Practical No. 2

Aim: Introduction to Basic IoT Components.

Objectives:

1. To learn Arduino UNO basics
2. To interface Push button with Arduino and write a program to turn ON LED when push button is pressed.
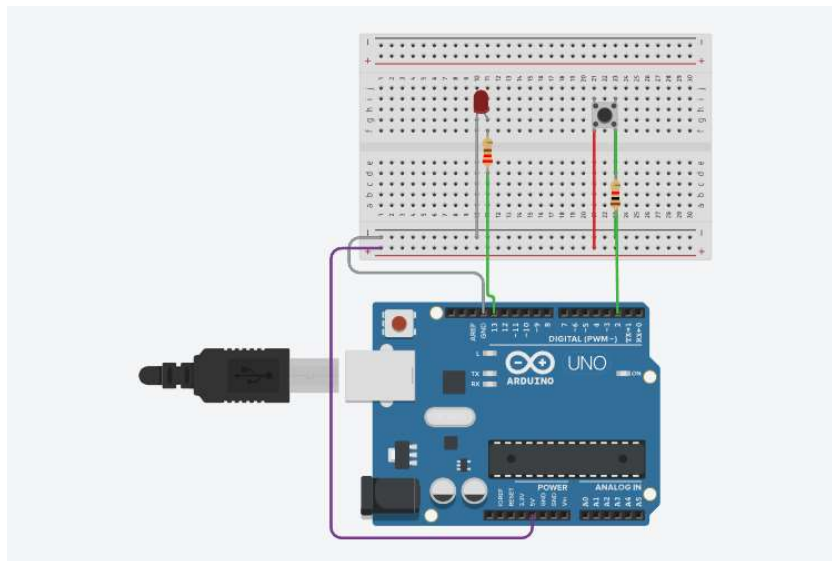
Theory:

Hardware:

- Arduino board
- Push button
- LED
- 220 ohm resistor
- Jumper wires

Function:

- The push button acts as a switch that connects the Arduino board to ground when it is pressed. The Arduino board can then detect that the button has been pressed and turn on the LED.

Circuit Diagram: (Download from tinkercad.com)

Program:

```
int pushButtonPin = 2;

int ledPin = 13;


int pushButtonState = 0;


void setup()
{
  pinMode(pushButtonPin, INPUT);


  pinMode(ledPin, OUTPUT);
}


void loop()
{
  pushButtonState = digitalRead(pushButtonPin);


  if (pushButtonState == HIGH)
  {
    digitalWrite(ledPin, HIGH);
  }
  else
  {
    digitalWrite(ledPin, LOW);
  }


  Serial.println(pushButtonState);
  Serial.println(digitalRead(ledPin));


}
```

Output: (Screenshot of LED On)

Conclusion: This is a simple example of how to interface a push button with Arduino and turn on an LED when the button is pressed. You can use this same basic concept to control other devices, such as motors, servos, or relays.