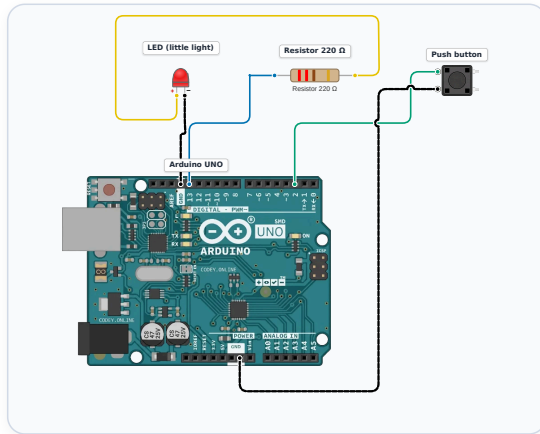


★ Beginner ⌚ 15 minutes

Light switch

You are making a light switch. Press once: the LED turns on. Press again: the LED turns off. This is how you learn how the Arduino "feels" a button.

Wiring diagram



What do you need?



This is how you build it

1. Put the push button over the gap in your breadboard.
2. Connect one leg to pin 2 and a leg on the other side to GND.
3. Put the LED with a 220 Ω resistor on pin 13, with the short leg to GND.

The code

```
// Light switch
// Press the button once: the LED turns on. Again: the LED turns off.

const int BUTTON_PIN = 2; // The push button is on pin 2 (other side to GND)
const int LED_PIN = 13; // The LED is on pin 13 (through the resistor)

bool ledOn = false; // Remembers if the LED is on or off now
bool previousButton = HIGH; // How the button was last time

void setup() {
  pinMode(BUTTON_PIN, INPUT_PULLUP); // Input with built-in resistor: loose = HIGH, pressed = LOW
  pinMode(LED_PIN, OUTPUT);
}

void loop() {
  bool button = digitalRead(BUTTON_PIN);

  // Only react at the moment you press the button
  if (previousButton == HIGH && button == LOW) {
    ledOn = !ledOn; // Flip: on becomes off, off becomes on
    digitalWrite(LED_PIN, ledOn ? HIGH : LOW);
    delay(50); // Wait a little to stop button "bounce"
  }

  previousButton = button;
}
```

What does the code do?

- The button is on pin 2 with `INPUT_PULLUP`. Not pressed is HIGH, pressed is LOW.
- We remember if the LED is on or off in `ledOn`.
- Only at the moment you press the button, we flip `ledOn`.

Try this...

- Make the LED blink instead of staying on
- Let the LED turn off by itself after 10 seconds
- Count how many times the button is pressed and show it in the serial monitor

🚀 Build this project with Codey: open codey.online/starter-kits/uno/projects/light-switch and click MAKE THIS. Then the code and the wiring diagram are ready right away.