

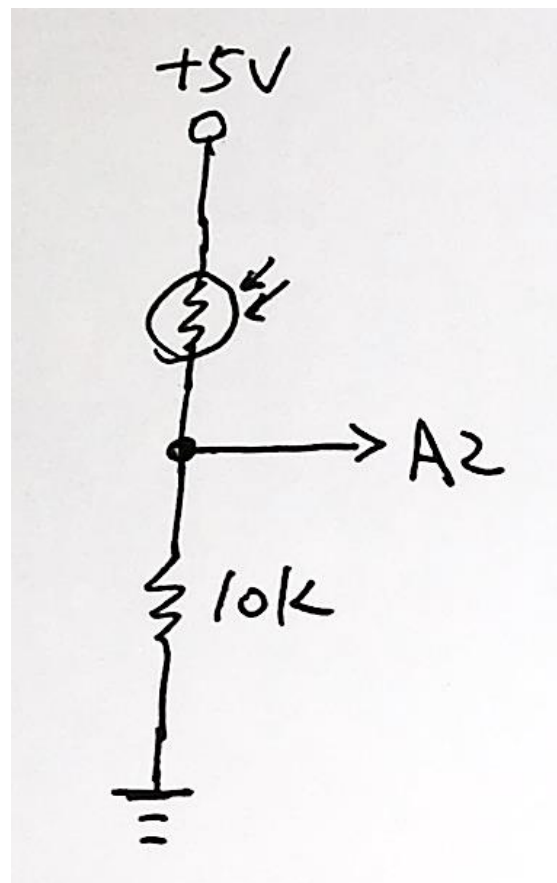
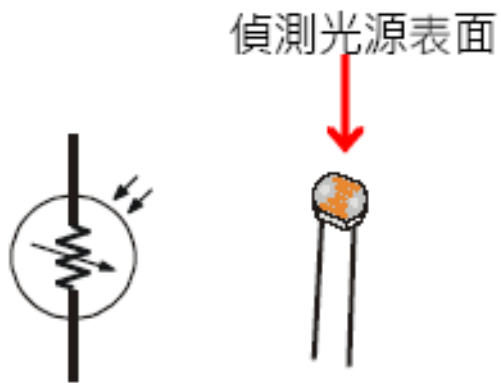
Lecture 11/28 – 光電晶體

Phototransistor

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光敏電阻測試



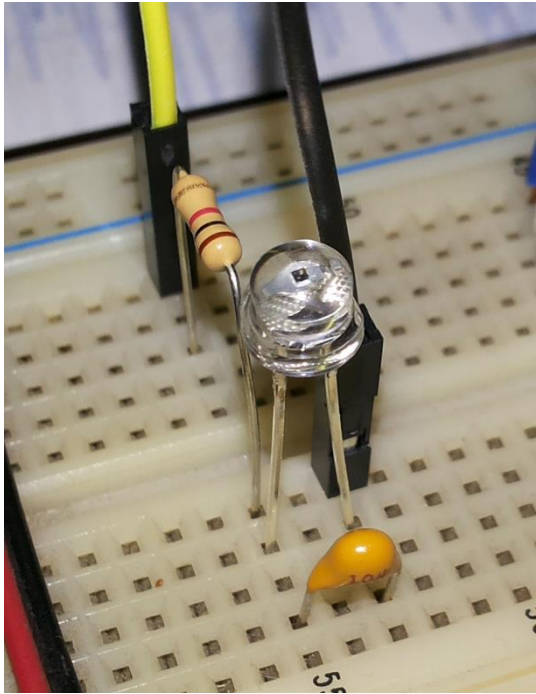
```
int sensorPin = 2;  
int LED = 9;  
int value = 0;
```

```
void setup() {  
    Serial.begin(9600);  
    pinMode(LED,OUTPUT);  
}
```

```
void loop(){  
    value = analogRead(sensorPin);  
  
    Serial.print("Read:");  
    Serial.print(value, DEC);  
  
    //把AD值200-800 Scale to 0-255  
    value = map(value, 200, 800, 0, 255);  
  
    Serial.print(" Write:");  
    analogWrite(LED,value);  
    Serial.println(value, DEC);  
    delay(100);  
}
```

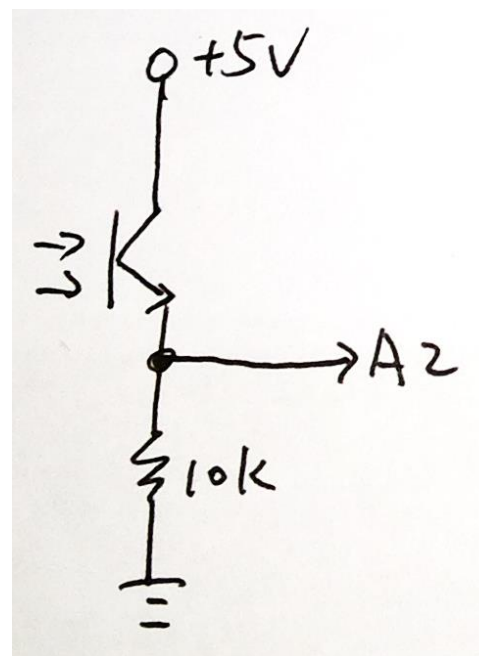
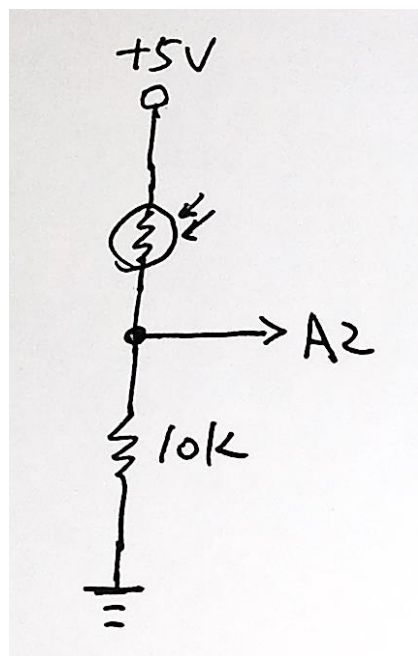
光電晶體 Phototransistor

- 光電晶體，與電晶體相同，以光線強弱來控制通過電流的大小。



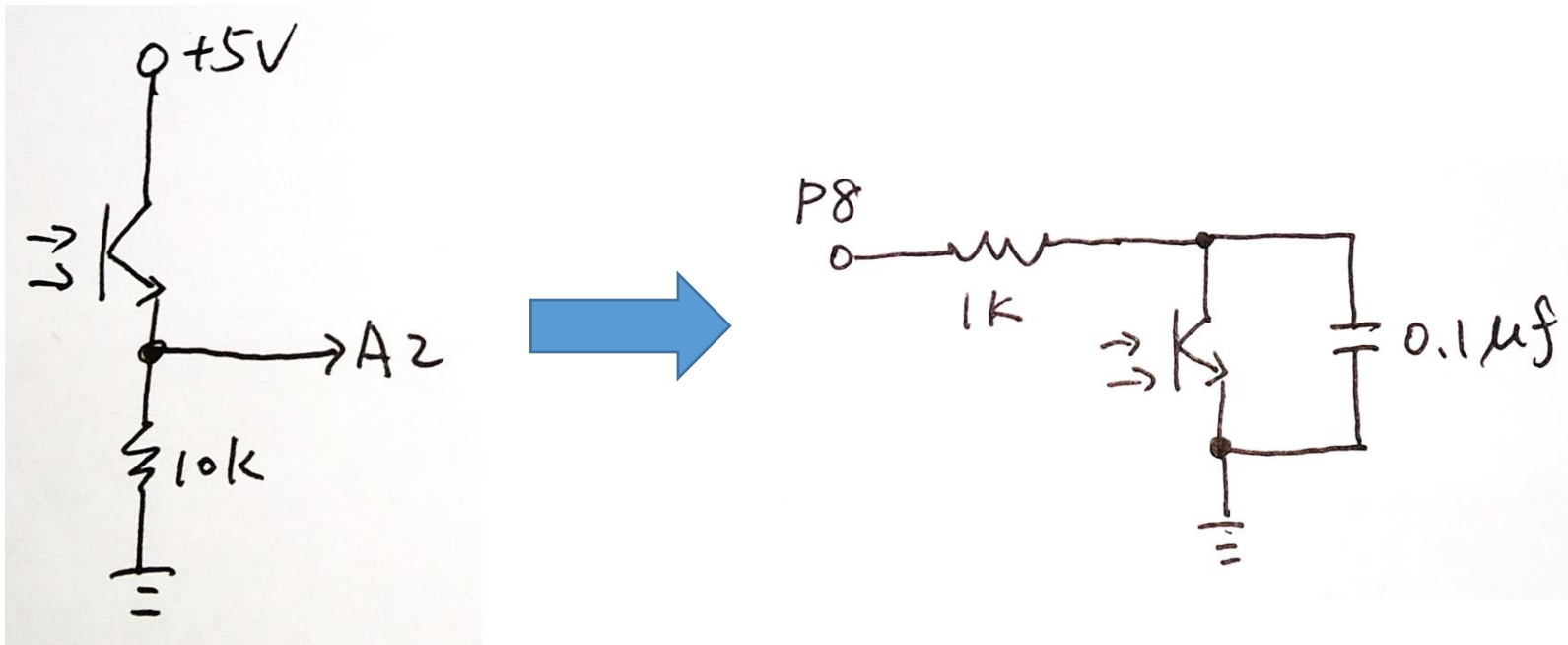
光電晶體測試 1

- 使用光敏電阻電路，改用光電晶體取代光敏電阻測試



光電晶體測試 2

- 減少環境光影響，利用光電晶體改變電容充放電時間



光電晶體測試 2 程式碼

```
int sensorPin = 8;
void setup() {
    Serial.begin(9600);
}
```

```
long rcTime(int pin){
    pinMode(pin,OUTPUT);
    digitalWrite(pin, HIGH);
    delay(5);
    pinMode(pin, INPUT);
    digitalWrite(pin, LOW);
    long time = micros();
    while(digitalRead(pin));
    time = micros() - time;
    return time;
}
```

```
void loop(){
    long value =
    rcTime(sensorPin);
    Serial.print("Read: ");
    Serial.print(value, DEC);
    Serial.println(" us");
    delay(1000);
}
```

