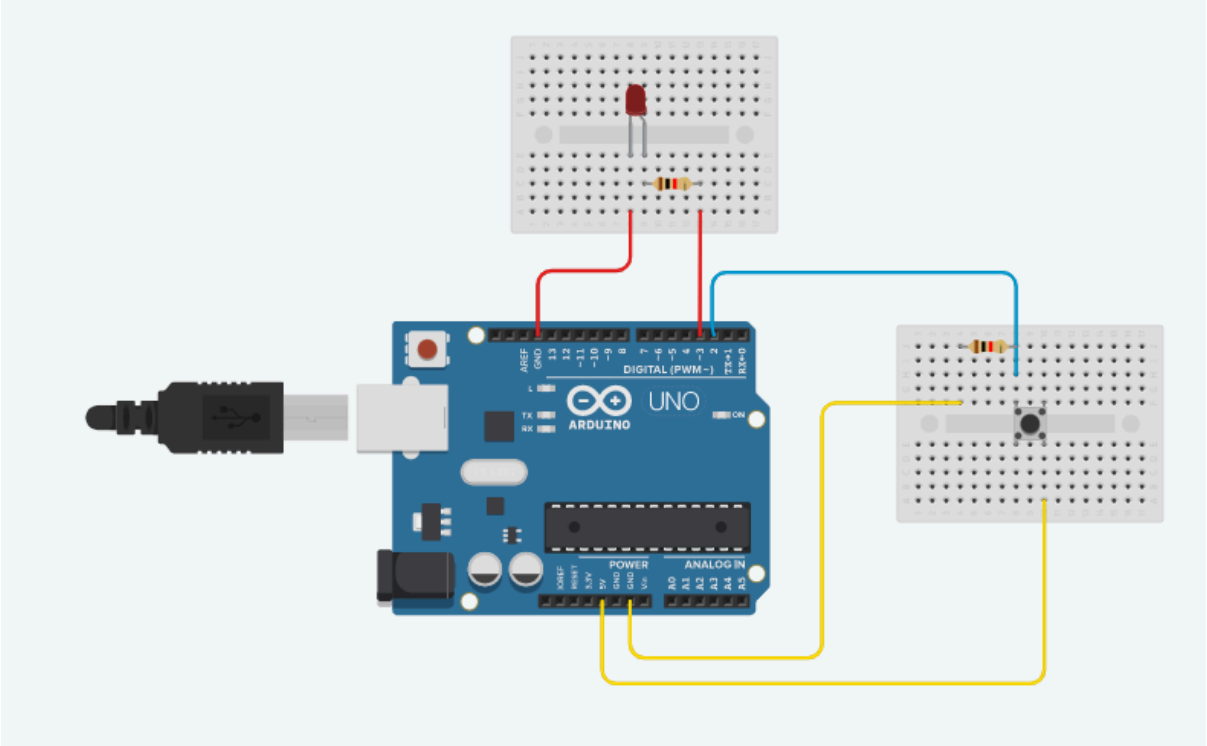
Arduino

Task 1:

Make an LED that turns on every time a pushbutton is pressed. NOTE that you need to take the input from the pushbutton back into the Arduino, and not directly use the pushbutton to complete the LED circuit.

Circuit:



Components and Working:

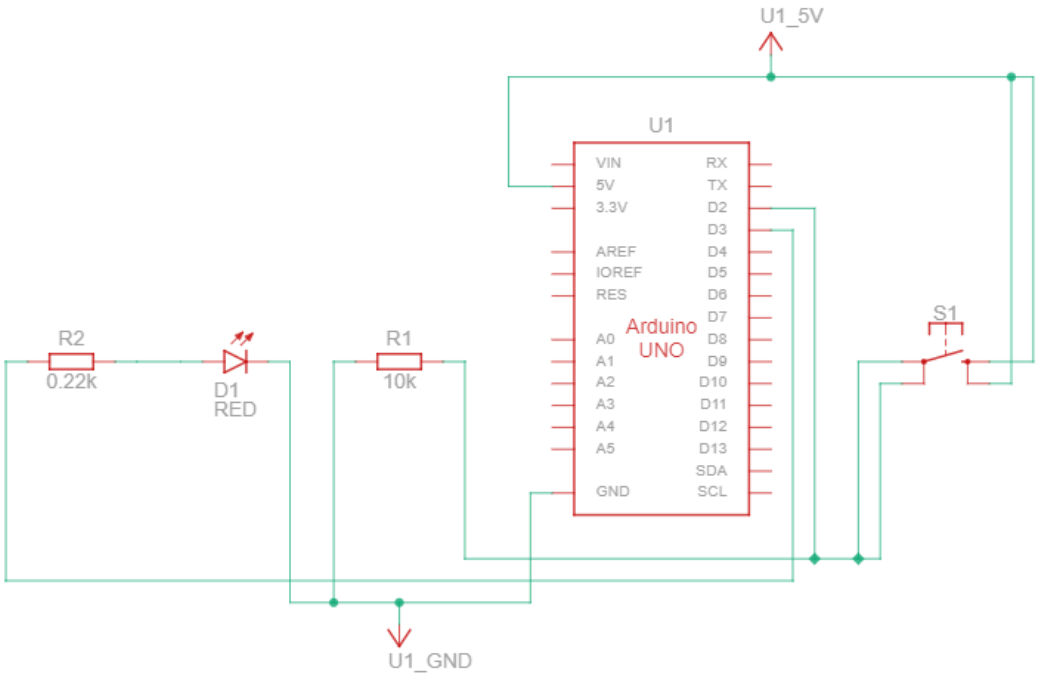
An Arduino Uno R3, 2 mini breadboards, two resistors, 220 Ohms resistor with LED and 10 KiloOhms resistor with the button. Why? you may ask, thats because the LEDs are sensitive and they could get damaged and burned down if alot of current flows at once, so to limit the amount of current flow we attach a resistor of lower value. Now about the pushbutton resistor, the readings shall be either 0V or 5V, if

the reading is anywhere inbetween, it gives unpredictable results, so the higher valued resistor makes sure that either all the current goes through or no (or almost no) current goes through. Then there's an LED and a pushbutton, and the rest is normal wires.

Component List

Name	Quantity	Component
U1	1	Arduino Uno R3
D1	1	Red LED
R1	1	10 kΩ Resistor
R2	1	0.22 kΩ Resistor
S1	1	Pushbutton

Schematic View:



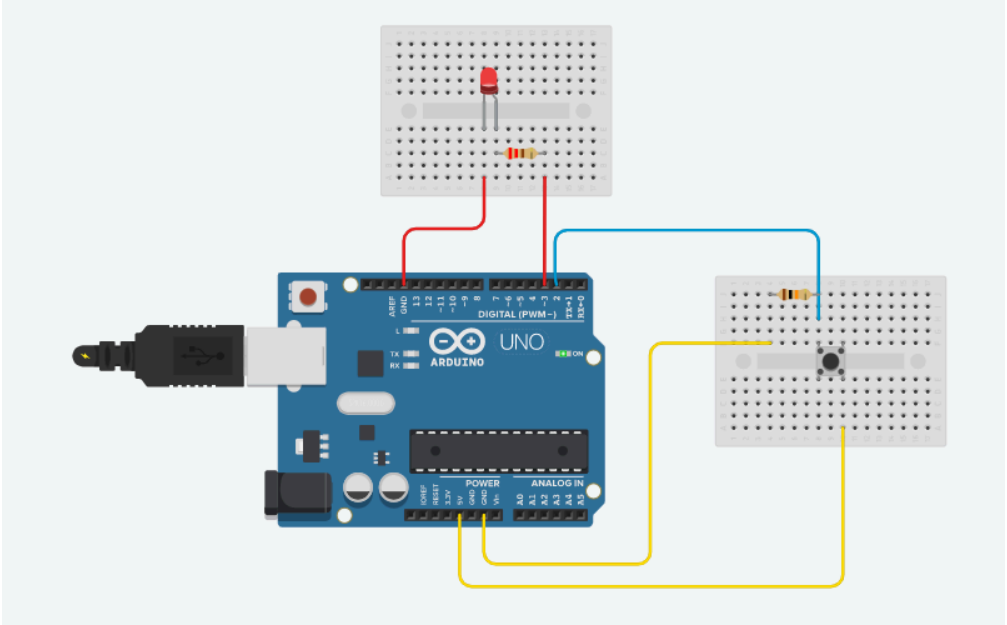
Code:

```
int buttonPin = 2;
int ledPin = 3;

int buttonState = 0;
int lastButtonState = 0;
int ledState = 0;

void setup() {
  pinMode(buttonPin, INPUT);
  pinMode(ledPin, OUTPUT);
}

void loop() {
  buttonState = digitalRead(buttonPin);

  if (buttonState == HIGH && lastButtonState == LOW) {
    ledState = !ledState;
    digitalWrite(ledPin, ledState);
    delay(200);
  }

  lastButtonState = buttonState;
}

```

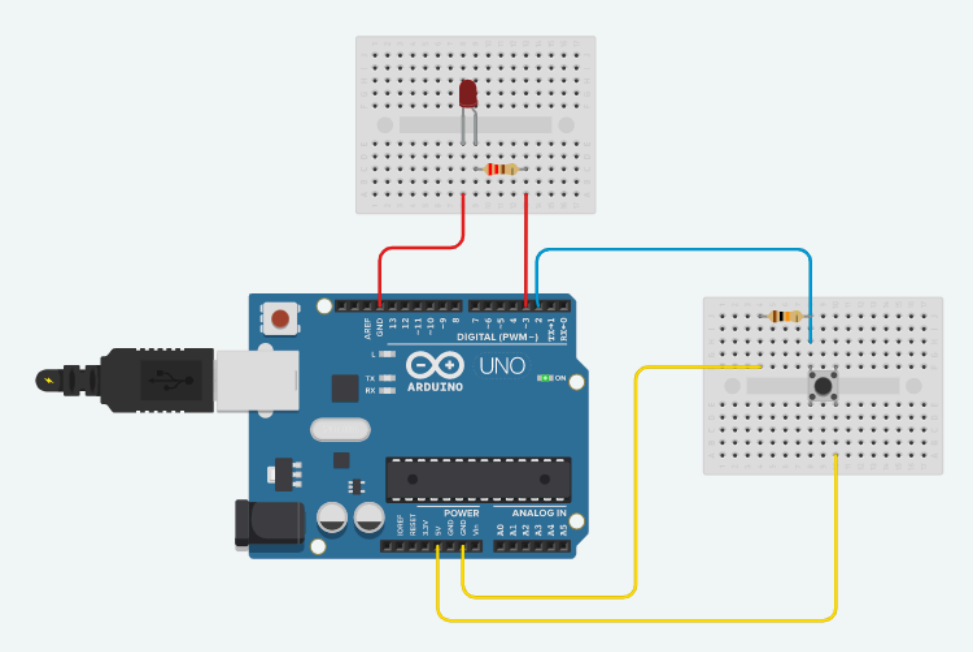
When the button is pressed, Arduino reads a High signal on pin 2, and then it toggles between the two LED states, ON to OFF and OFF to ON.

Output:

The LED was off and here it is turned ON after a press of the button



The LED was ON and here it is turned OFF after a press of the button



The tinkercad link for this assignment has been provided with the link of task 2 itself. PLease check task two pd for the link.

THANK YOU

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