電通二乙微處理器實驗 實驗結報

實驗名稱	Lab 01-Startup		
組別	13	組員	阮翊銜

1. 實驗目的

使用 Tinkercad 模擬 Arduino Uno 電路及程式
繪製電路圖
觀察 Arduino UNO 之輸出
學習將程式碼及實驗報告上傳至 Github

2. 實驗步驟

1. 填寫分組表單
2. 啟動 Arduino IDE,載入 Blink 程式碼
3. 至 www.tinkercad.com 註冊帳號，啟動 Arduino 模擬器
4. 接上 LED 電路
5. 修改程式，將 LED 輸出改為 Pin9
6. 觀察 LED 之閃爍間隔
7. 修改程式,使 LED 閃爍間隔分別增加為 2 倍及 1/2 倍,重新量測並截圖
8. 畫出電路圖

3. 程式碼

1

Text

1 (Arduino Uno R3)

```
1  void setup() {
2    // initialize digital pin LED_BUILTIN as an output.
3    pinMode(LED_BUILTIN, OUTPUT);
4  }
5
6  // the loop function runs over and over again forever
7  void loop() {
8    digitalWrite(LED_BUILTIN, HIGH);   // turn the LED on (HIGH is th
9    delay(1000);                       // wait for a second
10   digitalWrite(LED_BUILTIN, LOW);    // turn the LED off by making
11   delay(1000);                       // wait for a second
12 }
```

2-1

Text 1 (Arduino Uno R3)

```
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(9, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(9, HIGH);   // turn the LED on (HIGH is the voltage
  delay(2000);                       // wait for a second
  digitalWrite(9, LOW);    // turn the LED off by making the voltag
  delay(2000);                       // wait for a second
}
```

2-2

Text 1 (Arduino Uno R3)

```
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(9, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(9, HIGH);   // turn the LED on (HIGH is the voltage
  delay(500);                        // wait for a second
  digitalWrite(9, LOW);    // turn the LED off by making the voltag
  delay(500);                        // wait for a second
}
```

4. 實驗結果及分析

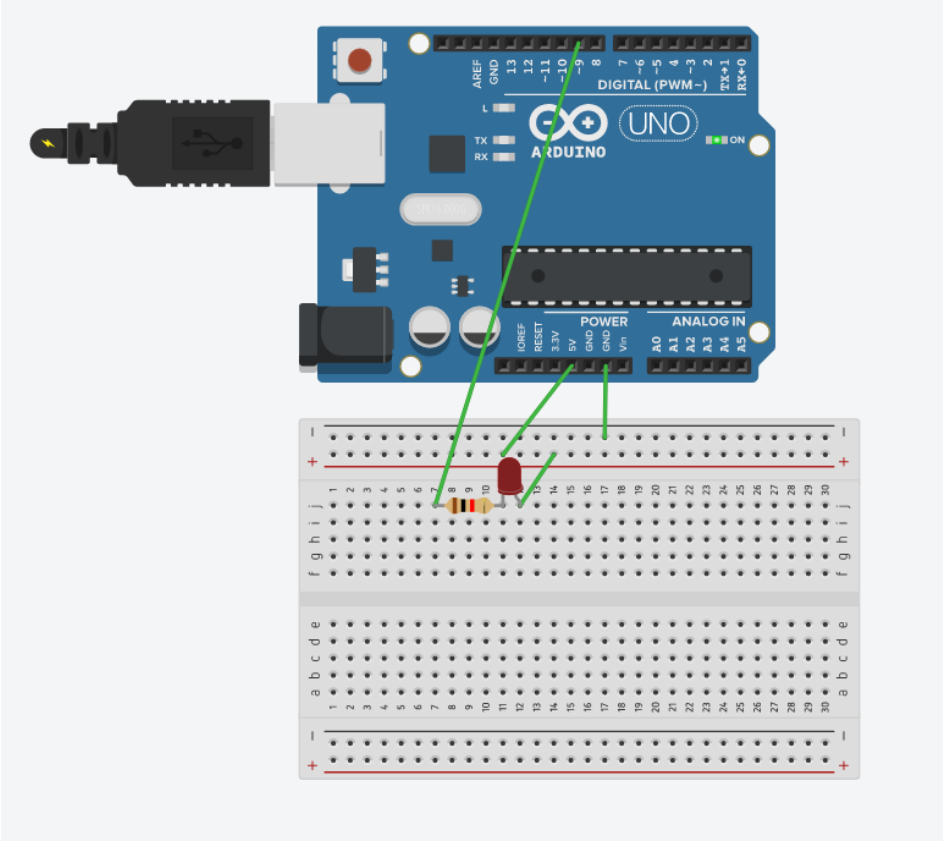
成功模擬閃爍，分別為 0.5 秒、1 秒及 2 秒。

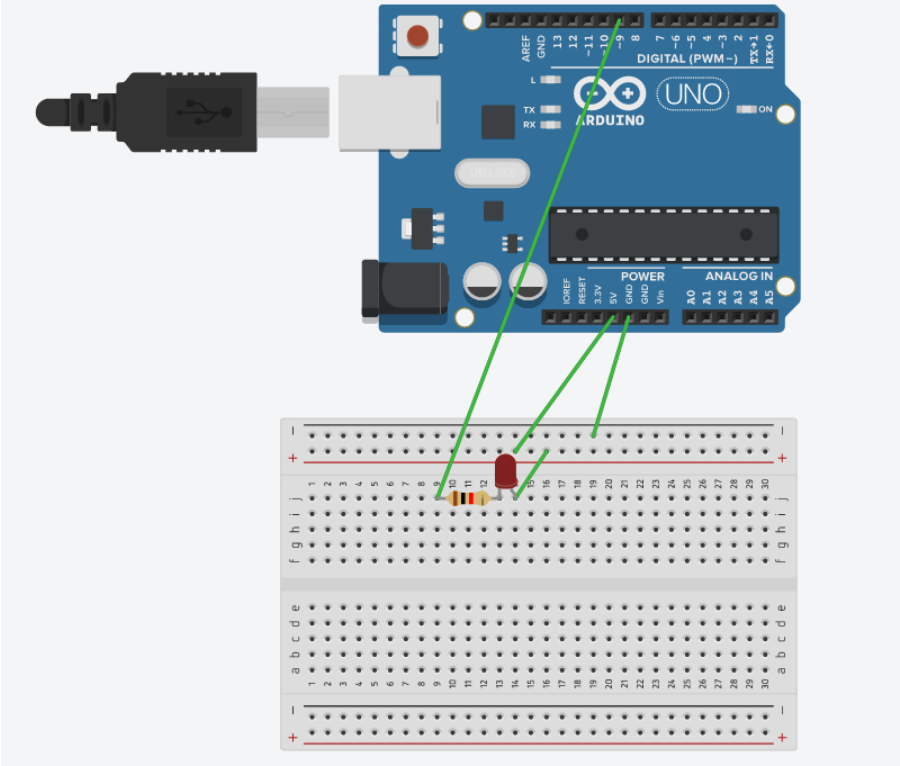
更改 delay 時間就可以變更閃爍時間。

5. 心得討論

Delay 的時間要特別注意是 ms 不是 s。

電路圖


DIGITAL (PWM~)
UNO
ARDUINO
POWER
ANALOG IN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