

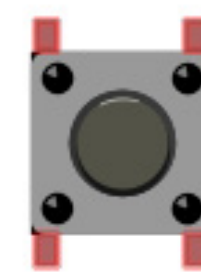
DOCUMENTATION

ACTIVITY

ASSESSMENT

USEFUL LINKS

HOW TO USE A PUSH BUTTON TO TURN ON AN LED WITH ARDUINO



PUSH BUTTON



LED

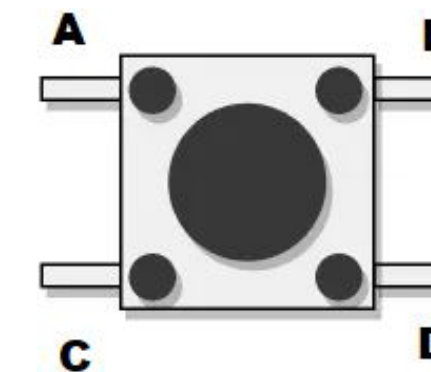
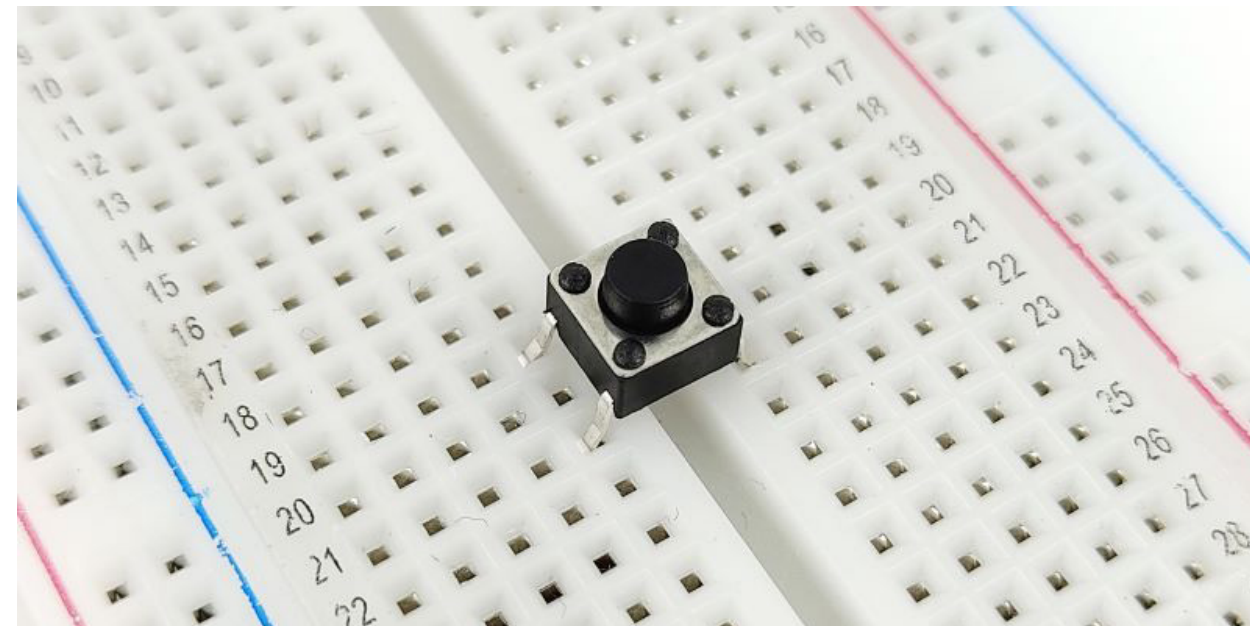
DOCUMENTATION

ACTIVITY

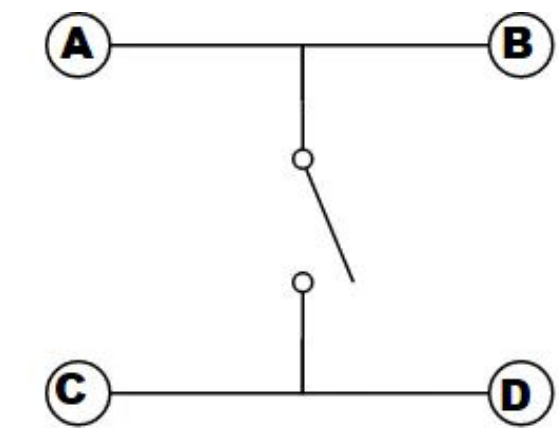
ASSESSMENT

USEFUL LINKS

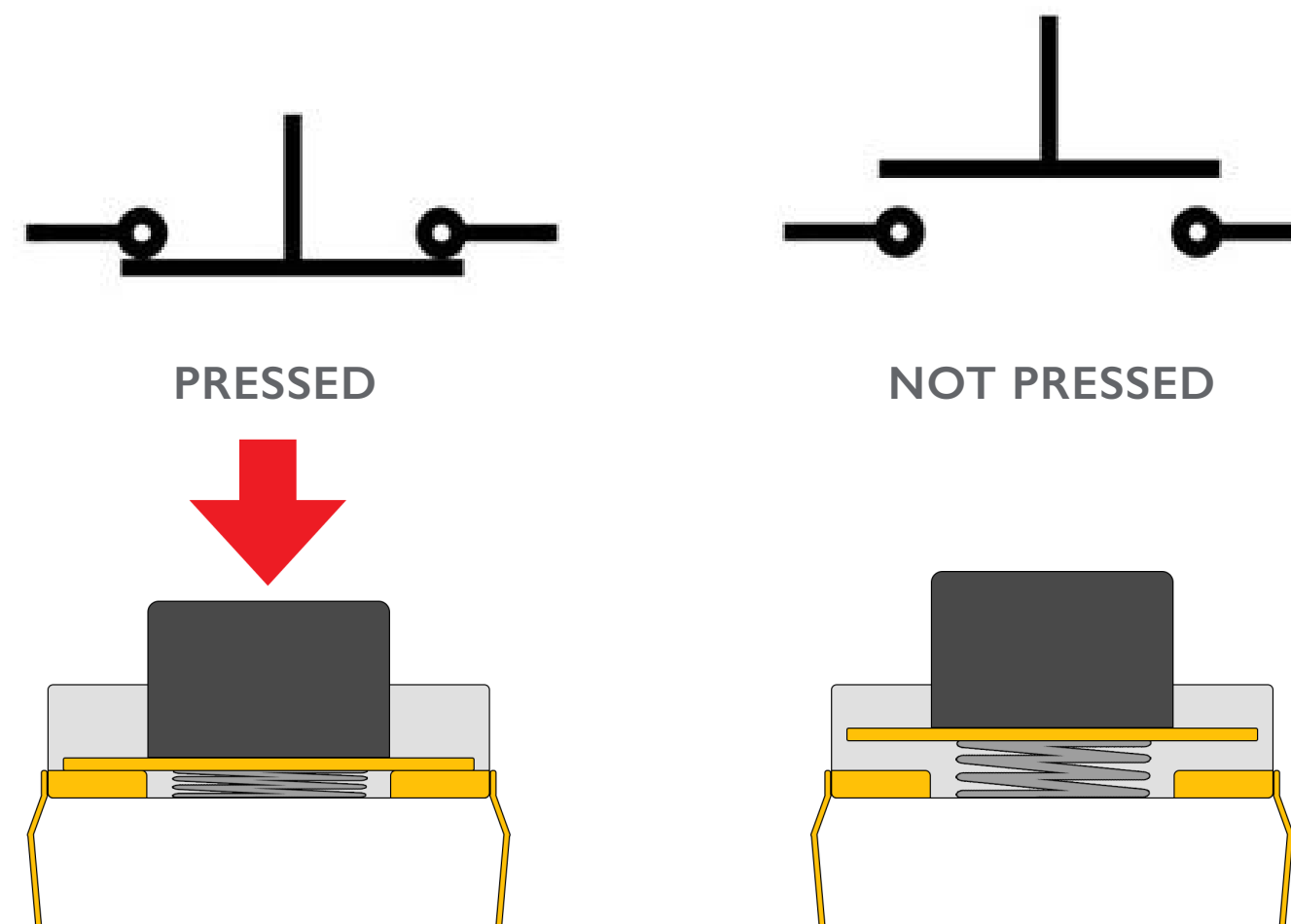
PUSH BUTTON



Chanel 1: pins A-B are internally connected



Chanel 2: pins C-D are internally connected



HOW DOES IT WORK?

Buttons open and close the flow of electricity in a circuit. When the button is pressed, we connect the button's internal pins (A-B to C-D) creating a bridge that allows the flow of electricity. While the button is not pressed, the connection is broken, therefore, electricity cannot pass through the circuit..

WARNING! The choice of pins does matter. Make sure you are connecting the correct pins.

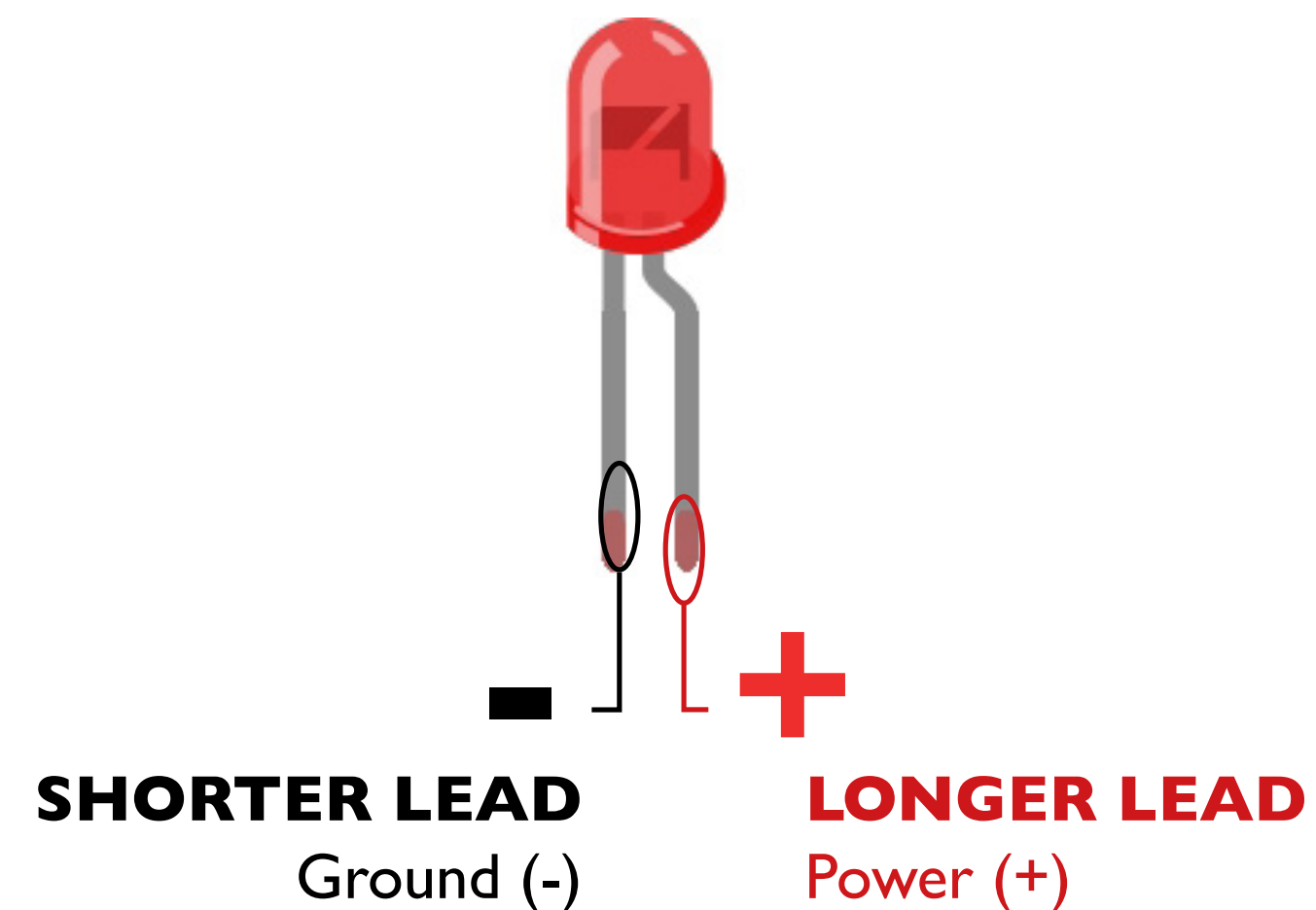
DOCUMENTATION

ACTIVITY

ASSESSMENT

USEFUL LINKS

LED (Light-Emitting Diode)



HOW DOES IT WORK?

LEDs are electronic components (diodes) that emit light when electricity flows through them.

WARNING! Polarity Matters

LEDs are polarized components, meaning electricity flows only in one direction—from positive to negative.

The longer lead must be connected to the positive side of the circuit (e.g., a data pin from the Arduino). You a resistor!

The shorter lead must be connected to ground (GND).

WARNING! Use a Resistor

Arduino pins output 5V—too much for an LED. Use a 220 Ω resistor to prevent it from burning out.

Control an LED using a push-button

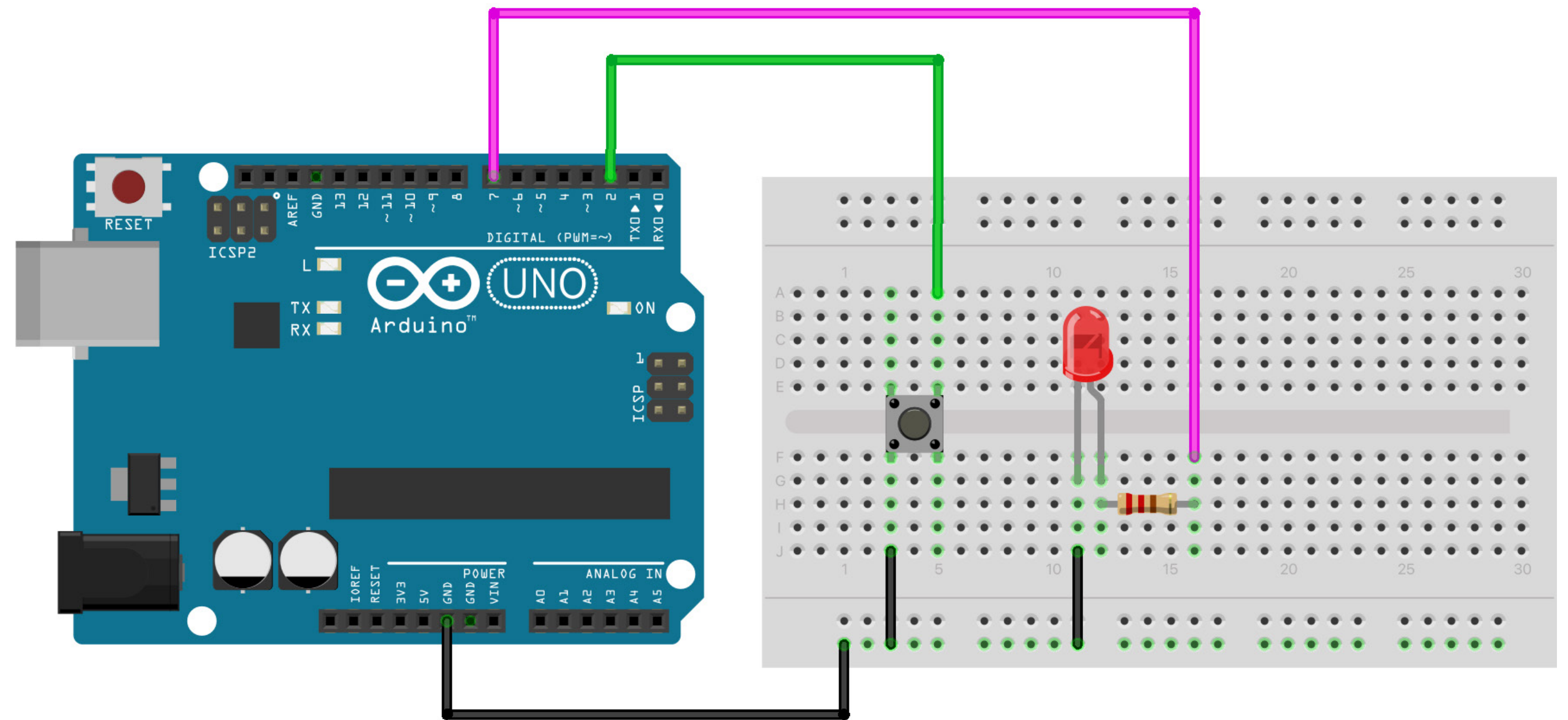
DOCUMENTATION

ACTIVITY

ASSESSMENT

USEFUL LINKS

DIAGRAM



fritzing

CODE

[DOWNLOAD](#)

DOCUMENTATION

ACTIVITY

ASSESSMENT

USEFUL LINKS

SERIAL MONITOR: Let's analyse the data

Initiate
Serial
Communication

Print 'PRESSED'
if the button is being
pressed.

Print 'NOT PRESSED'
if the button is not
being pressed.

CLICK HERE to open
the Serial Monitor

The screenshot shows the Arduino IDE 2.3.6 interface. The main window displays the code for Button_LED.ino. The code is as follows:

```
7 void setup() {  
8   Serial.begin(9600);  
9   pinMode(ledPin, OUTPUT);  
10  pinMode(buttonPin, INPUT_PULLUP);  
11 }  
12  
13 void loop() {  
14   buttonState = digitalRead(buttonPin);  
15  
16   // Check if the button is pressed  
17   if (buttonState == LOW) { //(Pressed = LOW due to pull-up)  
18  
19     digitalWrite(ledPin, HIGH); // Turn the LED on  
20     Serial.println("pressed");  
21  
22   } else {  
23     digitalWrite(ledPin, LOW); // Turn the LED off  
24     Serial.println("not pressed");  
25   }  
26 }  
27
```

The Serial Monitor window is open at the bottom, showing the output area. The baud rate is set to 9600. The status bar at the bottom indicates "Ln 9, Col 27 Arduino Uno on /dev/cu.wlan-debug".

WHAT DATA IS PRINTED WHEN YOU
PRESS OR RELEASE THE BUTTON?

SERIAL MONITOR

DOCUMENTATION

ACTIVITY

ASSESSMENT

USEFUL LINKS

CHALLENGE:

1. Build a circuit with two buttons and two LEDs:
 - Button A controls LED A
 - Button B controls LED B
 - Each LED should light only while its button is pressed.
 - Change the messages written in the Serial Monitor
2. Upload a video (max 10 seconds) showing your achievements.

VIDEO UPLOAD

DOCUMENTATION

ACTIVITY

ASSESSMENT

USEFUL LINKS

FURTHER LEARNING

- [Push-Button more tutorials](#)
- [Understanfing Pull-up and Pull-Down](#)
- [How to connect a push button or switch](#)