Enrolment/ Roll No.92100588007

Practical No. 4

Aim: Introduction to Basic IoT Components.

Objectives:

1. To learn Arduino UNO basics
2. To interface Push button, Speaker/buzzer with Arduino and write a program to turn ON LED and generate a note or tone when push button is pressed

Theory:

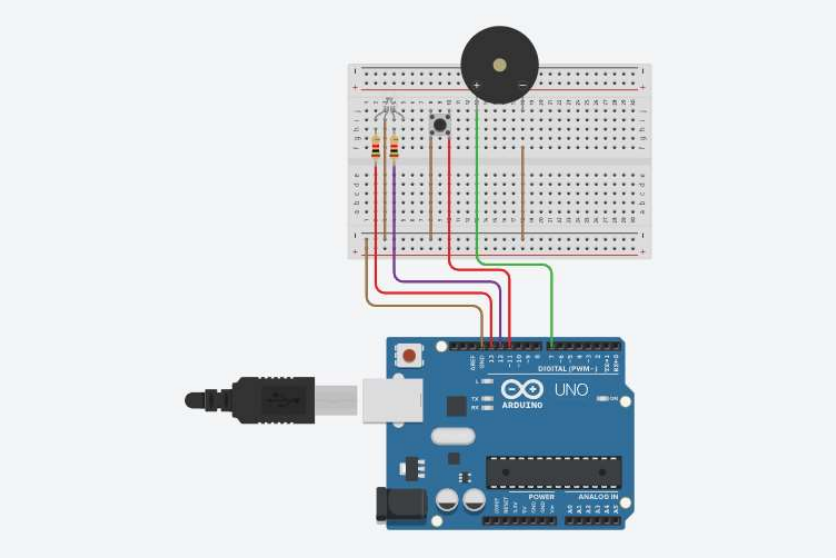
Hardware:

- Arduino board
- Push button
- Speaker/buzzer
- 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 and generate a tone on the speaker/buzzer.

Circuit Diagram: (Download from tinkercad.com)



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Program:

```
// C++ code
//
void setup()
{
  pinMode(2, OUTPUT);
  pinMode(3,INPUT_PULLUP);
  pinMode(7, OUTPUT);
  pinMode(11,INPUT_PULLUP);
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
}

void loop()
{
  if(digitalRead(11)==LOW)
  {
    //digitalWrite(7,HIGH)
    tone(7,250);
    digitalWrite(13,HIGH);
  }

  else
  {
    noTone(7);
    digitalWrite(13,LOW);
  }
```

Output: (Screenshot of LED On)

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Conclusion: This is a simple example of how to interface a push button, speaker/buzzer with Arduino and generate a note or tone when the push button is pressed for Tinkercad. You can use this same basic concept to control other devices, such as motors, servos, or relays.