

## Button / Serial Window

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

### HARDWARE REQUIRED

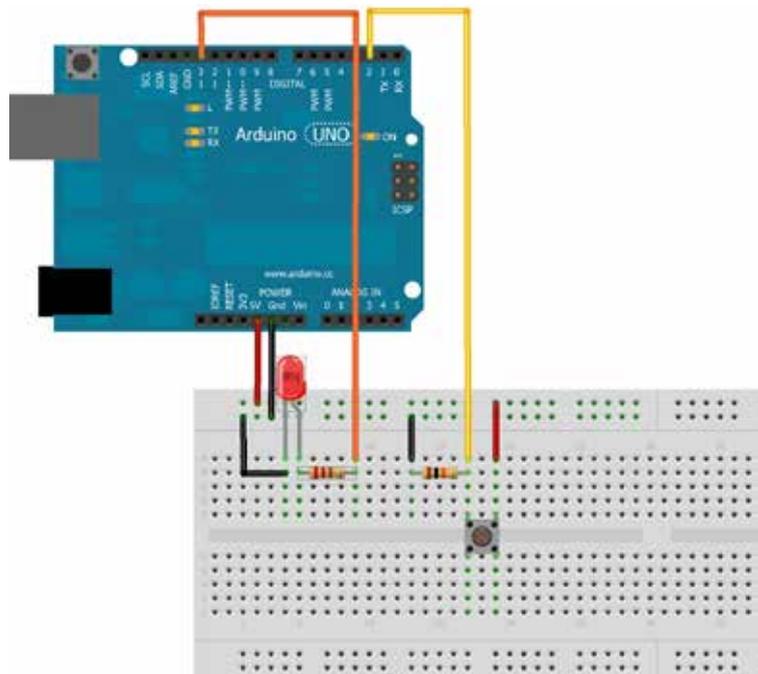
Arduino Board  
1 momentary button or switch  
1 10K ohm resistor  
1 LED  
220ohm Resistor  
breadboard  
hook-up wires

### CIRCUIT

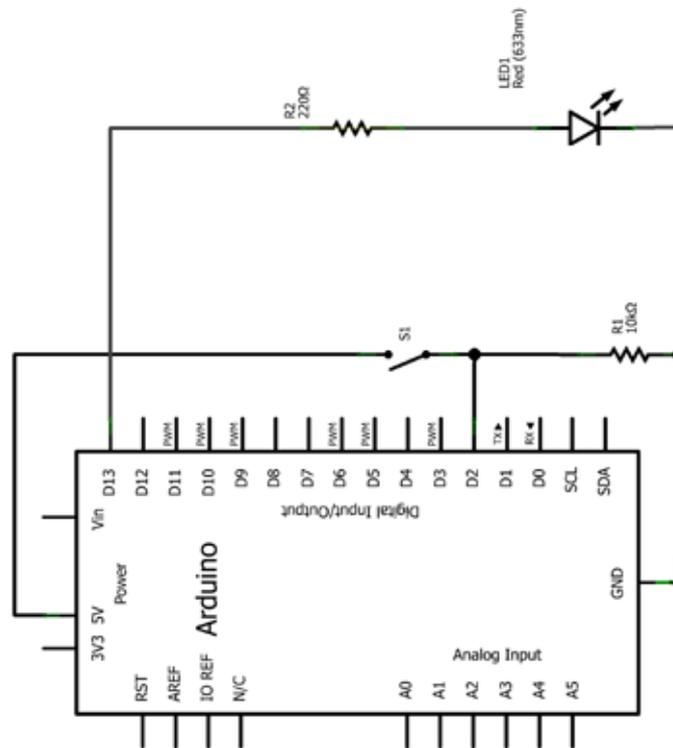
Connect three wires to the Arduino board. The first two, red and black, connect to the two long vertical rows on the side of the breadboard to provide access to the 5 volt supply and ground. The third wire goes from digital pin 2 to one leg of the pushbutton. That same leg of the button connects through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

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.

### IMAGE



## SCHEMATIC



## CODE

```

/*
 * 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 serial communication:
  Serial.begin(9600);
  // 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);
    // Print to Serial
    Serial.println("HIGH");
  }
  else {
    // turn LED off:
    digitalWrite(ledPin, LOW);
    // Print to Serial
    Serial.println("LOW");
  }
}

```

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
- \* pushbutton attached to pin 2 from +5V
- \* 10K resistor attached to pin 2 from ground
- \* 220Ω resistor attached to pin 13 from LED anode

\* Note: on most Arduinos there is already an LED on the board attached to pin 13.

created 2005

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modified 30 Aug 2011

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This example code is in the public domain.

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