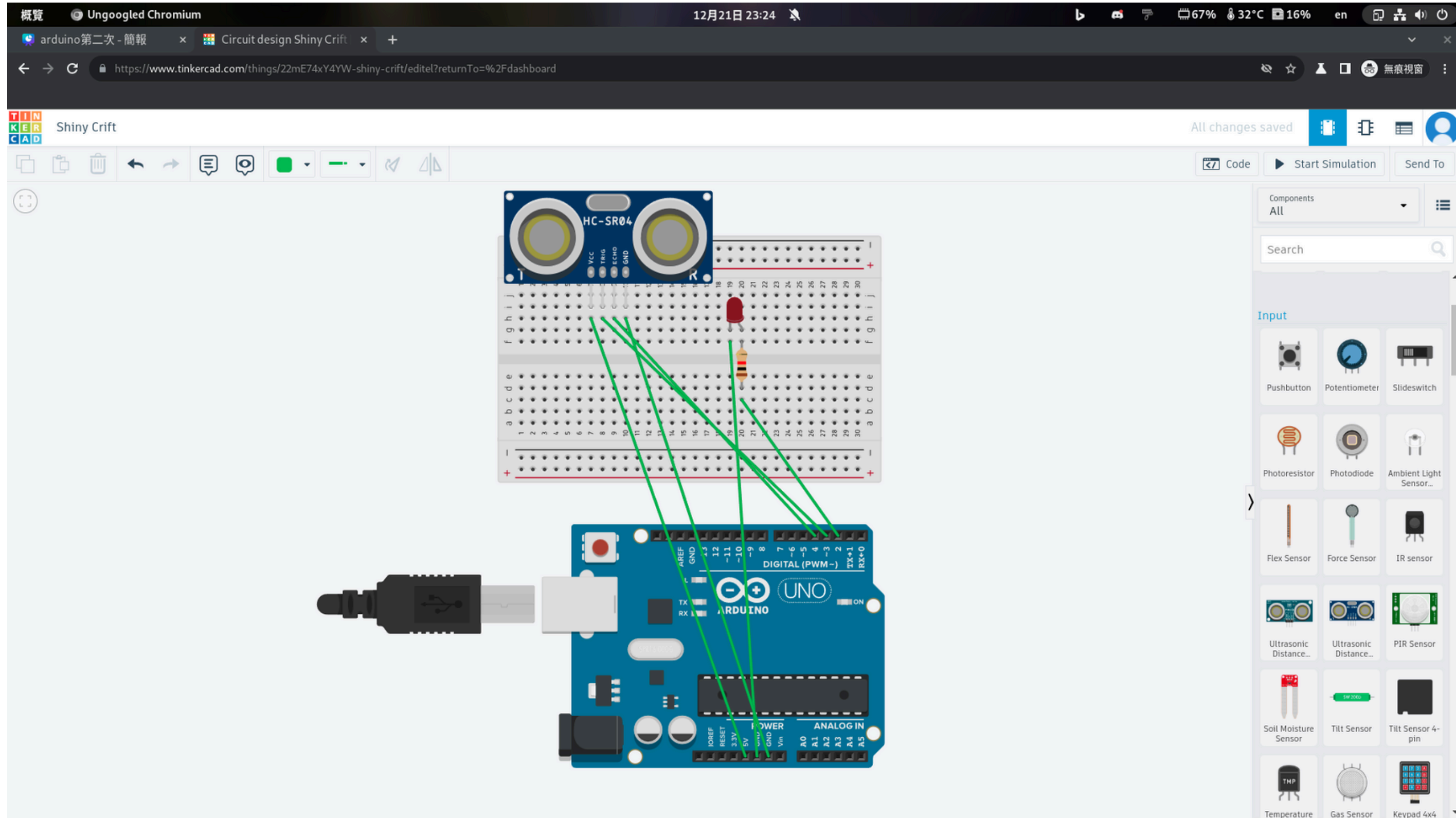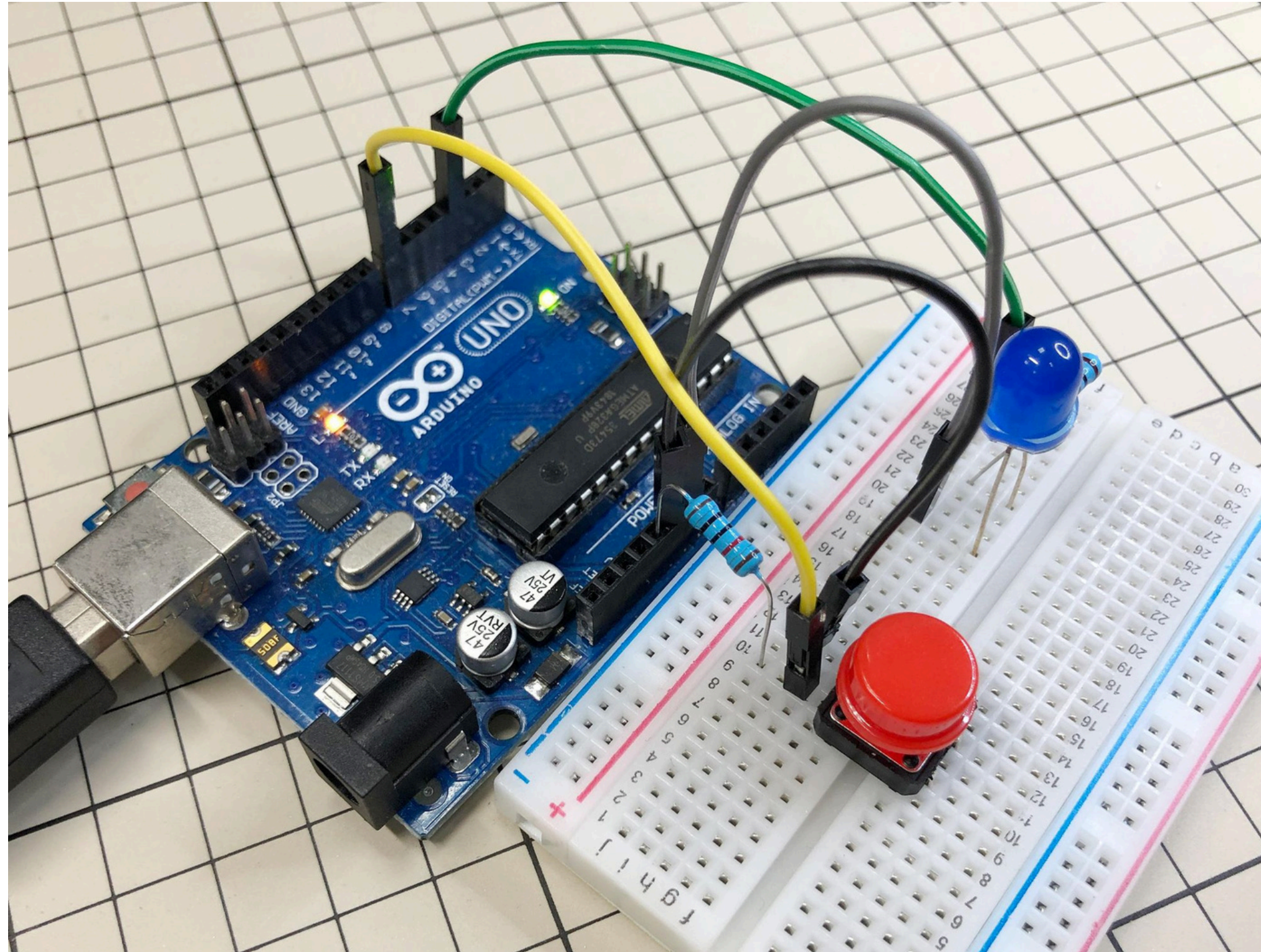
IG @scaict.2024_wintercamp
wc.scaict.org

Arduino超聲波

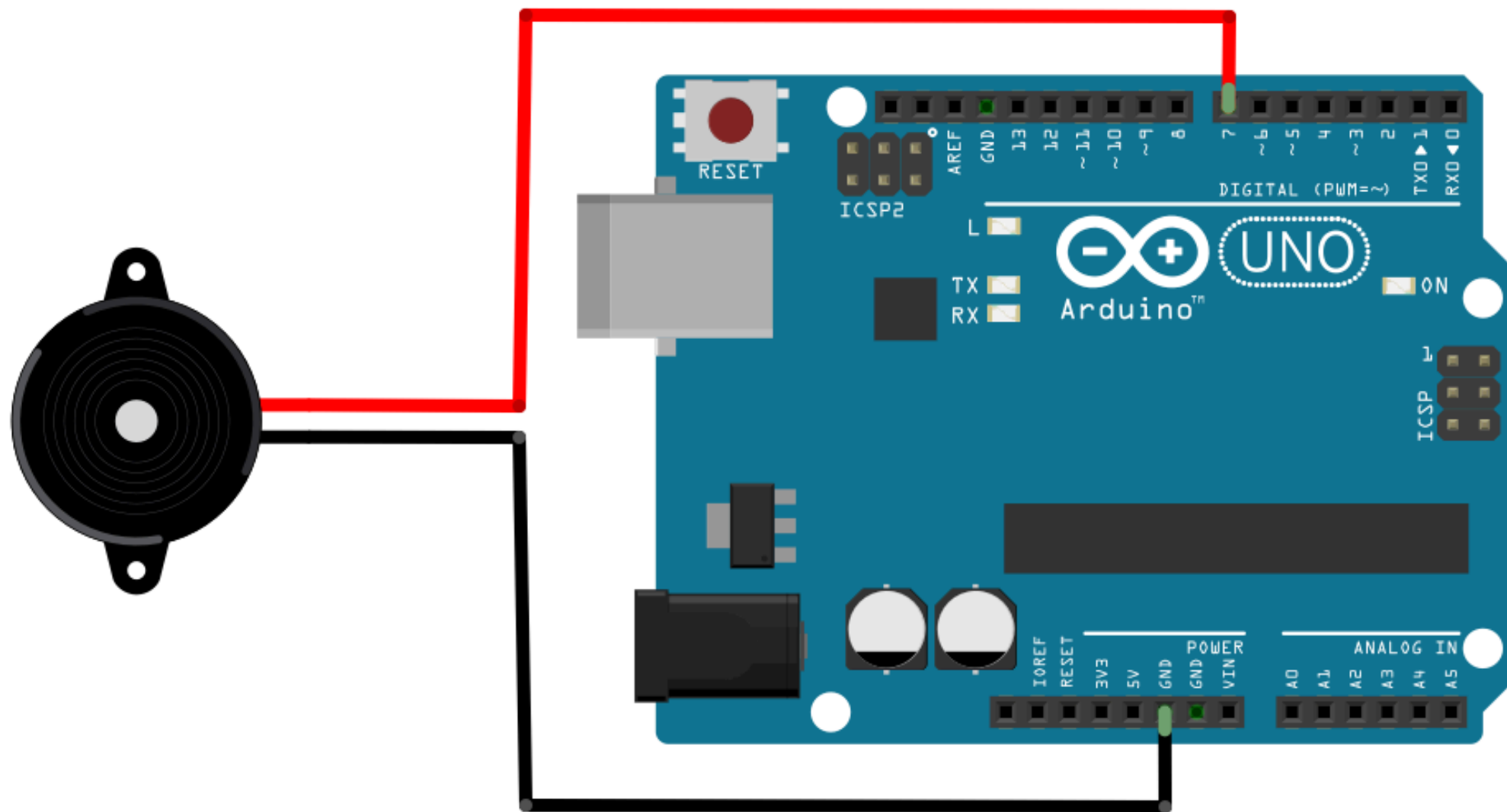# 實作-超聲波+LED

gist

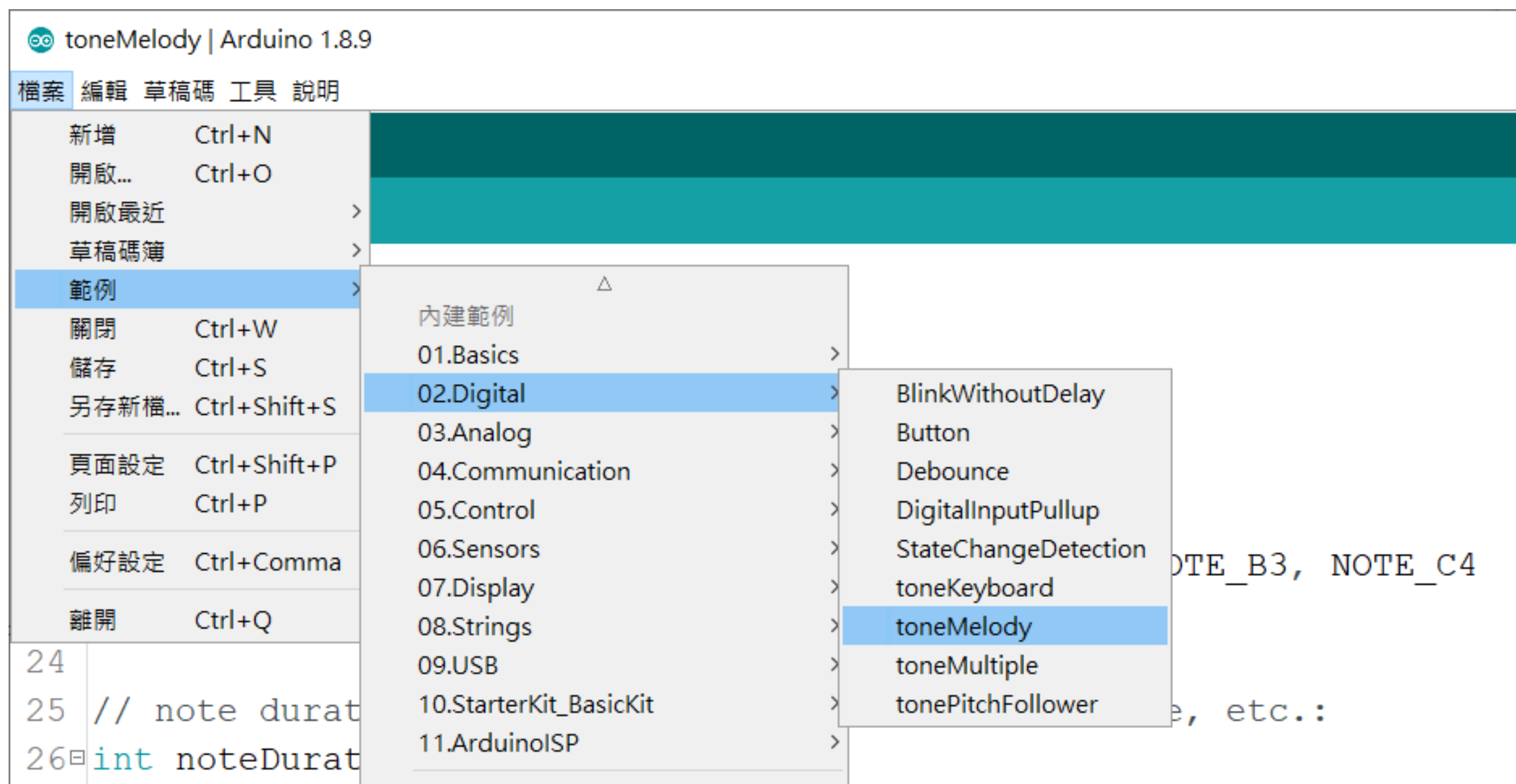# Arduino按鍵

Arduino蜂鳴器

有源　　　無源

可以發出音調

有源蜂鳴器

```
void setup() {
  pinMode(7,OUTPUT);
}

void loop() {
  digitalWrite(7,HIGH);
  delay(1000);
  digitalWrite(7,LOW);
  delay(2000);
}
```

無源蜂鳴器

實作-無源蜂鳴器-Rickroll

```c
int melody[] = {

  // Never Gonna Give You Up - Rick Astley
  // Score available at https://musescore.com/chlorondria_5/never-gonna-give-you-up_alto-sax
  // Arranged by Chlorondria

  NOTE_D5,-4, NOTE_E5,-4, NOTE_A4,4, //1
  NOTE_E5,-4, NOTE_FS5,-4, NOTE_A5,16, NOTE_G5,16, NOTE_FS5,8,
  NOTE_D5,-4, NOTE_E5,-4, NOTE_A4,2,
  NOTE_A4,16, NOTE_A4,16, NOTE_B4,16, NOTE_D5,8, NOTE_D5,16,
  NOTE_D5,-4, NOTE_E5,-4, NOTE_A4,4, //repeat from 1
  NOTE_E5,-4, NOTE_FS5,-4, NOTE_A5,16, NOTE_G5,16, NOTE_FS5,8,
  NOTE_D5,-4, NOTE_E5,-4, NOTE_A4,2,
  NOTE_A4,16, NOTE_A4,16, NOTE_B4,16, NOTE_D5,8, NOTE_D5,16,
  REST,4, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_D5,8, NOTE_E5,8, NOTE_CS5,-8,
  NOTE_B4,16, NOTE_A4,2, REST,4,

  REST,8, NOTE_B4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,4, NOTE_A4,8, //7
  NOTE_A5,8, REST,8, NOTE_A5,8, NOTE_E5,-4, REST,4,
  NOTE_B4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8, NOTE_D5,8, NOTE_E5,8, REST,8,
  REST,8, NOTE_CS5,8, NOTE_B4,8, NOTE_A4,-4, REST,4,
  REST,8, NOTE_B4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8, NOTE_A4,4,
  NOTE_E5,8, NOTE_E5,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,4, REST,4,

  NOTE_D5,2, NOTE_E5,8, NOTE_FS5,8, NOTE_D5,8, //13
  NOTE_E5,8, NOTE_E5,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,4, NOTE_A4,4,
  REST,2, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8,
  REST,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,-4, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16,
  NOTE_FS5,-8, NOTE_FS5,-8, NOTE_E5,-4, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16,

  NOTE_E5,-8, NOTE_E5,-8, NOTE_D5,-8, NOTE_CS5,16, NOTE_B4,-8, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16,
NOTE_B4,16, //18
  NOTE_D5,4, NOTE_E5,8, NOTE_CS5,-8, NOTE_B4,16, NOTE_A4,8, NOTE_A4,8, NOTE_A4,8,
  NOTE_E5,4, NOTE_D5,2, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16,
  NOTE_FS5,-8, NOTE_FS5,-8, NOTE_E5,-4, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16,
  NOTE_A5,4, NOTE_CS5,8, NOTE_D5,-8, NOTE_CS5,16, NOTE_B4,8, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16,
NOTE_B4,16,

  NOTE_D5,4, NOTE_E5,8, NOTE_CS5,-8, NOTE_B4,16, NOTE_A4,4, NOTE_A4,8,  //23
  NOTE_E5,4, NOTE_D5,2, REST,4,
  REST,8, NOTE_B4,8, NOTE_D5,8, NOTE_B4,8, NOTE_D5,8, NOTE_E5,4, REST,8,
  REST,8, NOTE_CS5,8, NOTE_B4,8, NOTE_A4,-4, REST,4,
  REST,8, NOTE_B4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8, NOTE_A4,4,
  REST,8, NOTE_A5,8, NOTE_A5,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,8, NOTE_D5,8,

  REST,8, NOTE_A4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8, //29
  REST,8, NOTE_CS5,8, NOTE_B4,8, NOTE_A4,-4, REST,4,
  NOTE_B4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8, NOTE_A4,4, REST,8,
  REST,8, NOTE_E5,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,-4,
  NOTE_D5,2, NOTE_D5,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,4,
  NOTE_E5,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,8, NOTE_A4,8, NOTE_A4,4,

  REST,-4, NOTE_A4,8, NOTE_B4,8, NOTE_CS5,8, NOTE_D5,8, NOTE_B4,8, //35
  REST,8, NOTE_E5,8, NOTE_FS5,8, NOTE_E5,-4, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16,
  NOTE_FS5,-8, NOTE_FS5,-8, NOTE_E5,-4, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16,
  NOTE_E5,-8, NOTE_E5,-8, NOTE_D5,-8, NOTE_CS5,16, NOTE_B4,8, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16,
NOTE_B4,16,
  NOTE_D5,4, NOTE_E5,8, NOTE_CS5,-8, NOTE_B4,16, NOTE_A4,4, NOTE_A4,8,

  NOTE_E5,4, NOTE_D5,2, NOTE_A4,16, NOTE_B4,16, NOTE_D5,16, NOTE_B4,16, //40
```
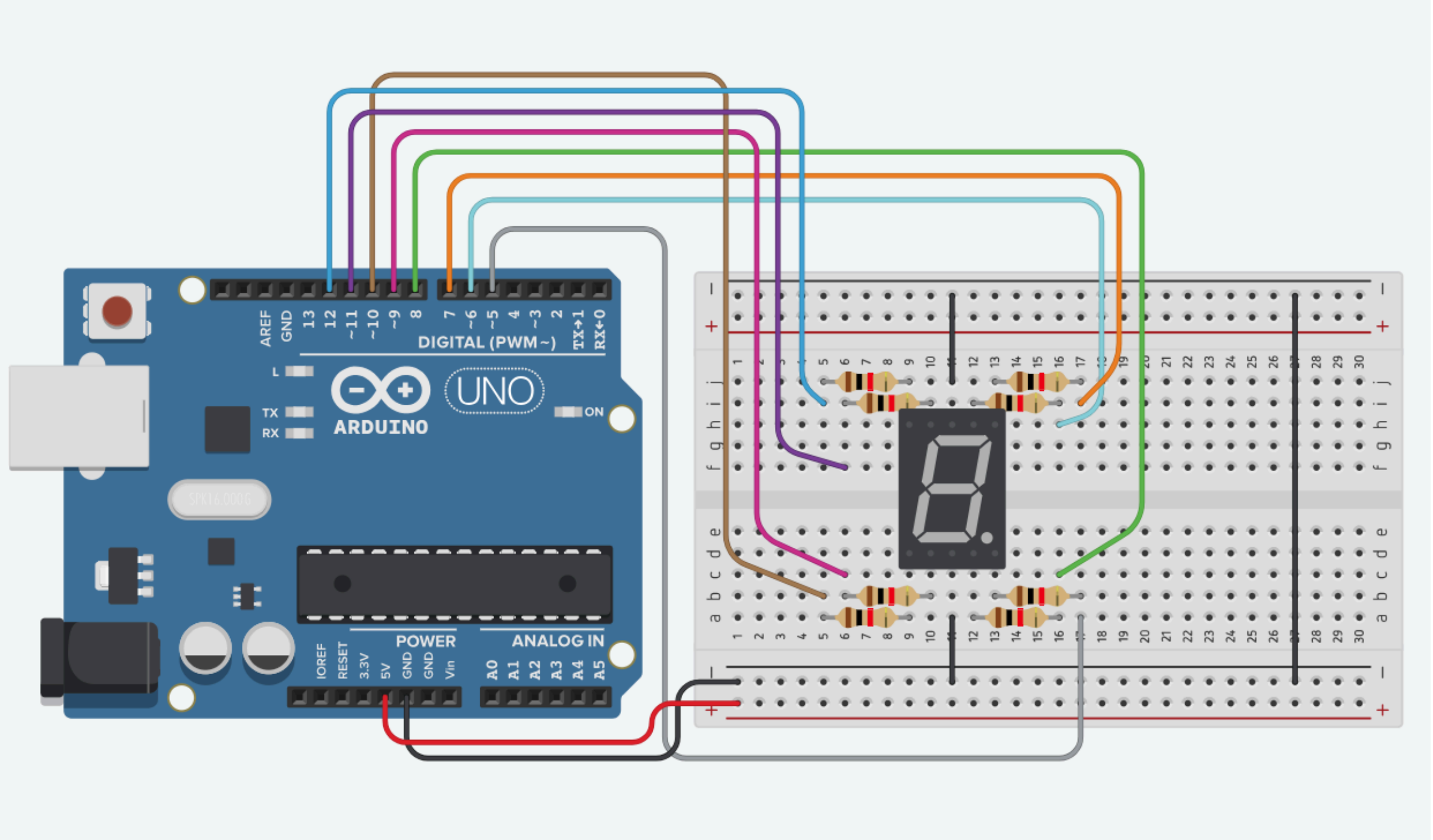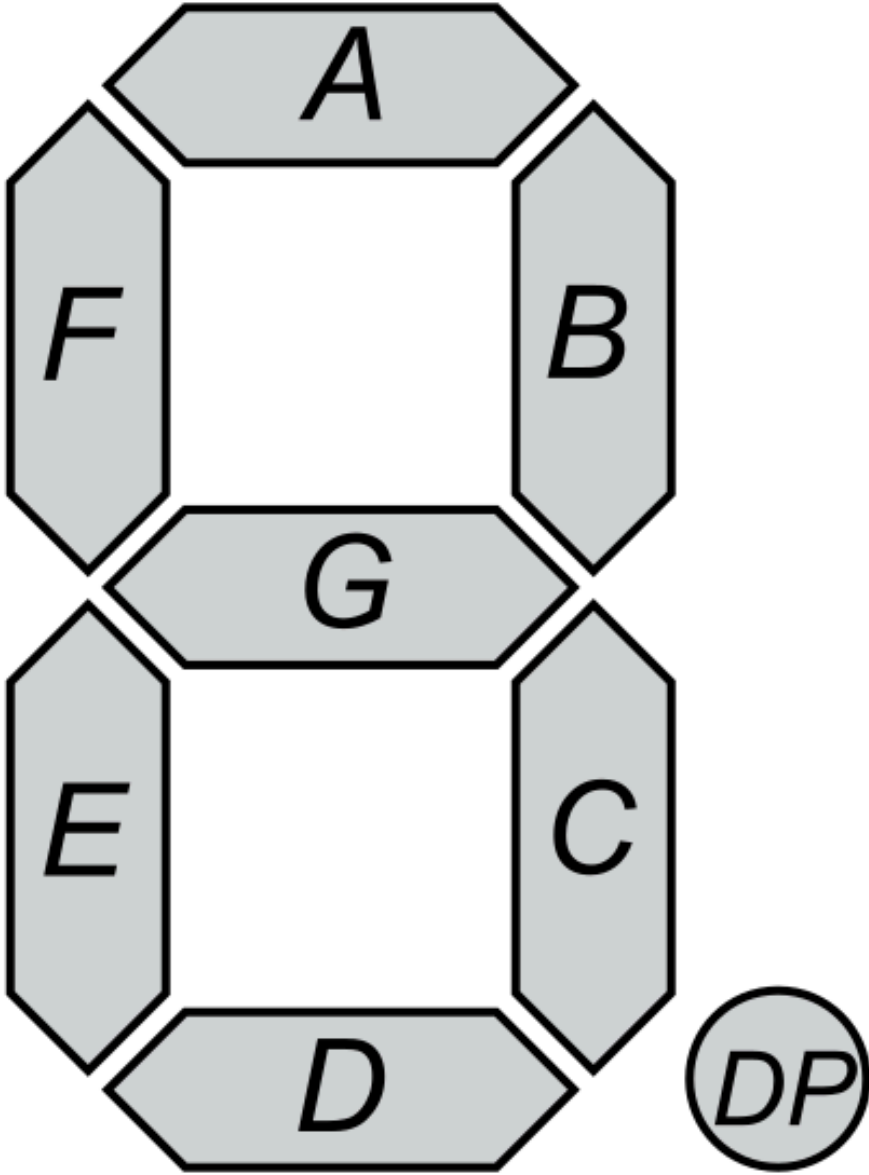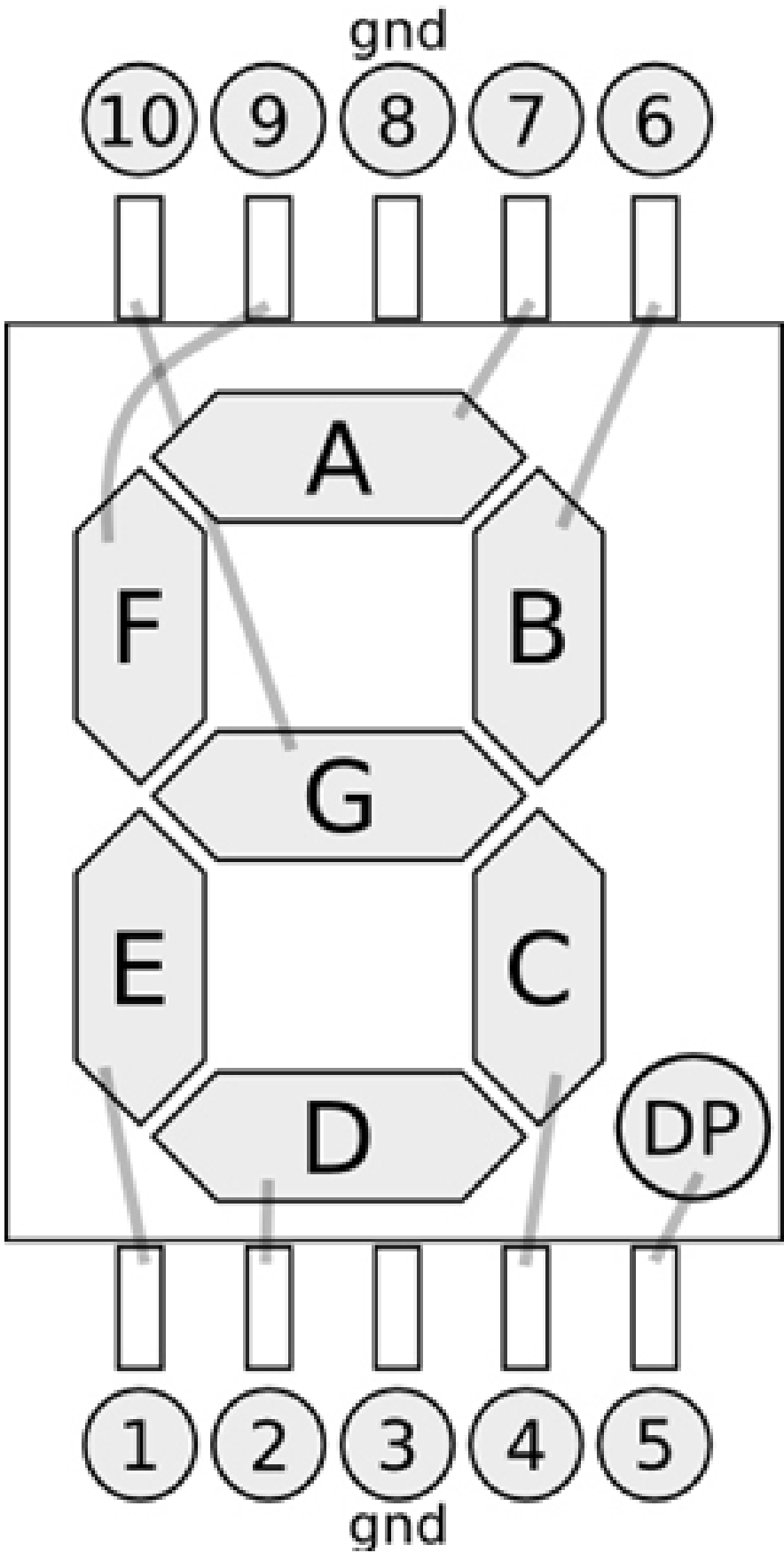
7段顯示器

7段顯示器

顯示數字	dp	a	b	c	d	e	f	g
0	0	1	1	1	1	1	1	0
1	0	0	1	1	0	0	0	0
2	0	1	1	0	1	1	0	1
3	0	1	1	1	1	0	0	1
4	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1
6	0	1	0	1	1	1	1	1
7	0	1	1	1	0	0	0	0
8	0	1	1	1	1	1	1	1
9	0	1	1	1	1	0	1	1

謝謝聆聽！

下次社課時間:1/5