

# **Formation Arduino**

**27 mars 2019**

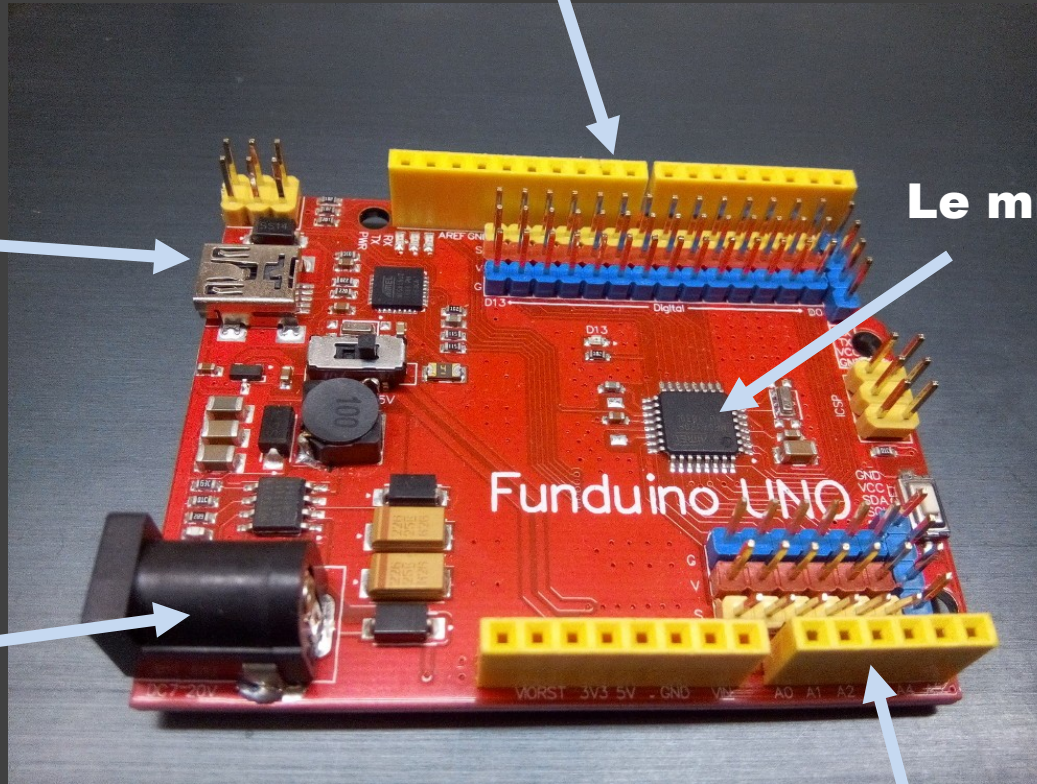
# La carte Arduino

**Entrées/sorties numériques (0 ou 5V)**

**Le port USB**

**Le microcontrôleur**

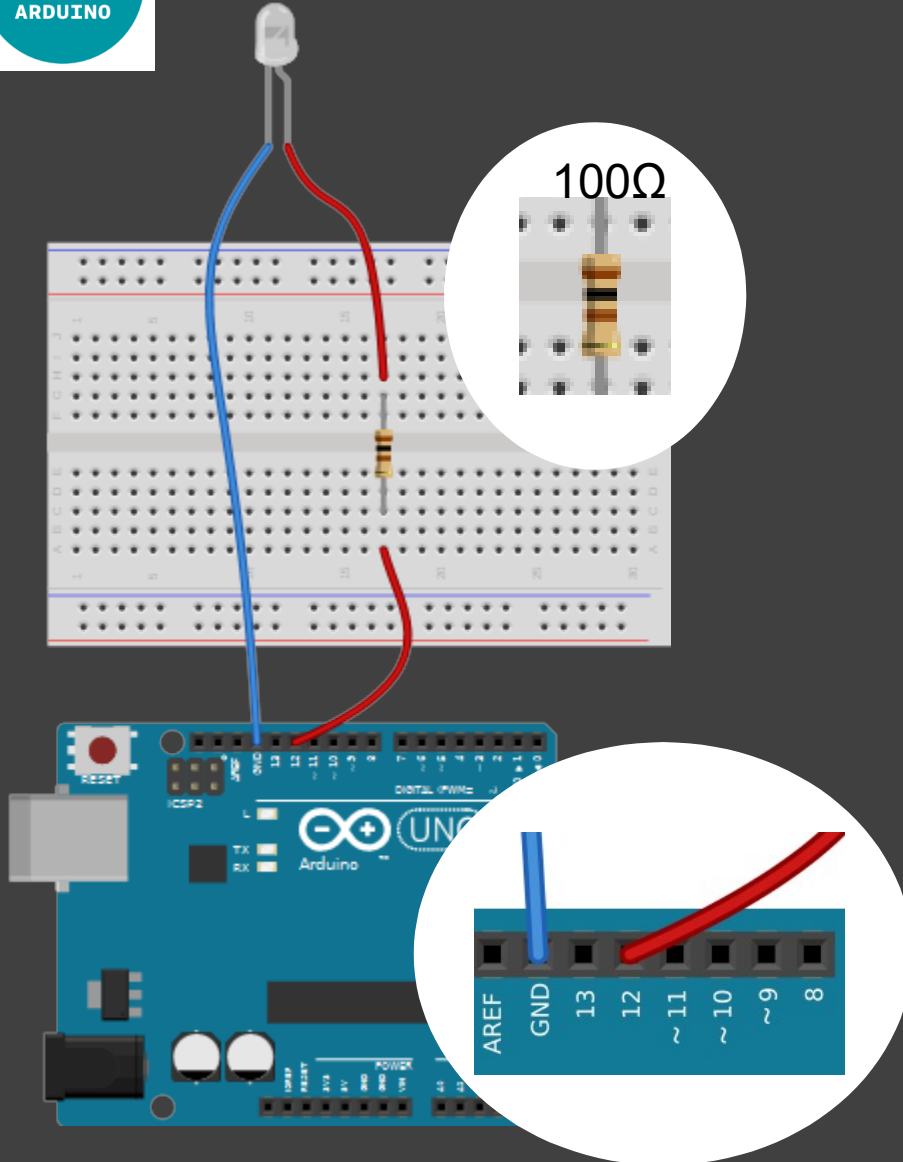
**L'alimentation**



**Entrées analogiques (de 0 à 5V)**

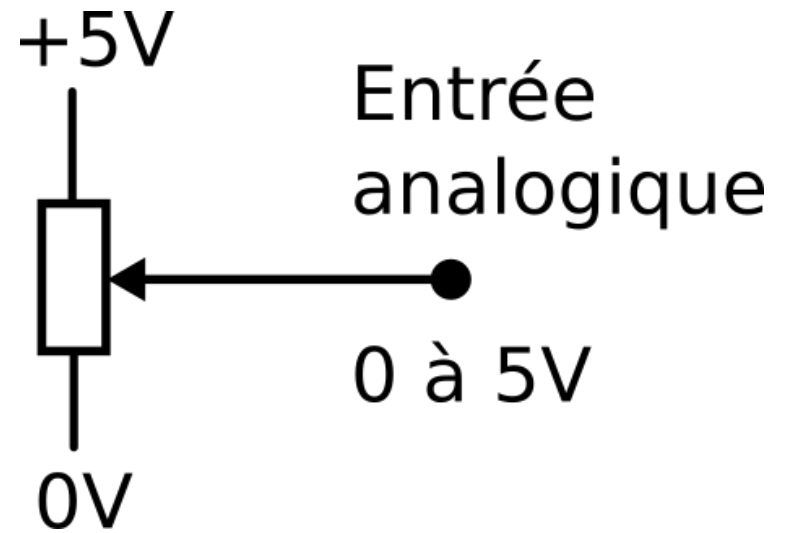
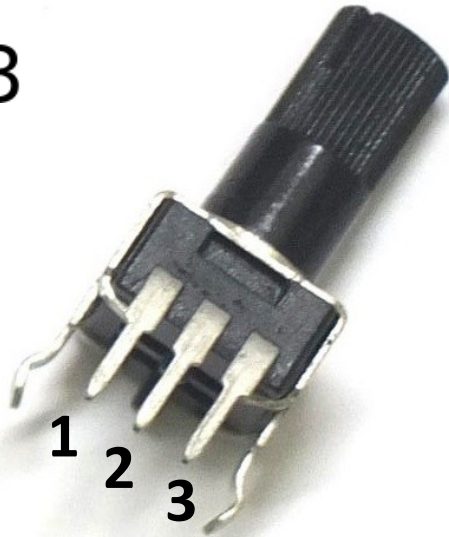
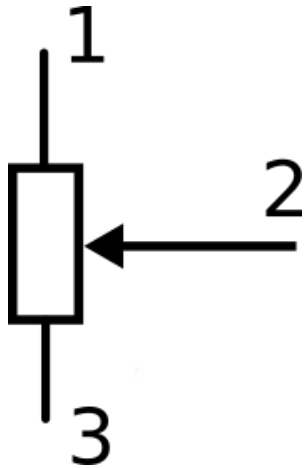


# Premier programme



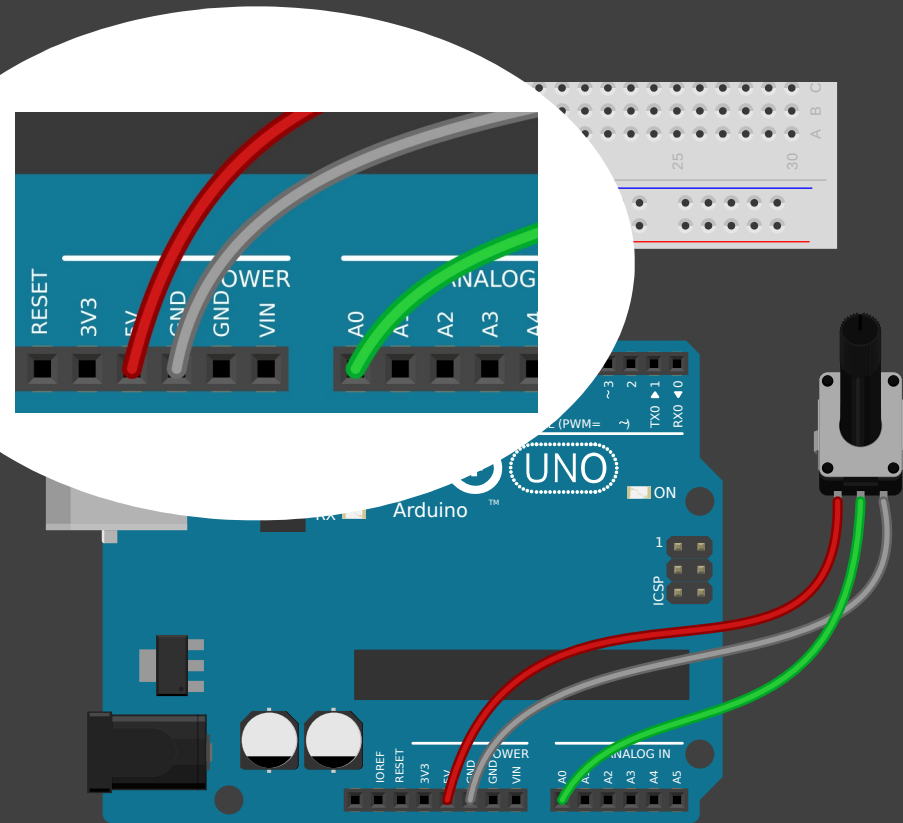
```
void setup() {  
    pinMode(12, OUTPUT);  
}  
  
void loop() {  
    digitalWrite(12, HIGH);  
    delay(500);  
    digitalWrite(12, LOW);  
    delay(500);  
}
```

# Le potentiomètre





# Un stroboscope

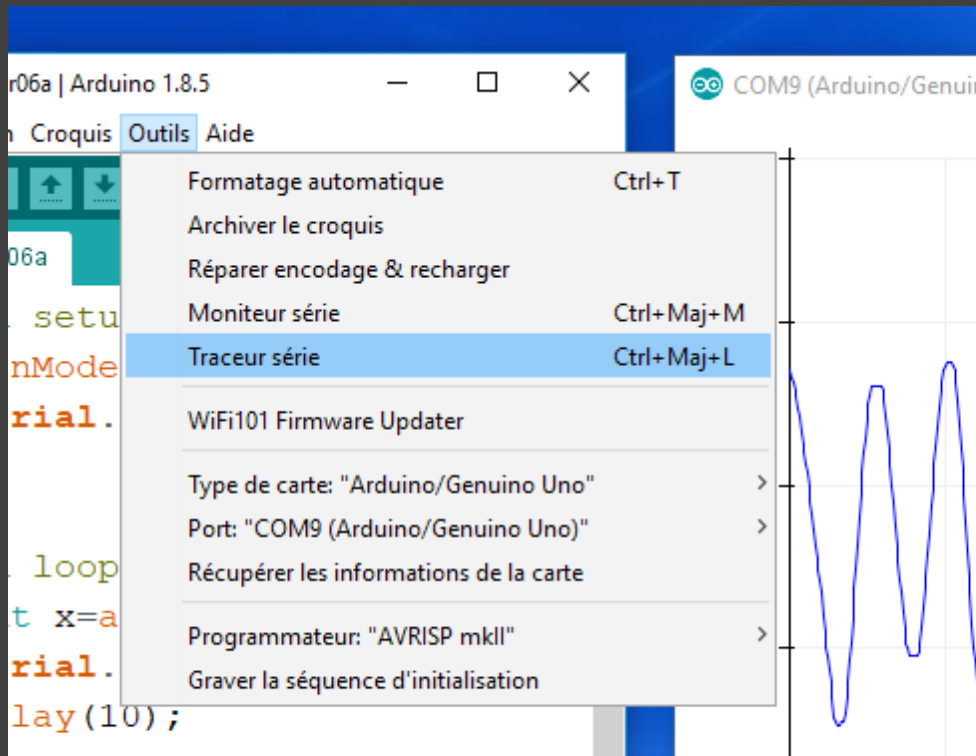


```
void setup() {  
    pinMode(12, OUTPUT);  
}  
  
void loop() {  
    int x;  
    x = analogRead(A0);  
    digitalWrite(12, HIGH);  
    delay(10);  
    digitalWrite(12, LOW);  
    delay(x);  
}
```



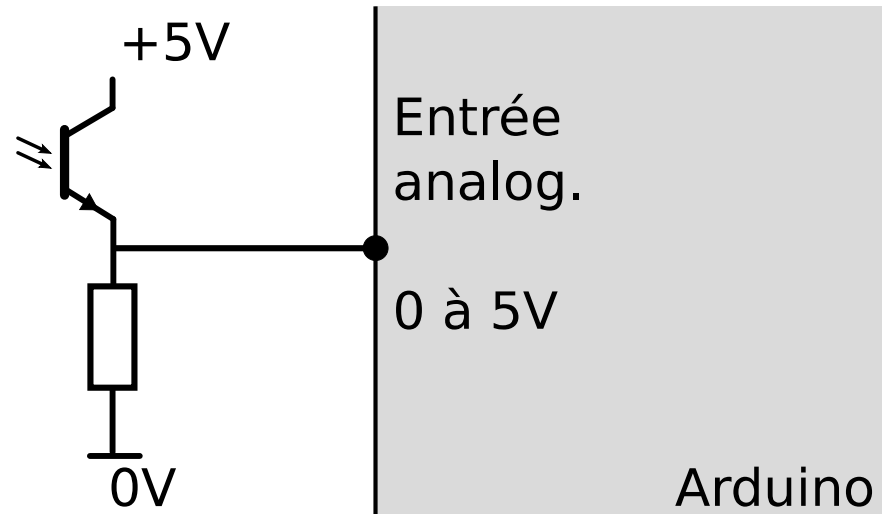
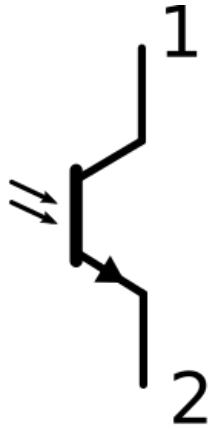
# Un oscilloscope

Outils → Traceur série



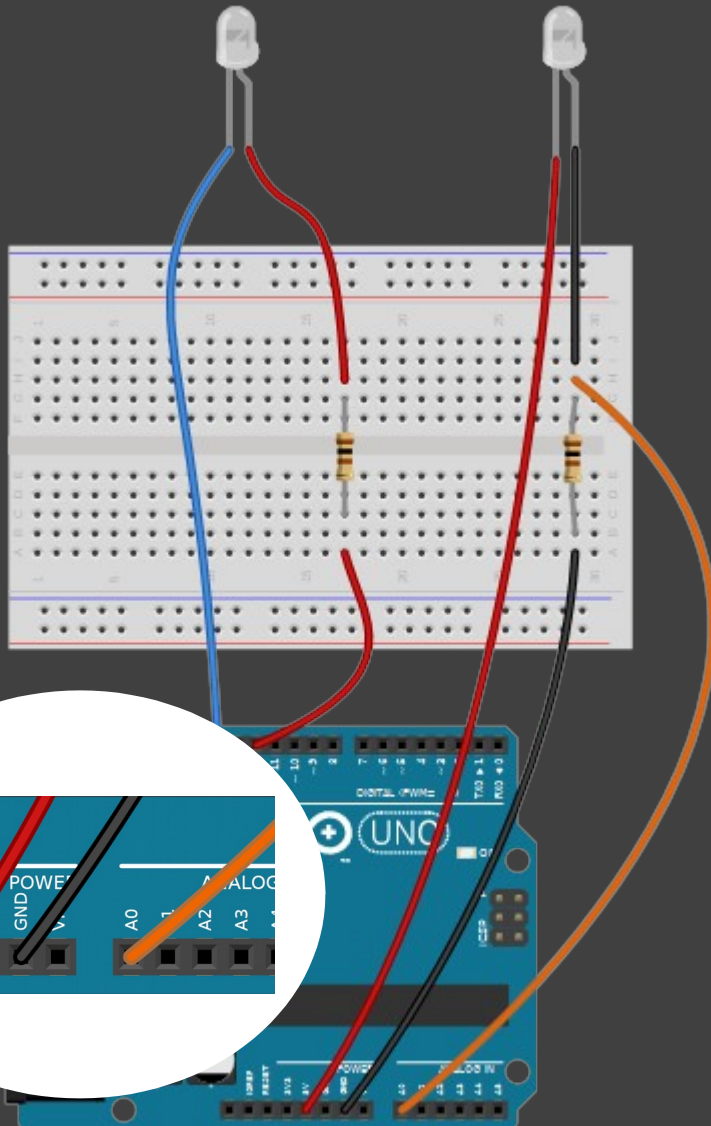
```
void setup() {  
    pinMode(12, OUTPUT);  
    Serial.begin(9600);  
}  
  
void loop() {  
    int x;  
    x = analogRead(A0);  
    Serial.println(x);  
    delay(10);  
  
    //digitalWrite(12, HIGH);  
    //delay(10);  
    //digitalWrite(12, LOW);  
    //delay(x);  
}
```

# Le phototransistor





# Un détecteur de luminosité

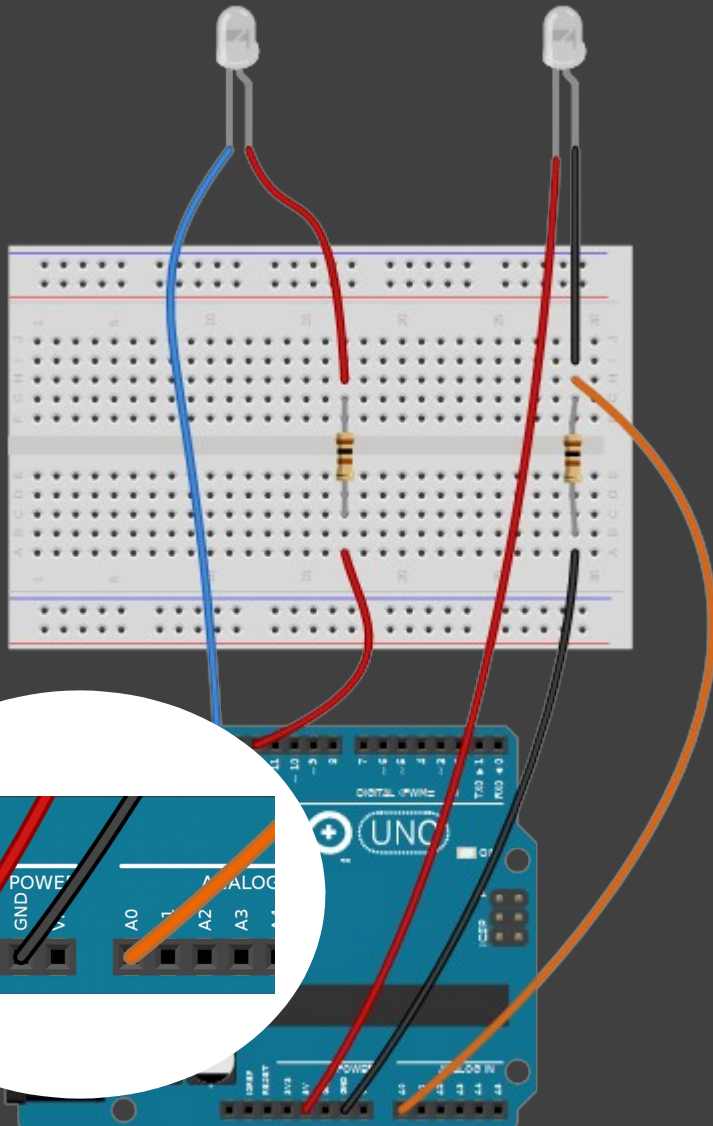


```
void setup() {  
  pinMode(12, OUTPUT);  
  Serial.begin(9600);  
}  
  
void loop() {  
  int x;  
  x=analogRead(A0);  
  Serial.println(x);  
  delay(10);  
  
  //digitalWrite(12,HIGH);  
  //delay(10);  
  //digitalWrite(12,LOW);  
  //delay(x);  
}
```





# Un détecteur de présence



```
void setup() {  
  pinMode(12, OUTPUT);  
  Serial.begin(9600);  
}
```

```
void loop() {  
  int x;
```

## Exercice

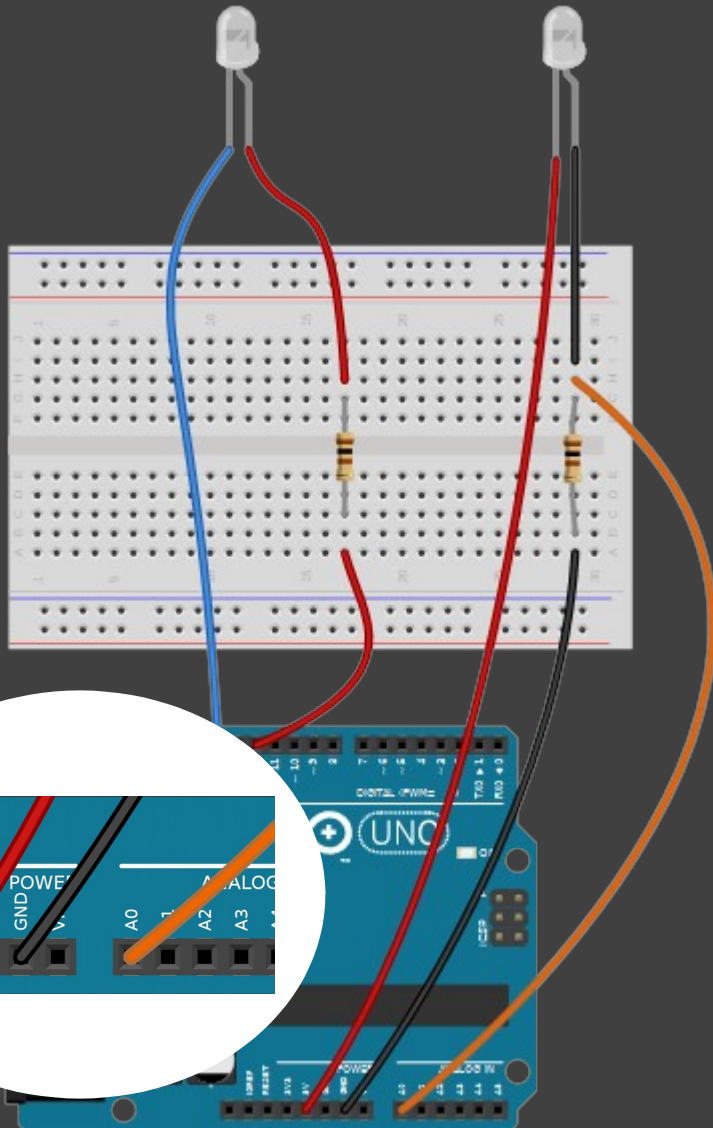
- Allumer la LED et attendre 10ms
- Mesurer la luminosité et stocker dans x
- Eteindre la LED et attendre 10ms
- Mesurer la luminosité et retrancher à x

```
Serial.println(x);
```

```
}
```



# Un détecteur de présence



```
void setup() {  
    pinMode(12, OUTPUT);  
    Serial.begin(9600);  
}  
  
void loop() {  
    int x;  
    digitalWrite(12, HIGH);  
    delay(10);  
    x = analogRead(A0);  
  
    digitalWrite(12, LOW);  
    delay(10);  
    x = x - analogRead(A0);  
  
    if (x > 50)  
        Serial.println("Détecté!");  
    else  
        Serial.println("RAS!");  
}
```