**電通二甲微處理器實驗 實驗結報**

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| **實驗名稱** | **Lab 03 類比輸入** | | |
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1. **實驗目的**

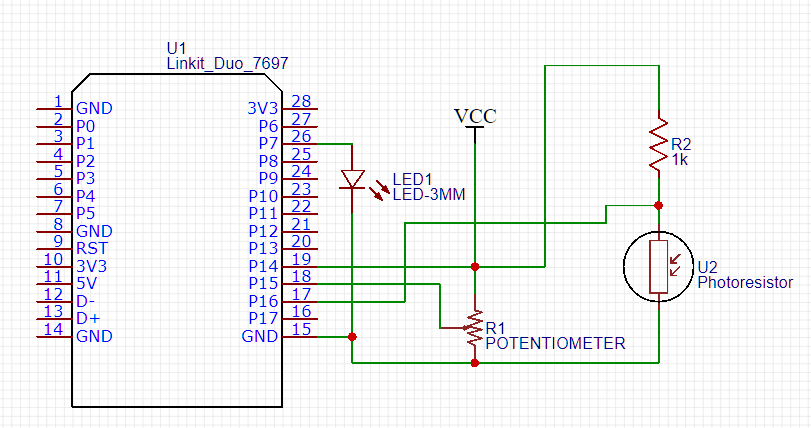
**Checkpoint1 是否可以透過USB Serial輸入 控制LED亮滅**

**Checkpoint2 量測A0腳位之電源供應器之輸出電壓**

**Checkpoint3 調整可變電旋鈕，量測A1腳位之電壓**

**Checkpoint4 調整光敏電阻之入光亮，量測A2腳位之模擬電壓**

1. **電路圖**



1. **程式碼**

**const int ledpin = 7;**

**const double MAX\_Vin = 2.5;**

**const int MAX\_Resolution = 4095;**

**const int R = 1000000;**

**const int R\_Cds = 1000;**

**void setup()**

**{**

**pinMode(ledpin,OUTPUT);**

**Serial.begin(9600);**

**Serial.println("Welcome to the Arduino !");**

**Serial.println("hello world");**

**}**

**double Analogin\_VIN = 0;**

**double Vin = 0;**

**double Potentiometer\_Voltage = 0;**

**double Analogin\_Potentiometer = 0;**

**double Potentiometer\_Rx = 0;**

**double Potentiometer\_R1 = 0;**

**double Cds\_Voltage = 0;**

**double Analogin\_Cds = 0;**

**double Cds\_R = 0;**

**void loop()**

**{**

**delay(10); // Delay a little bit to improve simulation performance**

**//LED連接確認**

**if(Serial.available()){**

**int read = Serial.read();**

**if(read == '1'){**

**Serial.println("LED is on !");**

**digitalWrite(ledpin,HIGH);**

**}**

**else if(read == '0'){**

**Serial.println("LED is off !");**

**digitalWrite(ledpin,LOW);**

**}**

**}**

**//測量電壓**

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

**Analogin\_VIN = 0.7\* Analogin\_VIN+ 0.3\* analogRead(A0);**

**}**

**Vin = Analogin\_VIN\*MAX\_Vin/MAX\_Resolution;**

**//測量可變電阻**

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

**Analogin\_Potentiometer = 0.7\* Analogin\_Potentiometer+ 0.3\* analogRead(A1);**

**}**

**Potentiometer\_Voltage = Analogin\_Potentiometer\*MAX\_Vin/MAX\_Resolution;**

**Potentiometer\_Rx = Potentiometer\_Voltage\*R/Vin ;**

**Potentiometer\_R1 = R-Potentiometer\_Rx;**

**//測量光敏電阻**

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

**Analogin\_Cds = 0.7\* Analogin\_Cds+ 0.3\* analogRead(A2);**

**}**

**Cds\_Voltage = Analogin\_Cds\*MAX\_Vin/MAX\_Resolution;**

**Cds\_R = (Cds\_Voltage\*R\_Cds\*2)/(-2\*Cds\_Voltage+5);**

**//print**

**Serial.print("Vin=");**

**Serial.print(Vin);**

**Serial.print("\t");**

**Serial.print("analog\_VIN=");**

**Serial.print(Analogin\_VIN);**

**Serial.print("\t");**

**Serial.print("Potentiometer\_Voltage=");**

**Serial.print(Potentiometer\_Voltage);**

**Serial.print("\t");**

**Serial.print("analog\_Potentiometer=");**

**Serial.print(Analogin\_Potentiometer);**

**Serial.print("\t");**

**Serial.print("Potentiometer\_R1=");**

**Serial.print(Potentiometer\_R1);**

**Serial.print("\t");**

**Serial.print("Potentiometer\_Rx=");**

**Serial.print(Potentiometer\_Rx);**

**Serial.print("\t");**

**Serial.print("Cds\_Voltage=");**

**Serial.print(Cds\_Voltage);**

**Serial.print("\t");**

**Serial.print("analog\_Cds=");**

**Serial.print(Analogin\_Cds);**

**Serial.print("\t");**

**Serial.print("Cds\_R=");**

**Serial.print(Cds\_R);**

**Serial.print("\n");**

**delay(200);**

**}**

1. **心得討論**

**這次是我電子電路，突然對分壓感到絕望，好幾次都做錯，結果隔周才 完成。**

1. 參考範例圖

