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# Button

Pushbuttons or switches connect two points in a circuit when you press them. This example turns on the built-in LED on pin 13 when you press the button.

## Hardware

- Arduino or Genuino Board
- Momentary button or Switch
- 10K ohm resistor
- hook-up wires
- breadboard

## Circuit

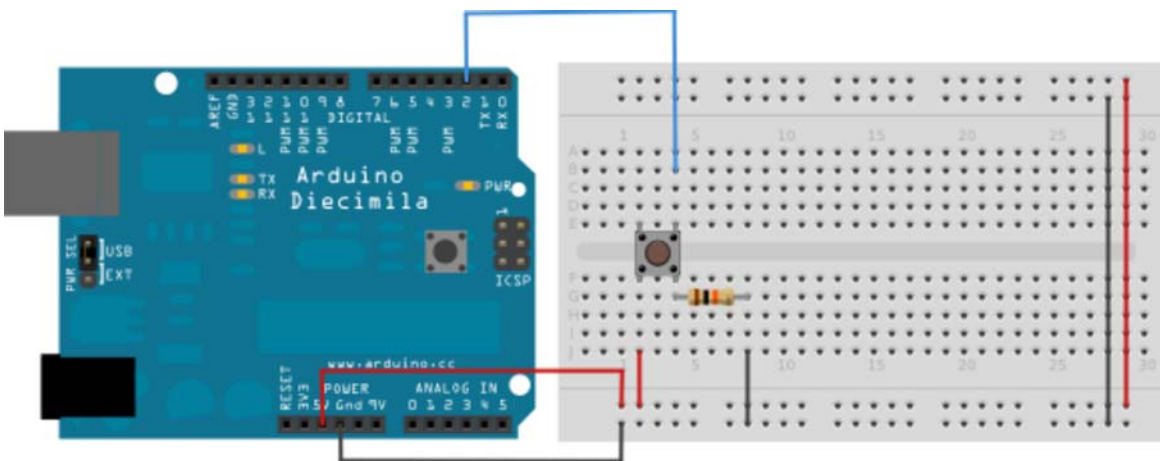


image developed using Fritzing (<http://www.fritzing.org>). For more circuit examples, see the Fritzing project page (<http://fritzing.org/projects/>)

Connect three wires to the board. The first two, red and black, connect to the two long vertical rows on the side of the breadboard to provide access to the 5 volt supply and ground. The third wire goes from digital pin 2 to one leg of the pushbutton. That same leg of the button connects through a pull-down resistor (here 10K

ohm) to ground. The other leg of the button connects to the 5 volt supply.

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SIGN IN ()

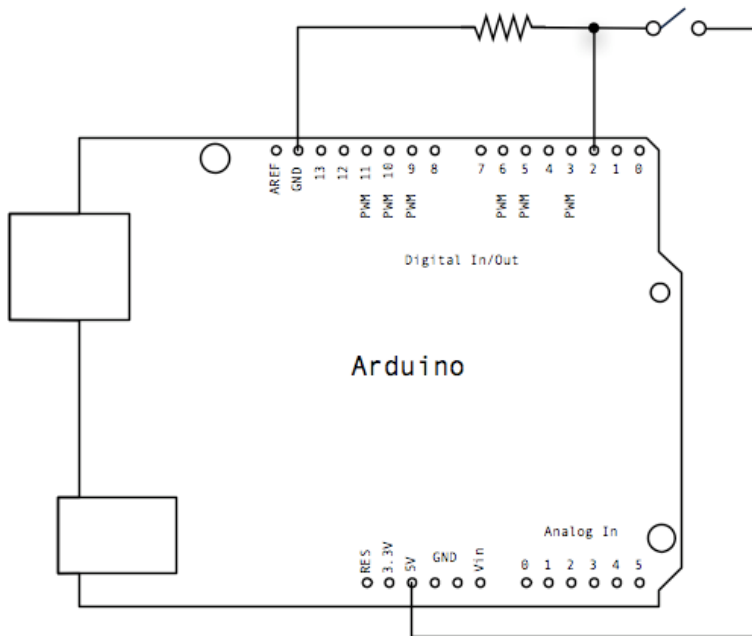
When the pushbutton is open (unpressed) there is no connection between the two legs of the pushbutton, so the pin is connected to ground (through the pull-down resistor) and we read a LOW. When the button is closed (pressed), it makes a connection between its two legs, connecting the pin to 5 volts, so that we read a HIGH.

You can also wire this circuit the opposite way, with a pullup resistor keeping the input HIGH, and going LOW when the button is pressed. If so, the behavior of the sketch will be reversed, with the LED normally on and turning off when you press the button.

If you disconnect the digital I/O pin from everything, the LED may blink erratically. This is because the input is "floating" - that is, it will randomly return either HIGH or LOW. That's why you need a pull-up or pull-down resistor in the circuit.

## Schematic

click the image to enlarge



([//www.arduino.cc/en/uploads/Tutorial](https://www.arduino.cc/en/uploads/Tutorial)

/button\_schem.png)

## Code

```
/*
  Button

  Turns on and off a light emitting diode(LED) connected to digital pin 13,
  when pressing a pushbutton attached to pin 2.

  The circuit:
```

- LED attached from pin 13 to ground
- 10K resistor attached to pin 2 from ground
- Note: on most Arduinos there is already an LED on the board attached to pin 13.

created 2005

by DojoDave <<http://www.0j0.org>>

modified 30 Aug 2011

by Tom Igoe

This example code is in the public domain.

<http://www.arduino.cc/en/Tutorial/Button>

```

*/

// constants won't change. They're used here to set pin numbers:
const int buttonPin = 2;    // the number of the pushbutton pin
const int ledPin = 13;      // the number of the LED pin

// variables will change:
int buttonState = 0;        // variable for reading the pushbutton status

void setup() {
  // initialize the LED pin as an output:
  pinMode(ledPin, OUTPUT);
  // initialize the pushbutton pin as an input:
  pinMode(buttonPin, INPUT);
}

void loop() {
  // read the state of the pushbutton value:
  buttonState = digitalRead(buttonPin);

  // check if the pushbutton is pressed. If it is, the buttonState is HIGH:
  if (buttonState == HIGH) {
    // turn LED on:
    digitalWrite(ledPin, HIGH);
  } else {
    // turn LED off:
    digitalWrite(ledPin, LOW);
  }
}

```

[Get Code] (<http://www.arduino.cc/en/Tutorial/Button?action=sourceblock&num=1>)

## See Also

- [pinMode \(<http://www.arduino.cc/en/Reference/PinMode>\)\(\)](http://www.arduino.cc/en/Reference/PinMode)
- [digitalWrite \(<http://www.arduino.cc/en/Reference/DigitalWrite>\)\(\)](http://www.arduino.cc/en/Reference/DigitalWrite)
- [digitalRead \(<http://www.arduino.cc/en/Reference/DigitalRead>\)\(\)](http://www.arduino.cc/en/Reference/DigitalRead)
- [if \(<http://www.arduino.cc/en/Reference/If>\)](http://www.arduino.cc/en/Reference/If)

- [else \(//www.arduino.cc/en/Reference/Else\)](https://www.arduino.cc/en/Reference/Else)
- . ARDUINO.CC/EN/MAIN/EDUCATION) RESOURCES COMMUNITY HELP SIGN IN ()**
- [BlinkWithoutDelay \(//www.arduino.cc/en/Tutorial/BlinkWithoutDelay\)](https://www.arduino.cc/en/Tutorial/BlinkWithoutDelay) - Blink an LED without using the `delay()` function.
- [Debounce \(//www.arduino.cc/en/Tutorial/Debounce\)](https://www.arduino.cc/en/Tutorial/Debounce) - Read a pushbutton, filtering noise.
- [DigitalInputPullup \(//www.arduino.cc/en/Tutorial/DigitalInputPullup\)](https://www.arduino.cc/en/Tutorial/DigitalInputPullup) - Demonstrates the use of `INPUT_PULLUP` with `pinMode()`.
- [StateChangeDetection \(//www.arduino.cc/en/Tutorial/StateChangeDetection\)](https://www.arduino.cc/en/Tutorial/StateChangeDetection) - Count the number of button pushes.
- [toneKeyboard \(//www.arduino.cc/en/Tutorial/ToneKeyboard\)](https://www.arduino.cc/en/Tutorial/ToneKeyboard) - A three-key musical keyboard using force sensors and a piezo speaker.
- [toneMelody \(//www.arduino.cc/en/Tutorial/ToneMelody\)](https://www.arduino.cc/en/Tutorial/ToneMelody) - Play a melody with a Piezo speaker.
- [toneMultiple \(//www.arduino.cc/en/Tutorial/ToneMultiple\)](https://www.arduino.cc/en/Tutorial/ToneMultiple) - Play tones on multiple speakers sequentially using the `tone()` command.
- [tonePitchFollower \(//www.arduino.cc/en/Tutorial/TonePitchFollower\)](https://www.arduino.cc/en/Tutorial/TonePitchFollower) - Play a pitch on a piezo speaker depending on an analog input.

*Last revision 2015/07/28 by SM*

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(<https://www.youtube.com/watch?v=Z0151Z0151Z>)