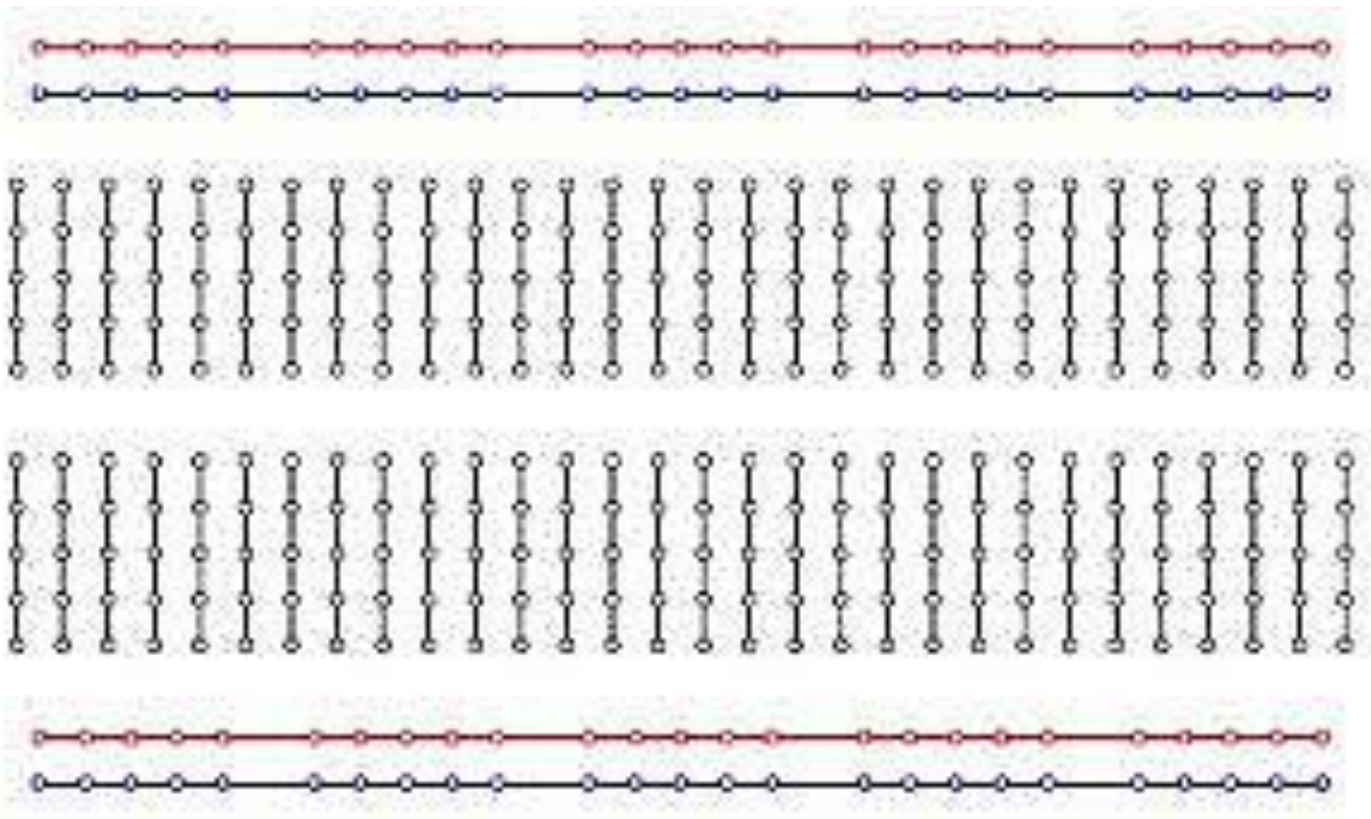


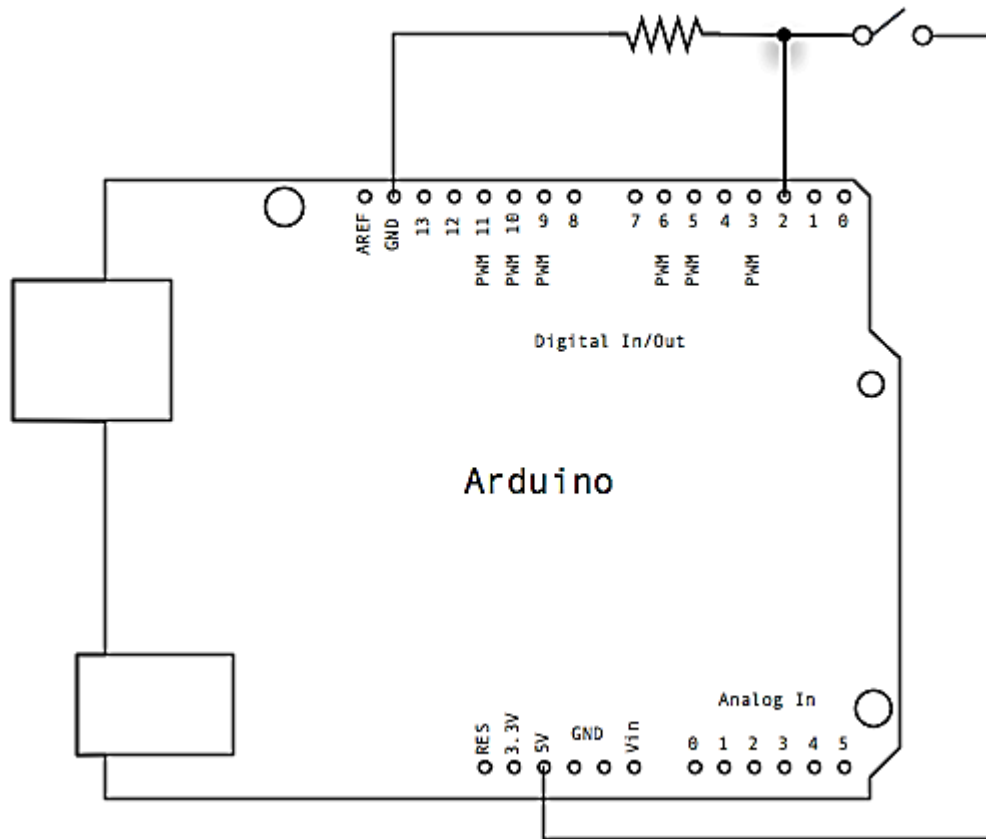
# 03 Arduino

Nyomógomb, LED, Potencióméter

# Próbatpanel

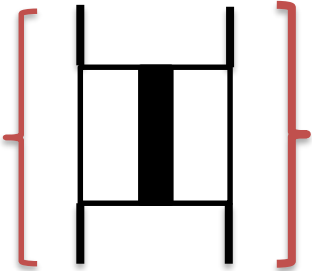


# Nyomógomb



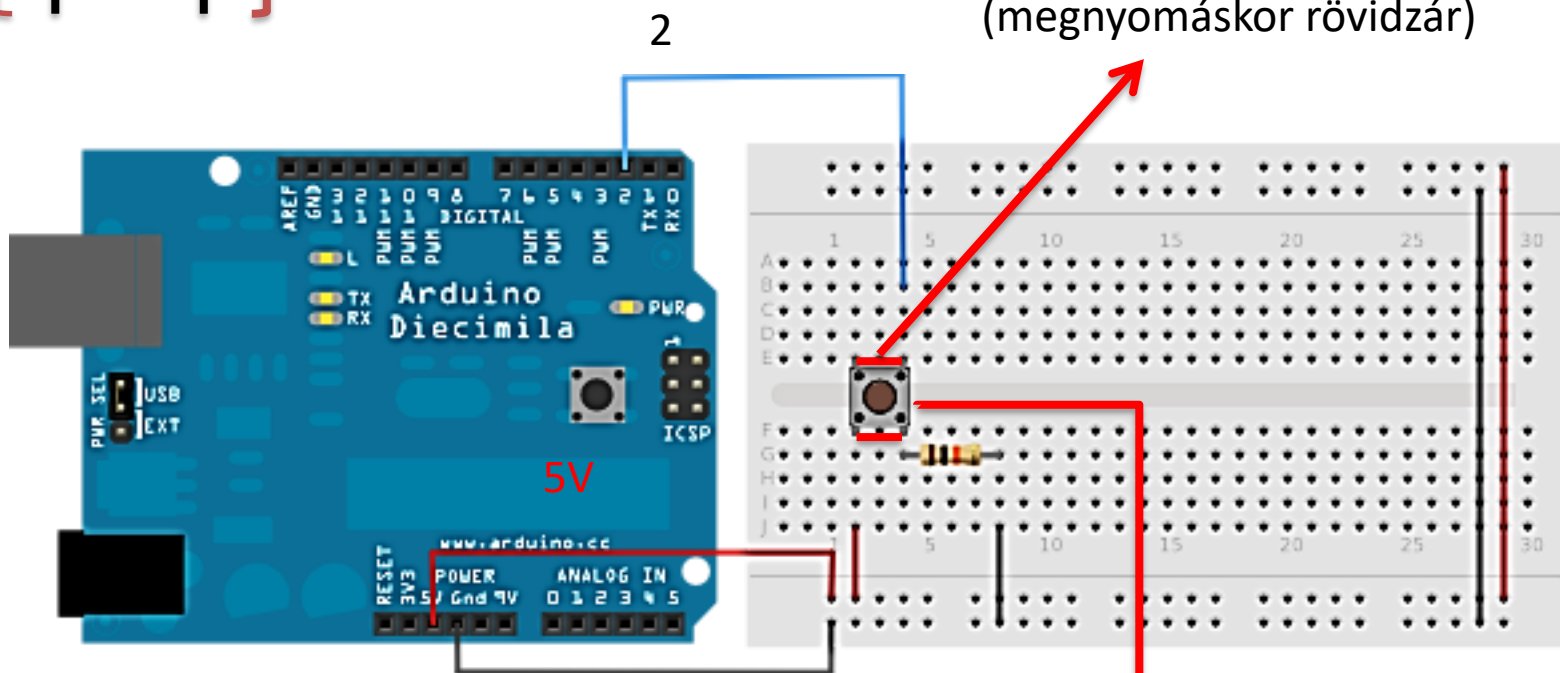
# Nyomógomb

Rövidzár



Rövidzár

Rövidebb oldal  
(megnyomáskor rövidzár)



Gnd

Ellenállás: 10K

Hosszabbik oldal  
(két láb rövidebbre van zárva gyárilag)



# Nyomógomb

```
1 int buttonPin = 2;
2 int buttonState = 0;
3 int buttonPushCounter=0;
4                                     pinMode(buttonPin, INPUT);
5 void setup()
6 {                                     ←
7   Serial.begin(115200);
8 }
9
10 void loop()
11 {
12   buttonState = digitalRead(buttonPin);
13
14   if (buttonState == HIGH) {
15     // turn LED on:
16     buttonPushCounter++;
17     Serial.println(button_val);
18                   buttonPushCounter
19   }
20 |
```

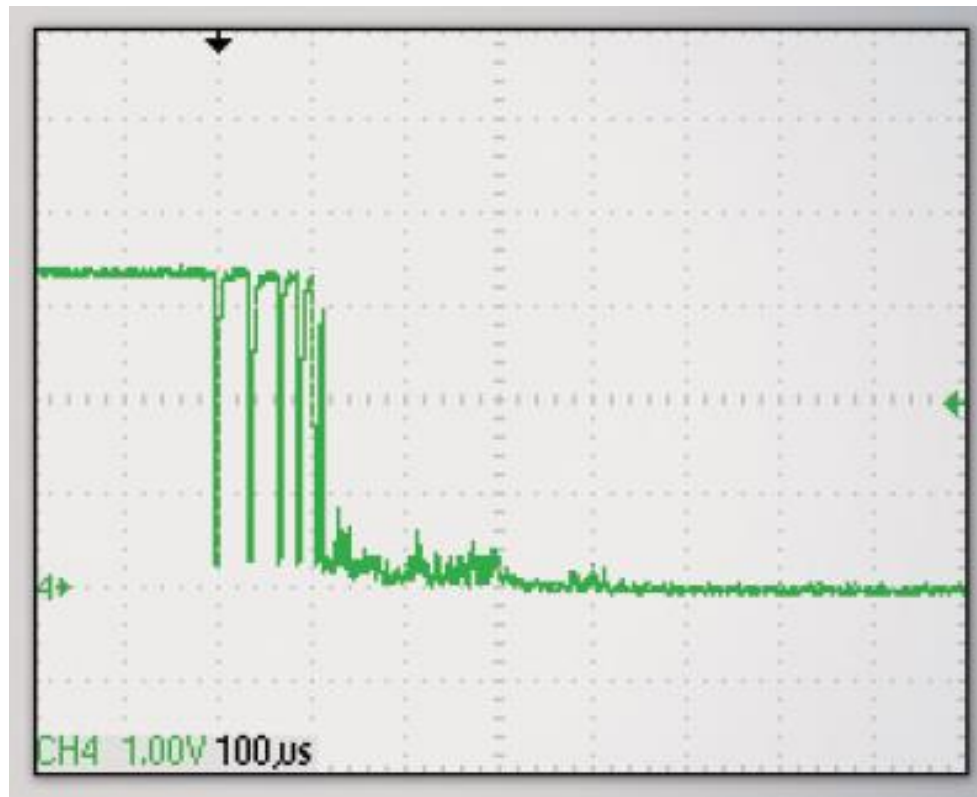
# Nyomógomb

- Problem? 😊



# Nyomógomb

- Problem? 😊
  - Prellmentesítés!!!



# Nyomógomb

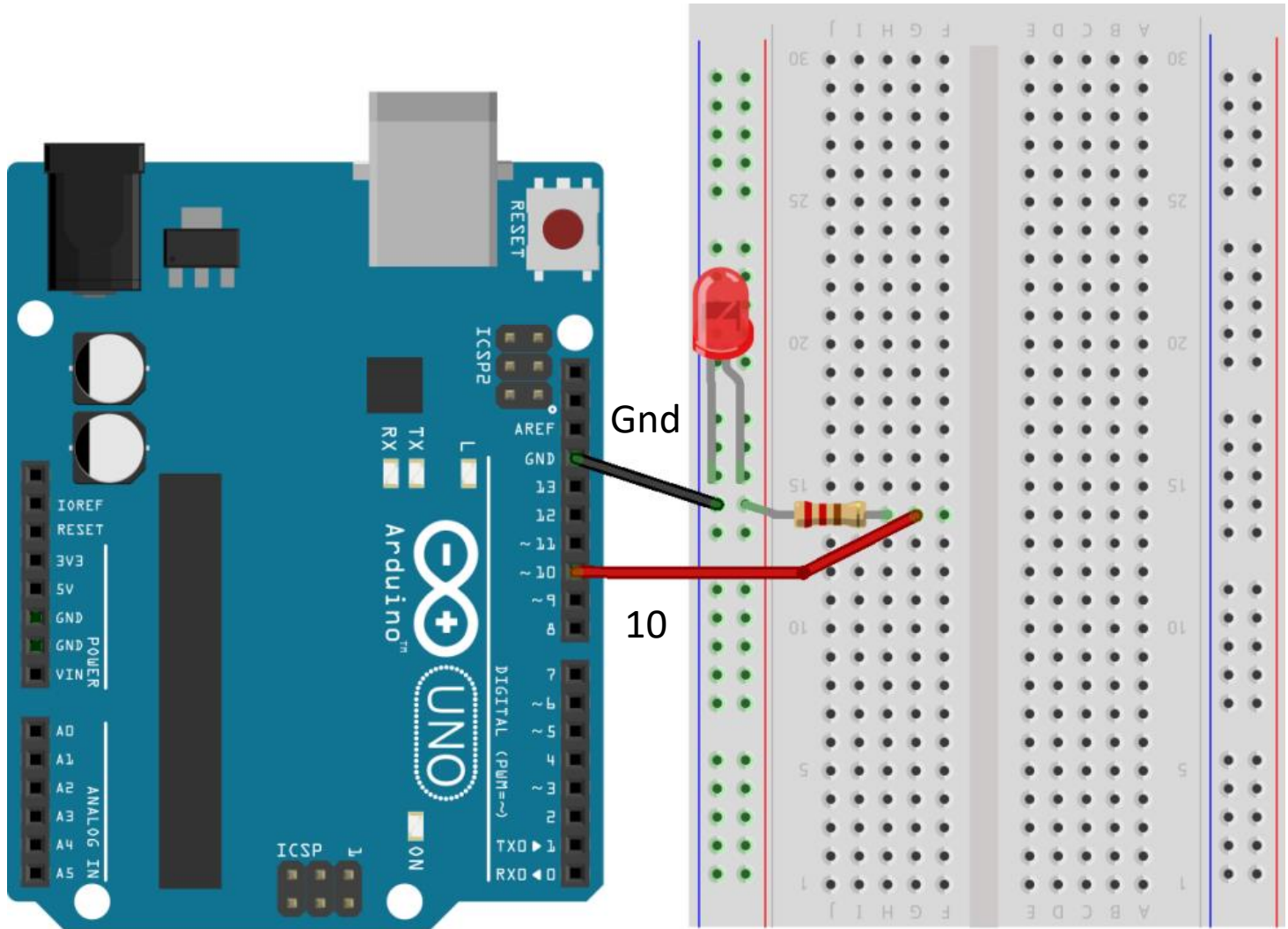
```
1 int buttonPin = 2;
2 int buttonState = 0;
3 int buttonPushCounter=0;
4
5 int lastButtonState = 0;
6                                     pinMode(buttonPin, INPUT);
7 void setup()
8 {
9     Serial.begin(115200);
10 }
11 |
12 void loop()
13 {
14     buttonState = digitalRead(buttonPin);
15
16     if (buttonState != lastButtonState) {
17         if (buttonState == HIGH) {
18             buttonPushCounter++;
19             Serial.println(buttonPushCounter);
20         } else {
21             Serial.println("off");
22         }
23         delay(50);
24     }
25
26     lastButtonState = buttonState;
27 }
```



# Nyomógomb (interrupt)

```
1 int buttonPin = 2;
2 int buttonState = 0;
3 int buttonPushCounter=0;
4
5 int lastButtonState = 0;
6 void setup()
7 {
8   Serial.begin(115200);
9
10  pinMode(buttonPin, INPUT_PULLUP);
11  attachInterrupt(digitalPinToInterrupt(buttonPin), pressed, CHANGE);
12 }
13 void loop()
14 {}
15
16 void pressed() {
17   buttonState = digitalRead(buttonPin);
18
19   if (buttonState != lastButtonState) {
20     if (buttonState == HIGH) {
21       buttonPushCounter++;
22       Serial.println(buttonPushCounter);
23     } else {
24       Serial.println("off");
25     }
26     delay(50);
27   }
28   lastButtonState = buttonState;
29 }
```

# LED



# LED

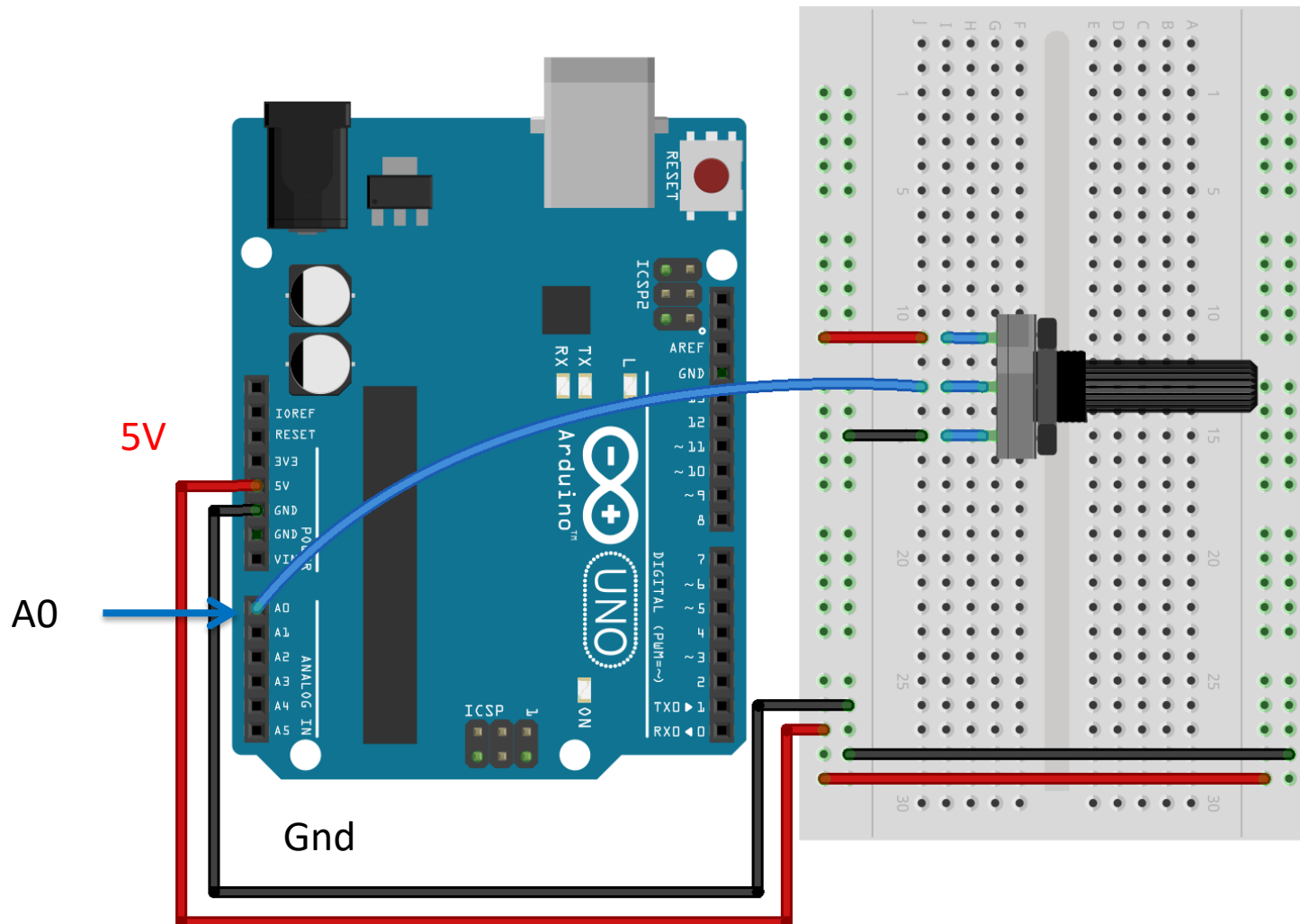
```
1 int ledPin=10;
2
3 void setup()
4 {
5     pinMode(ledPin, OUTPUT);
6 }
7
8 void loop()
9 {
10    analogWrite(ledPin, 80); //max 255
11 }
12 |
```

# LED (pulzálás)

- A kimenet PWM jel! Nincs analóg kimenete!

```
1 int led = 10;
2 int brightness = 0;
3 int fadeAmount = 1;
4
5 void setup() {
6   pinMode(led, OUTPUT);
7 }
8
9 void loop() {
10  analogWrite(led, brightness);
11
12  brightness = brightness + fadeAmount;
13
14  if (brightness <= 0 || brightness >= 255) {
15    fadeAmount = -fadeAmount;
16  }
17  delay(1);
18 }
```

# LED+Potmètre



# LED+Potmètre

```
1 int ledPin=10;
2 int analogPin=0;
3 int led_value=0;
4 float scale_factor=255.0/1024.0; //float!
5 void setup()
6 {
7   pinMode(led, OUTPUT);
8   Serial.begin(115200);
9 }
10
11 void loop()
12 {
13   int sensorValue = analogRead(analogPin); //1024 - 10bit
14   Serial.println(sensorValue);
15   led_value=sensorValue*scale_factor;
16   Serial.println(scale_factor);
17   analogWrite(led, led_value);
18 }
```