



## **CSE461**

Introduction to Robotics Lab

Lab No. : 01

Group : 03

Section : 08

Semester : Summer\_2025

Group members :

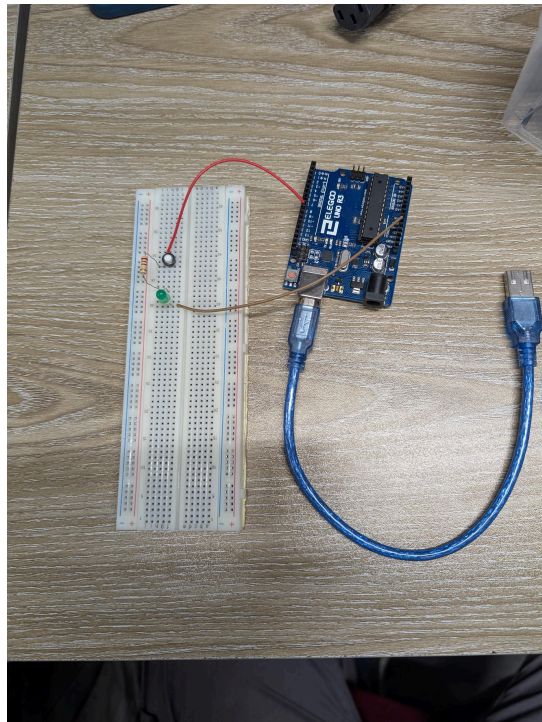
MD.Sohanur Rahman Shimul	22299079
Mahibi Islam	22201828
Fayez Ahmad Protik	23101474
Sharmin Jahan Ananna	22101850
Tithi Halder	22101406

Submitted Date: 04-07-2025

Submitted to -

Utsha Kumar Roy & Sadman Sharif

1. **Objectives:** Introduction to Arduino microcontroller and control of an LED with a switch using the board.
2. **Equipments:** Arduino Uno R3, LED (Light Emitting Diode), Push-button switch, Resistor ( $220\Omega$  for LED), Breadboard, Jumper wires
3. **Experimental Setup:**  
(Picture + Explanation)



**Explanation:**

Connected the  $220\Omega$  resistor to one terminal of the switch  
Connected the  $220\Omega$  resistor to the anode (Positive) of the LED.  
Connected the cathode (Negative) of the LED to the GND pin on the Arduino.  
Connected the other terminal of the switch to digital pin 8

#### 4. Code: (If Applicable)

```
# Enter Code Here
#define BUTTON_PIN 8 // Define the button pin
#define LED_PIN 8
void setup() {
  pinMode(BUTTON_PIN, INPUT_PULLUP); // Set the button pin as input
  Serial.begin(9600); // Initialize serial communication
}
void loop() {
  if (digitalRead(BUTTON_PIN) == LOW) {
    digitalWrite(LED_PIN, HIGH);
    Serial.println("Button pressed."); // Print message to S. Monitor
  }else{
    Serial.println("Button not pressed.");
    digitalWrite(LED_PIN, LOW);
  }
  delay(100); // Small delay to debounce the button
}
```

**5. Results (Output of the experiment):** The LED gets on when the switch is being pressed. Otherwise it stays turned off.

#### 6. Discussions/Answers:

(May contain conclusions or learnings from the result along with problems faced and solving methodology.)

The Arduino reads the state of the switch using a digital input pin configured with an internal pull-up resistor. When the switch is not pressed, the pull-up resistor keeps the pin at HIGH (5V). When the switch is pressed, it connects the pin to GND, pulling the voltage to LOW (0V). Now when the switch is pressed the current passes through the LED and it gets turned on. On the contrary, we are using the input detecting HIGH(5V) for turning on the LED.