



MAKE EVERYTHING SMART

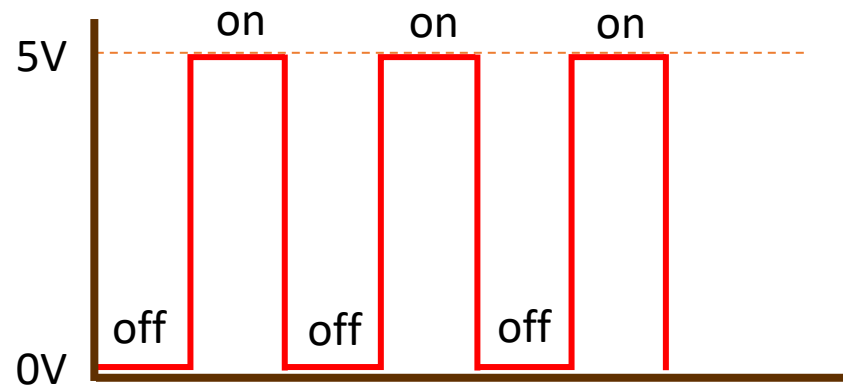
SMART TECHNOLOGT



LECTURE

1

• Signal Types

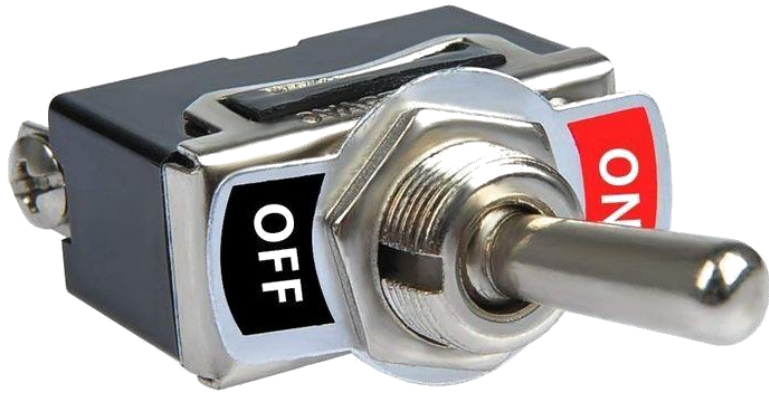


Digital signal



Analog signal

- Some Digital Signal app

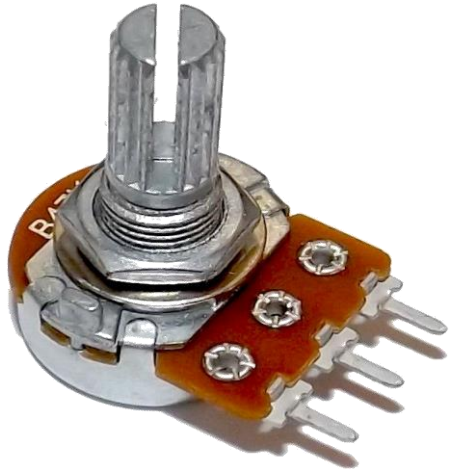


Fire detection sensor



**Movement
detection sensor**

- Some Analog Signal app



Variable resistance



Light Sensor



Smoke Sensor

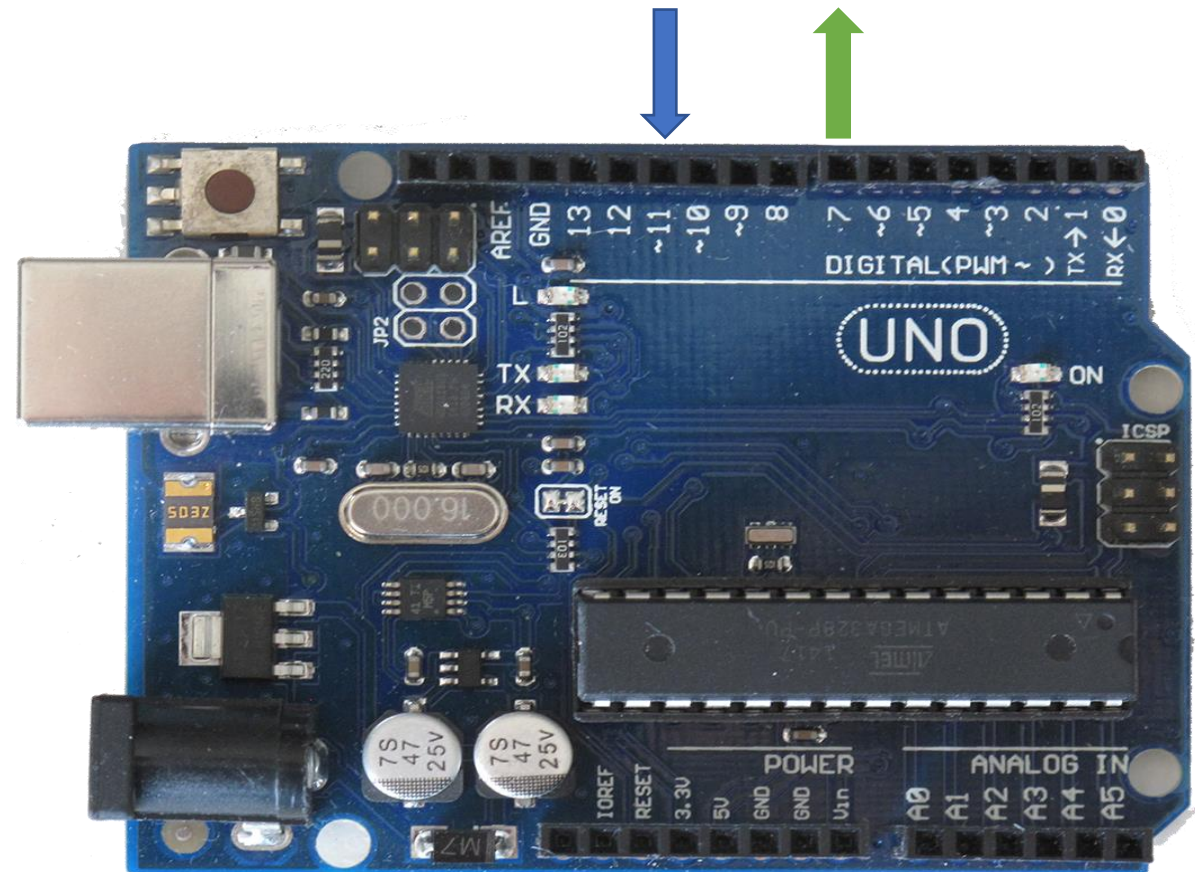
• Arduino Interfacing

1. Make Arduino OUTPUTs a digital signal on pin no. 7

```
void setup() {  
    pinMode(7,OUTPUT) ;  
    //OR pinMode(7,1);  
}
```

2. Make Arduino receives a digital INPUT signal on pin no. 11

```
void setup() {  
    pinMode(11,INPUT) ;  
    //OR pinMode(7,0);  
}
```



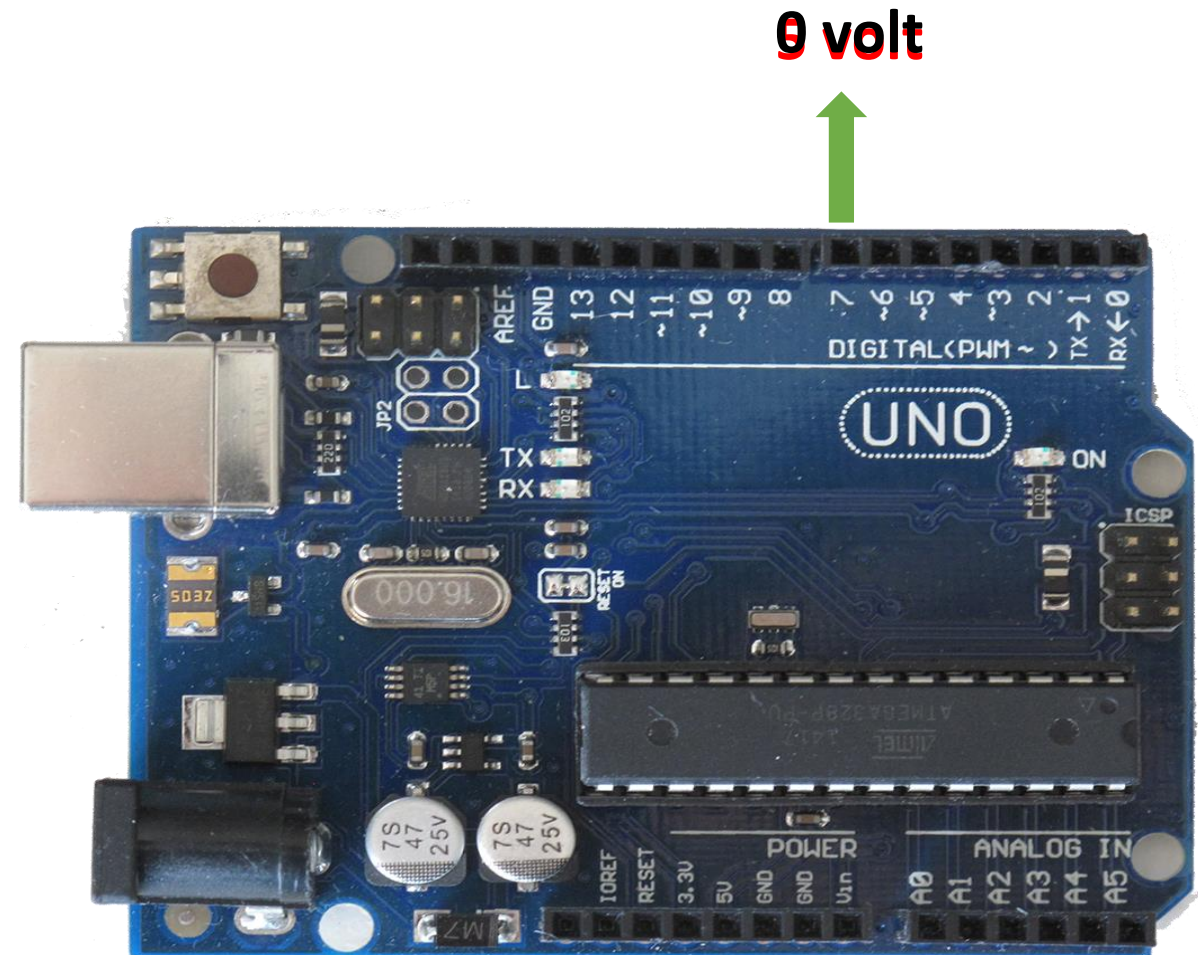
• Arduino OUTPUT signal

1. Make Arduino OUTPUTs a **5 volt** signal on pin no. 7

```
void setup() {  
  pinMode(7,OUTPUT);  
  digitalWrite(7,HIGH);  
  //digitalWrite(7,1);  
}
```

1. Make Arduino OUTPUTs a 0 volt signal on pin no. 7

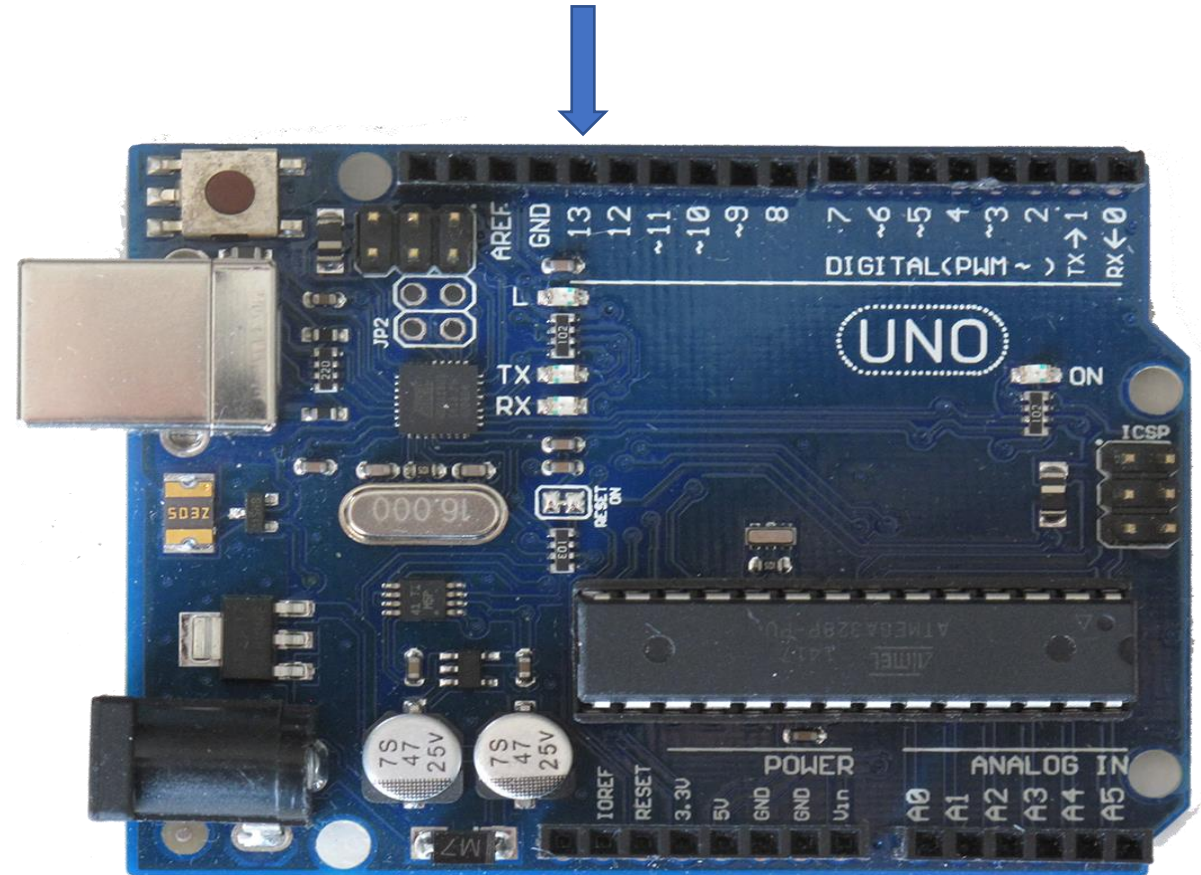
```
void setup() {  
  pinMode(7,OUTPUT);  
  digitalWrite(7,LOW);  
  //digitalWrite(7,0);  
}
```



• Arduino INPUT signal

1. Make Arduino Reads an INPUT signal on pin no. 13

```
void setup() {  
  pinMode(13, INPUT);  
  digitalWrite(13);  
}
```



• Blink code

```
int ledPin = 13;
```

```
void setup()
```

```
{
```

```
→ pinMode(ledPin , OUTPUT);
```

```
}
```

```
void loop()
```

```
{
```

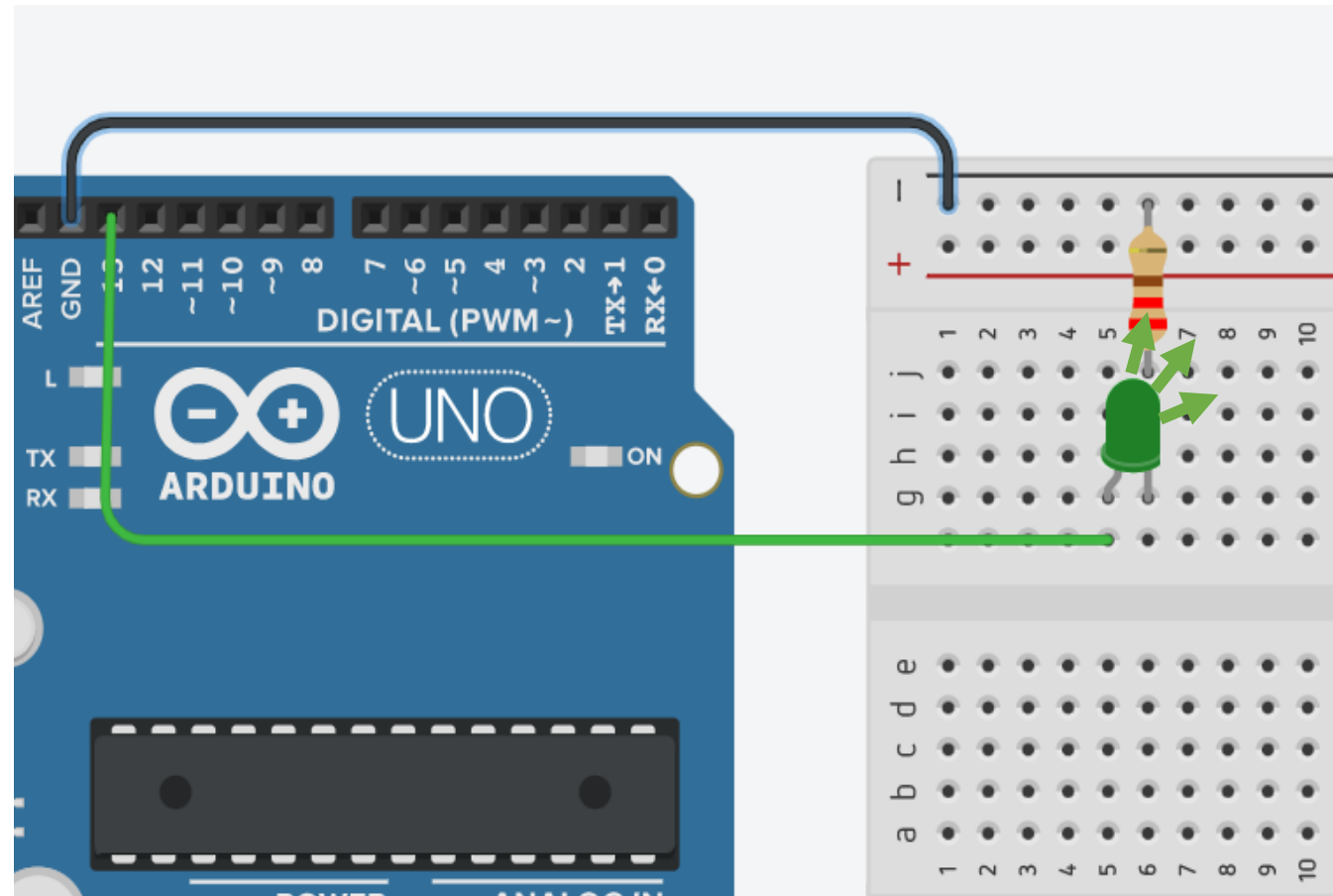
```
→ digitalWrite(ledPin, HIGH);
```

```
→ delay(1000);
```

```
→ digitalWrite(ledPin, LOW);
```

```
→ delay(1000);
```

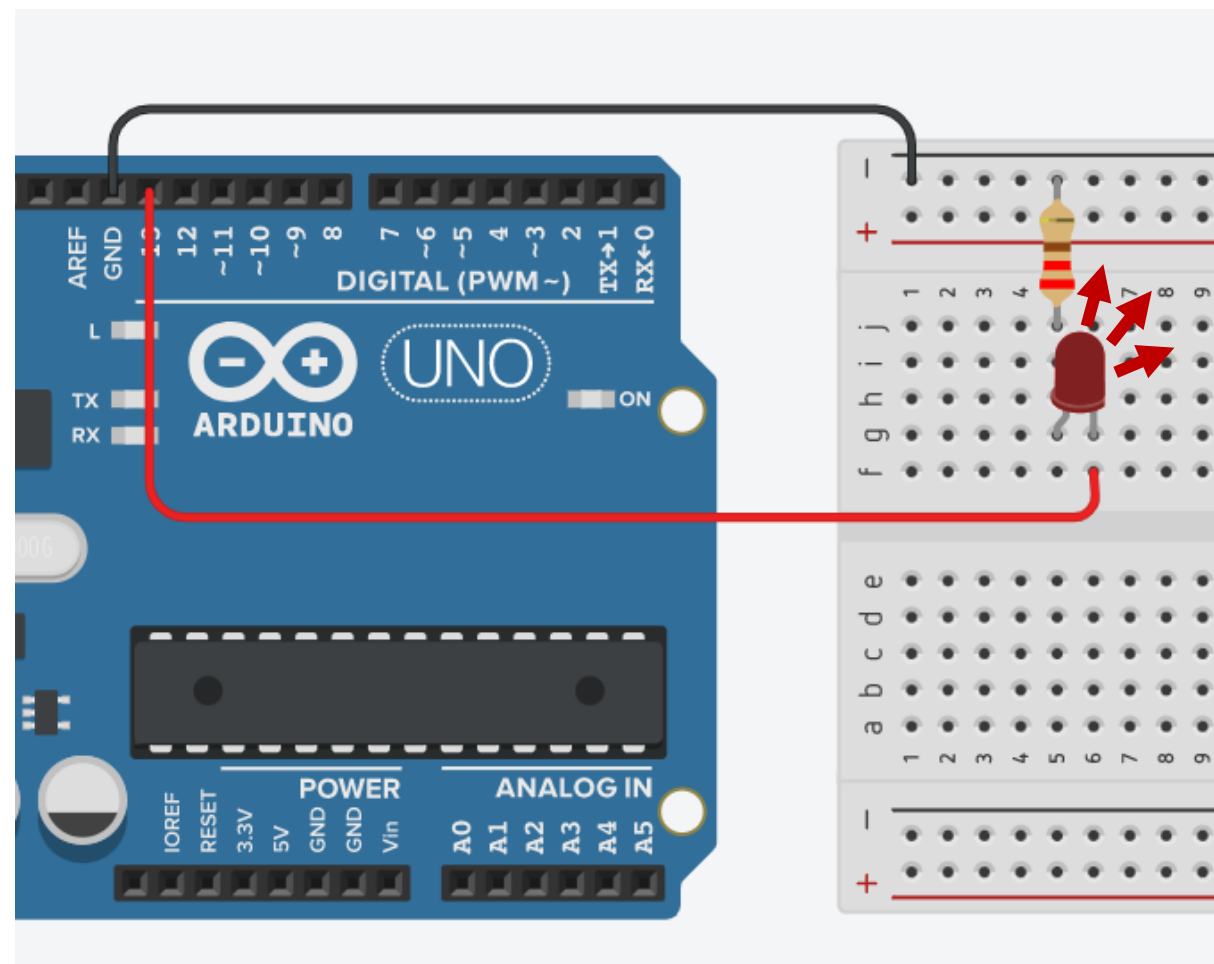
```
}
```



• Another way of coding

```
int ledPin = 13;
int on = 1000;
int off = 1000;
void setup()
{
    → pinMode(ledPin , OUTPUT);
}

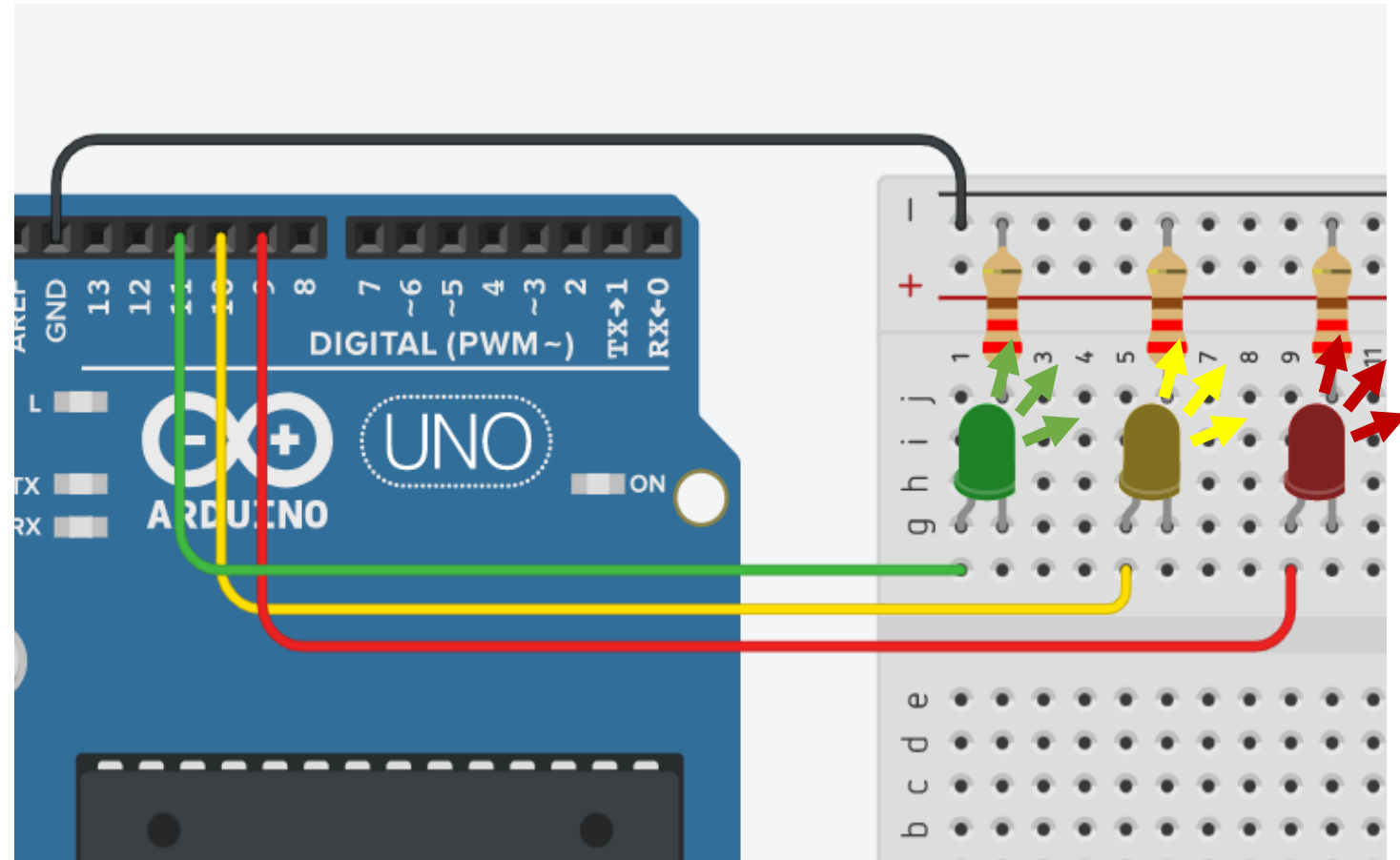
void loop()
{
    → digitalWrite(ledPin, HIGH);
    → delay(on);
    → digitalWrite(ledPin, LOW);
    → delay(off);
}
```




```
int red = 9;  
int yellow = 10;  
int green = 11;  
int ON = 1000;  
int OFF = 1000;
```

```
void setup()  
{  
  pinMode(red, OUTPUT);  
  pinMode(yellow, OUTPUT);  
  pinMode(green, OUTPUT);  
}
```

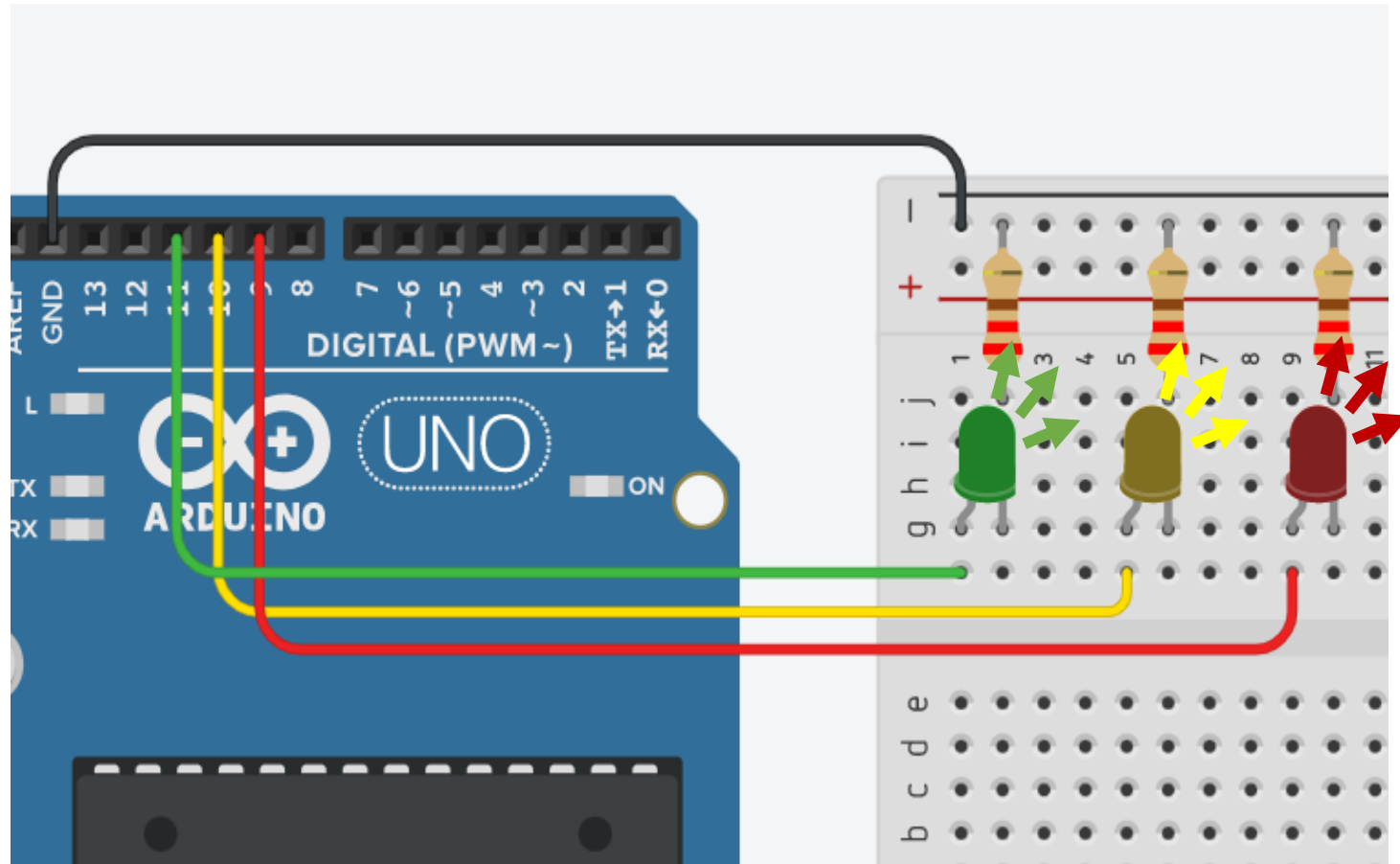
```
void loop()  
{  
  digitalWrite(red, HIGH);  
  delay(ON);  
  digitalWrite(red, LOW);  
  delay(OFF);  
  digitalWrite(yellow, HIGH); delay(ON); digitalWrite(yellow, LOW); delay(OFF);  
  digitalWrite(green, HIGH); delay(ON); digitalWrite(green, LOW); delay(OFF);  
}
```




```
int red = 9;
int yellow = 10;
int green = 11;
int ON = 1000;
int OFF = 1000;

void setup()
{
  pinMode(red, OUTPUT);
  pinMode(yellow, OUTPUT);
  pinMode(green, OUTPUT);
}

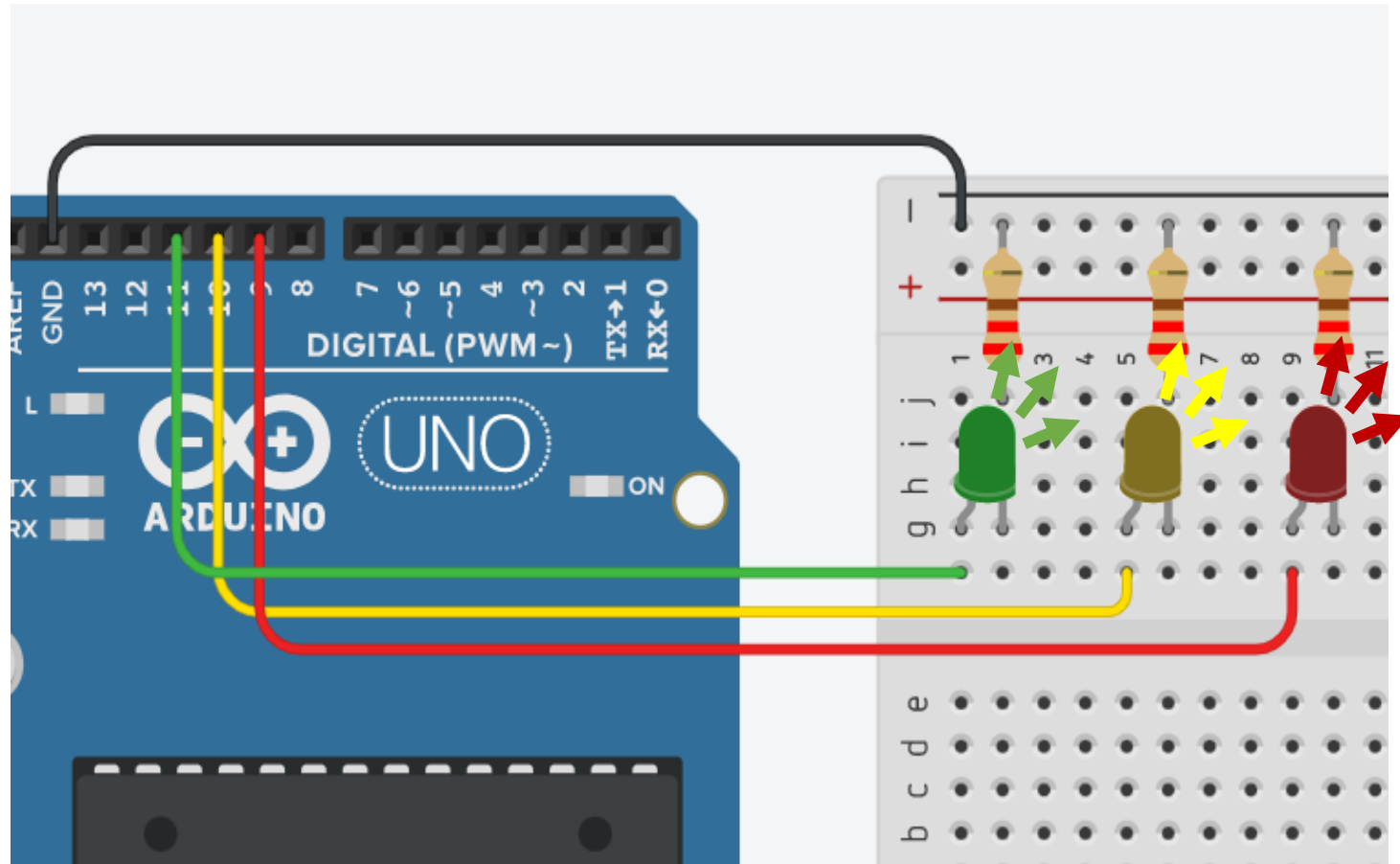
void loop()
{
  digitalWrite(red, HIGH);
  digitalWrite(yellow, HIGH);
  digitalWrite(green, HIGH);
  delay(ON);
  digitalWrite(red, LOW);
  digitalWrite(yellow, LOW);
  digitalWrite(green, LOW);
  delay(OFF);
}
```




```
int red = 9;
int yellow = 10;
int green = 11;
int ON = 1000;
int OFF = 1000;

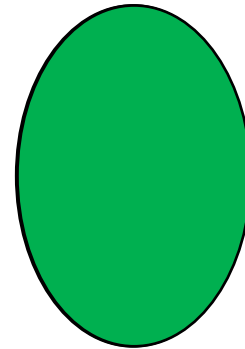
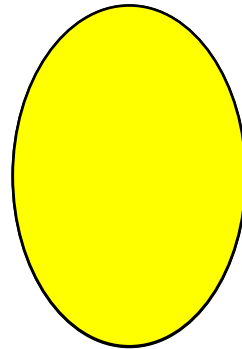
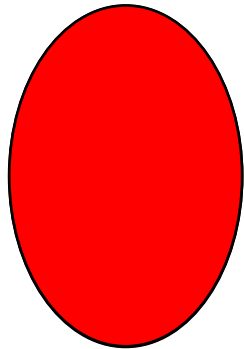
void setup()
{
  pinMode(red, OUTPUT);
  pinMode(yellow, OUTPUT);
  pinMode(green, OUTPUT);
}

void loop()
{
  digitalWrite(red, HIGH);
  delay(ON);
  digitalWrite(yellow, HIGH);
  delay(ON);
  digitalWrite(green, HIGH); delay(ON);    digitalWrite(red, LOW);    delay(OFF);
  digitalWrite(yellow, LOW); delay(OFF);    digitalWrite(green, LOW); delay(OFF);
}
```



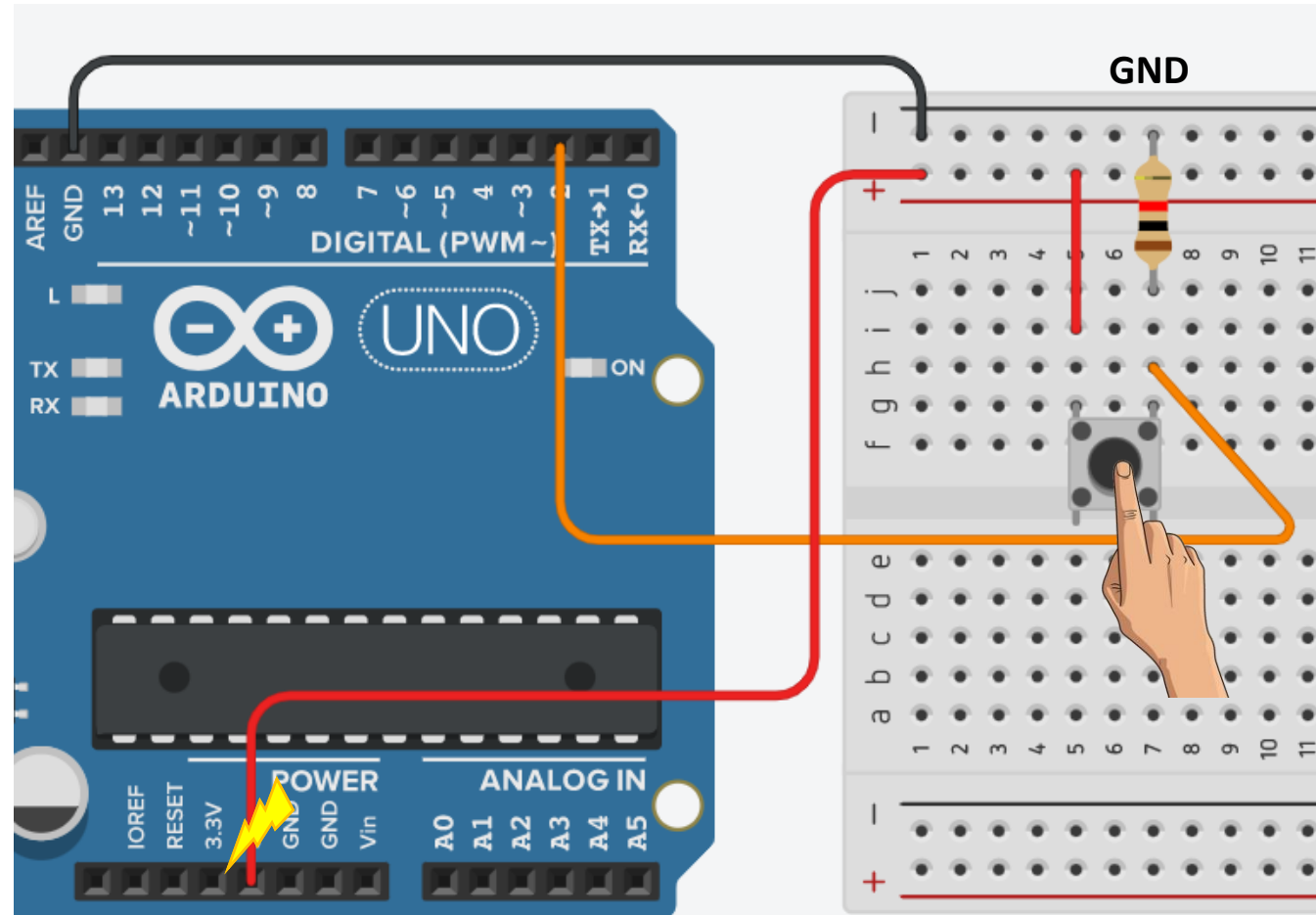
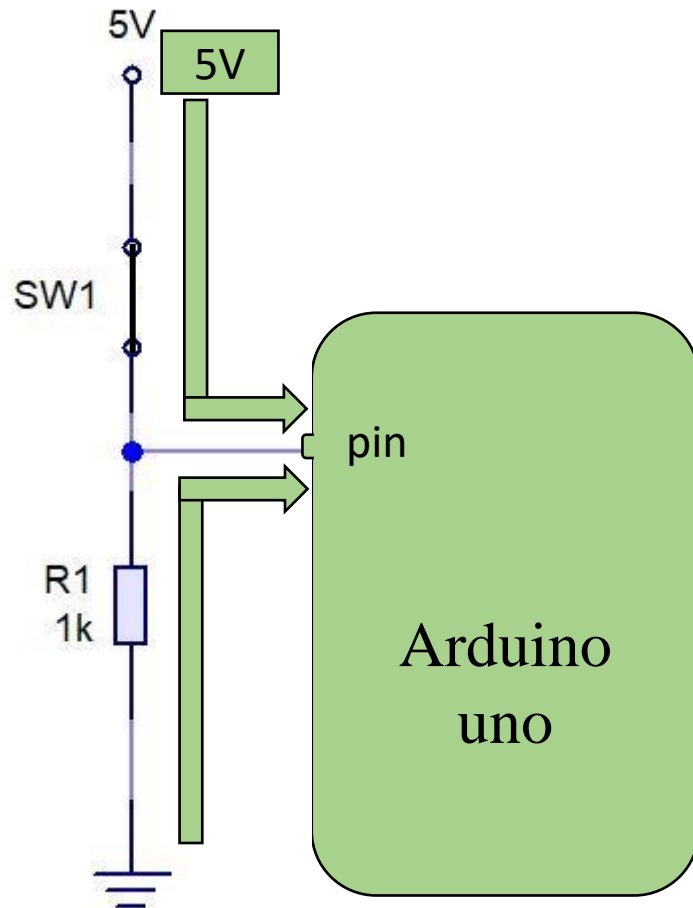
- Task

Traffic Lights



• Push Button

“Pull Down Resistor Connection”



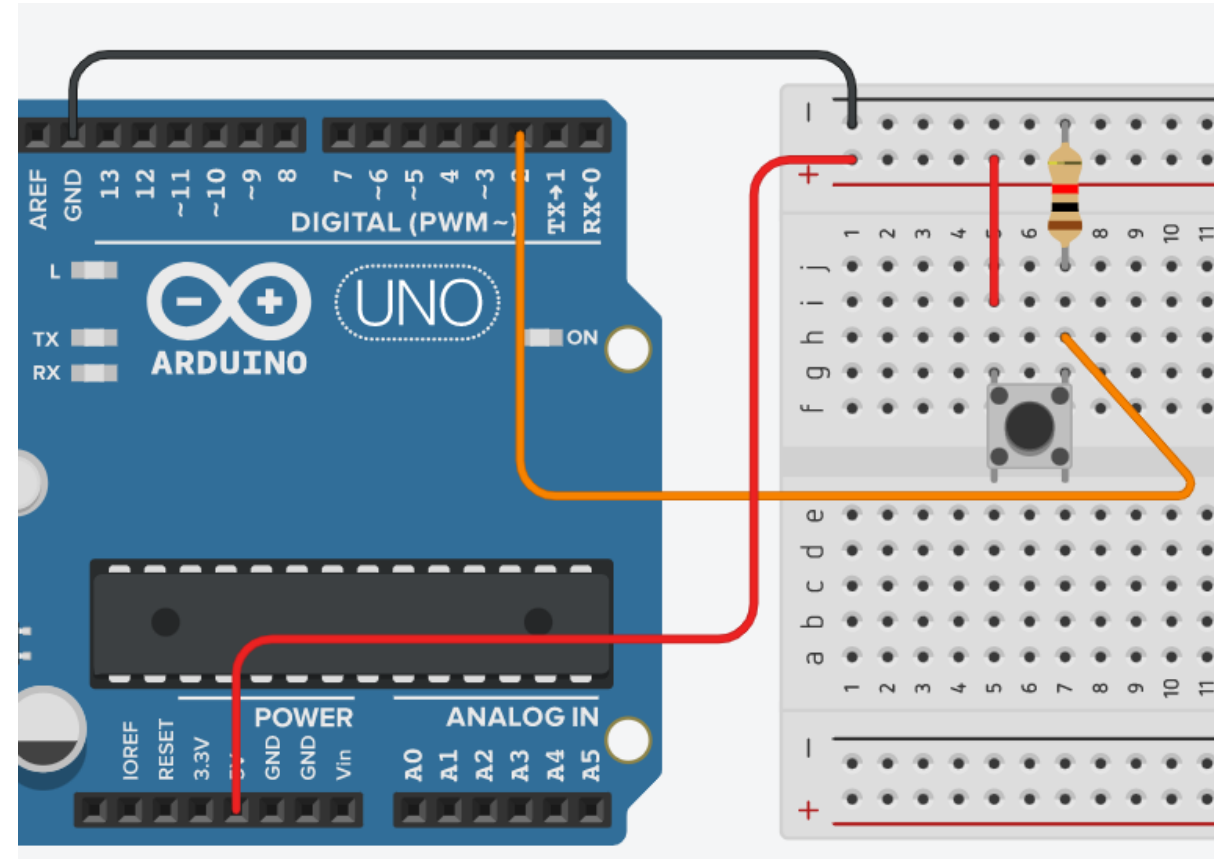
• Code

```
void setup()
{
  pinMode(2, INPUT);
  Serial.begin(9600); }

void loop()
{
  Serial.println(digitalRead(2)); }
```

```
bool reading;
void setup()
{
  pinMode(2, INPUT);
  Serial.begin(9600);}

void loop()
{
  reading = digitalRead(2);
  Serial.println(reading); }
```

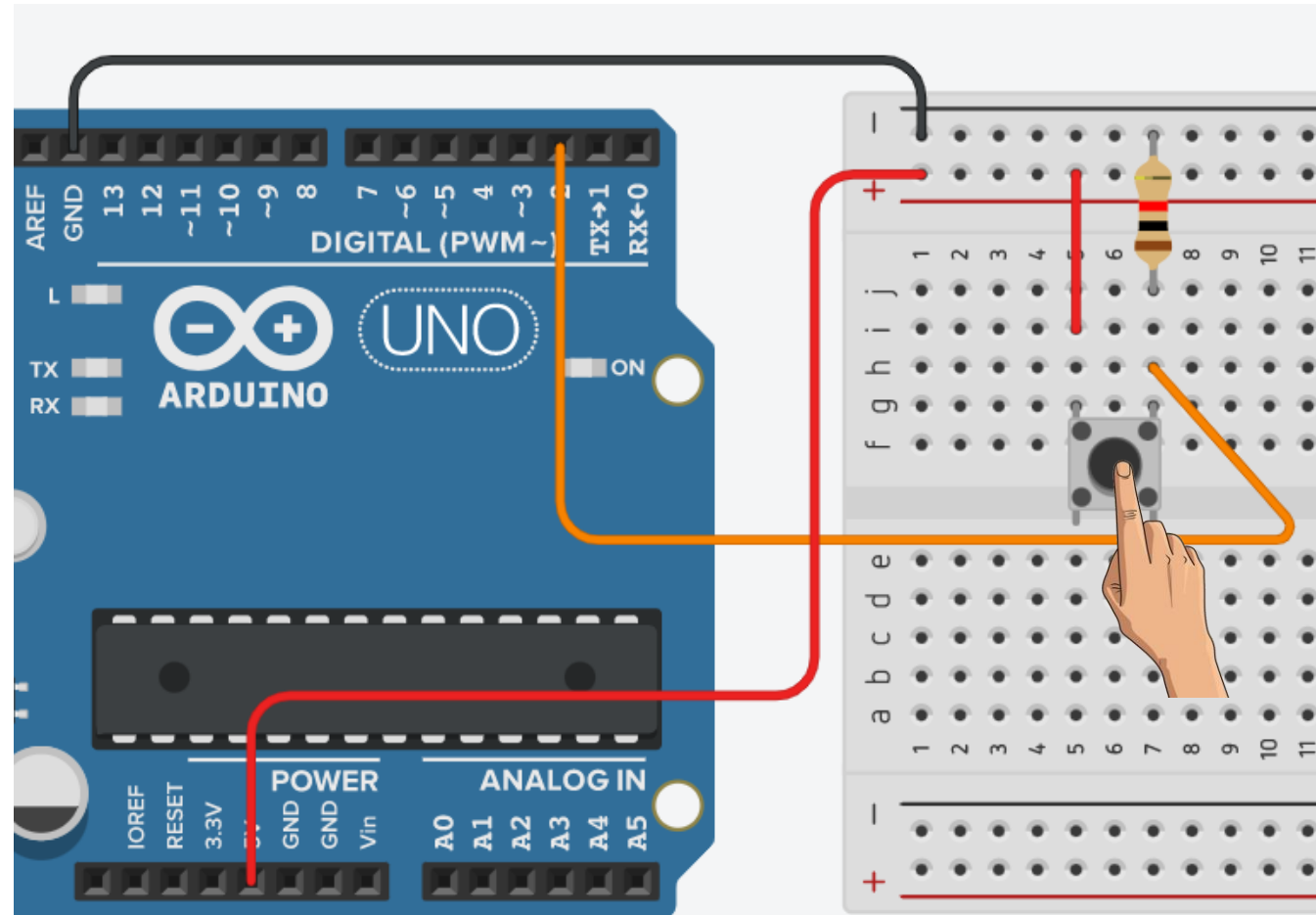


• Task

- Make a counter on the serial monitor that increases by one every time you hit the pushbutton

counter

3



THANKS
FOR
COMING

