

Worksheet 1.2.1

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Branch: MCA(General)
Semester: 4th
Subject Name: IOT

UID: 22MCA20643
Section/Group: 22MCA-1(A)
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1. Aim/Overview of the practical: (For ODD UIDs)

Interface an Arduino Uno with two pushbuttons to design the different patterns and follow the different cases. Use 2 different color LEDs and name them L1 and L2 and **PULL UP** resistors of suitable values. Don't use delay function.

When pushbutton 1 is Pressed:

- a) Both the LEDs are in blinking state without using **delay function**. (ON and OFF time interval is 2 secs)

When pushbutton 2 is Pressed:

- b) When we press button Led will remain ON and Both Led will remain in blinking state simultaneously.

2. Apparatus (For applied/experimental sciences/materials based labs):

Hardware Requirements : 1 Arduino, 1 Breadboard, 2 diff color LEDs, 10 kilohm RESISTORS, 15 wires.

Name	Quantity	Component
Uarduino board	1	Arduino Uno R3
S1 S2	2	Pushbutton
D1	1	Green LED
D2	1	Yellow LED
R1 R2	2	1 kΩ Resistor

Software requirements : TinkerCad, Arduino IDE.

3. Circuit Diagram(TinkerCad):

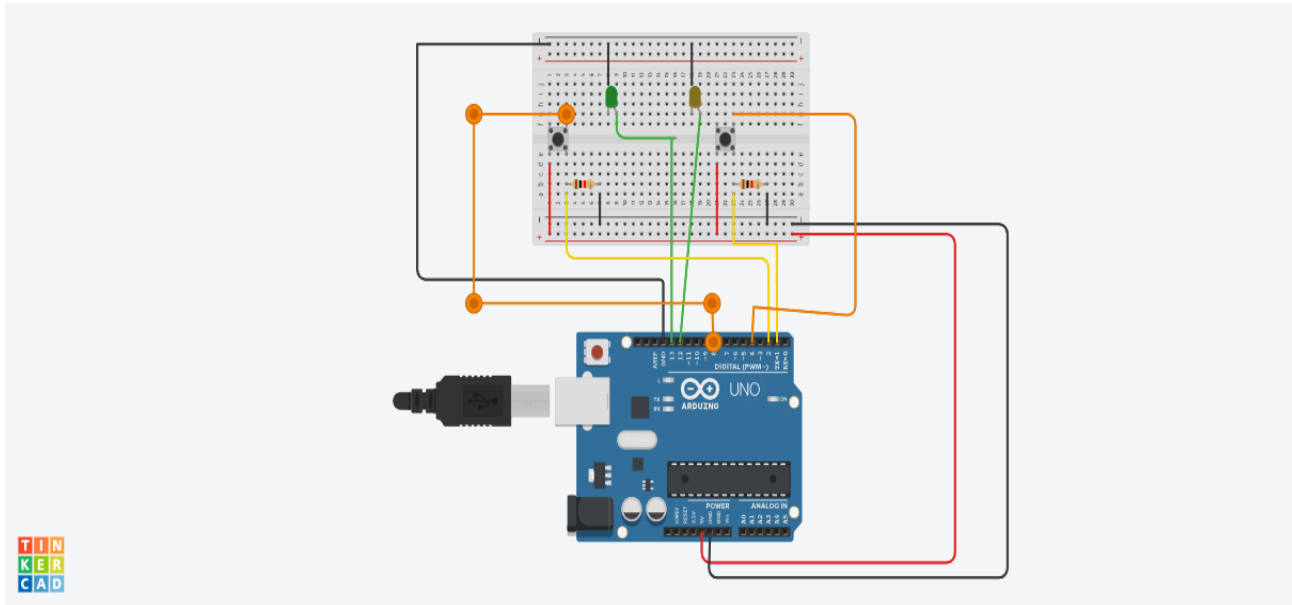
1. Coding:

```
static bool ledState = false;
int ledState2 = 0;
unsigned long previousMillis = 0;
const long interval = 2000;
void setup() {
  pinMode(8, INPUT_PULLUP);
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
  Serial.begin(9600);
}

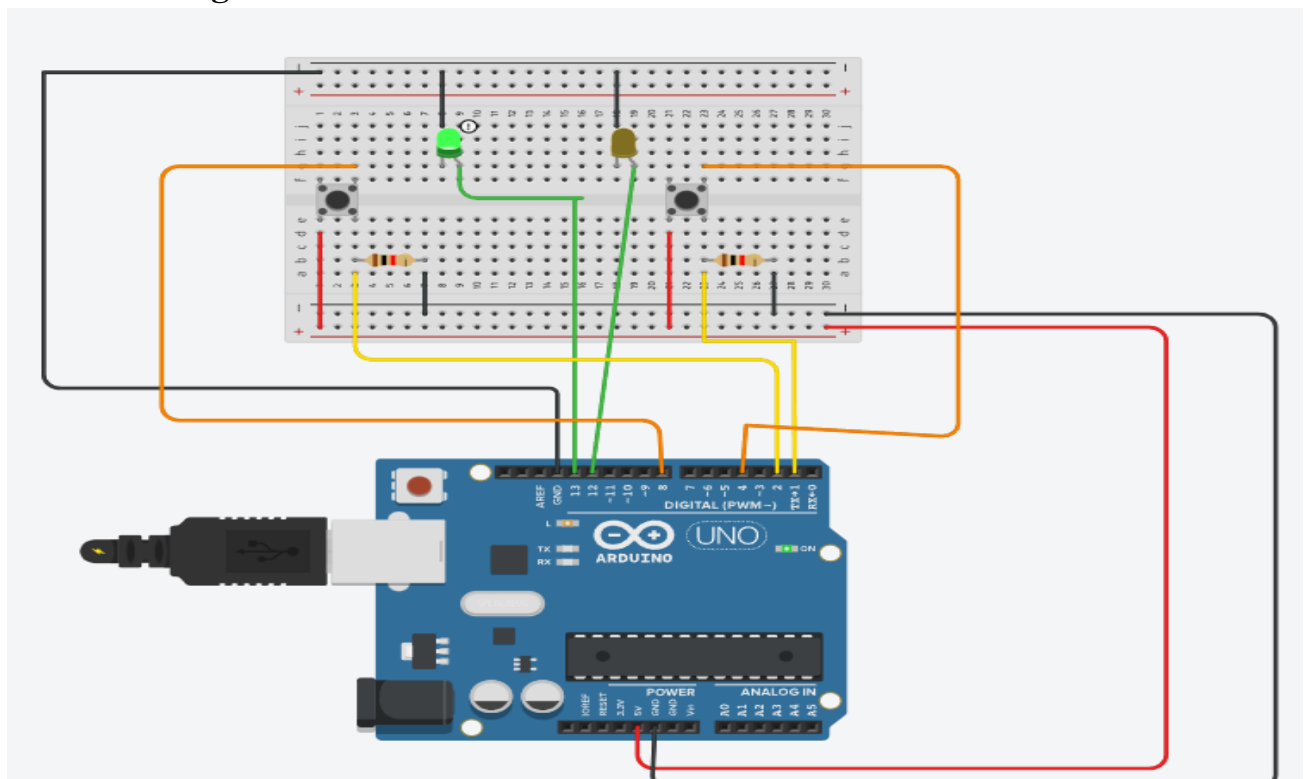
void loop()
{
  static unsigned long blinkPreviousMillis = 0;
  const unsigned long blinkInterval = 2000;
  unsigned long blinkCurrentMillis = millis();
  if (blinkCurrentMillis - blinkPreviousMillis >= blinkInterval)
  {
    blinkPreviousMillis = blinkCurrentMillis;
    digitalWrite(12, !digitalRead(12));
  }
  {
    int button1 = digitalRead(8);
    Serial.print("Button Val = ");
    Serial.println(button1);
    if (button1 == 1) {
      digitalWrite(13, LOW);
    }
    else { digitalWrite(13, HIGH);}}}
```

OUTPUT:

Before pressing any button:



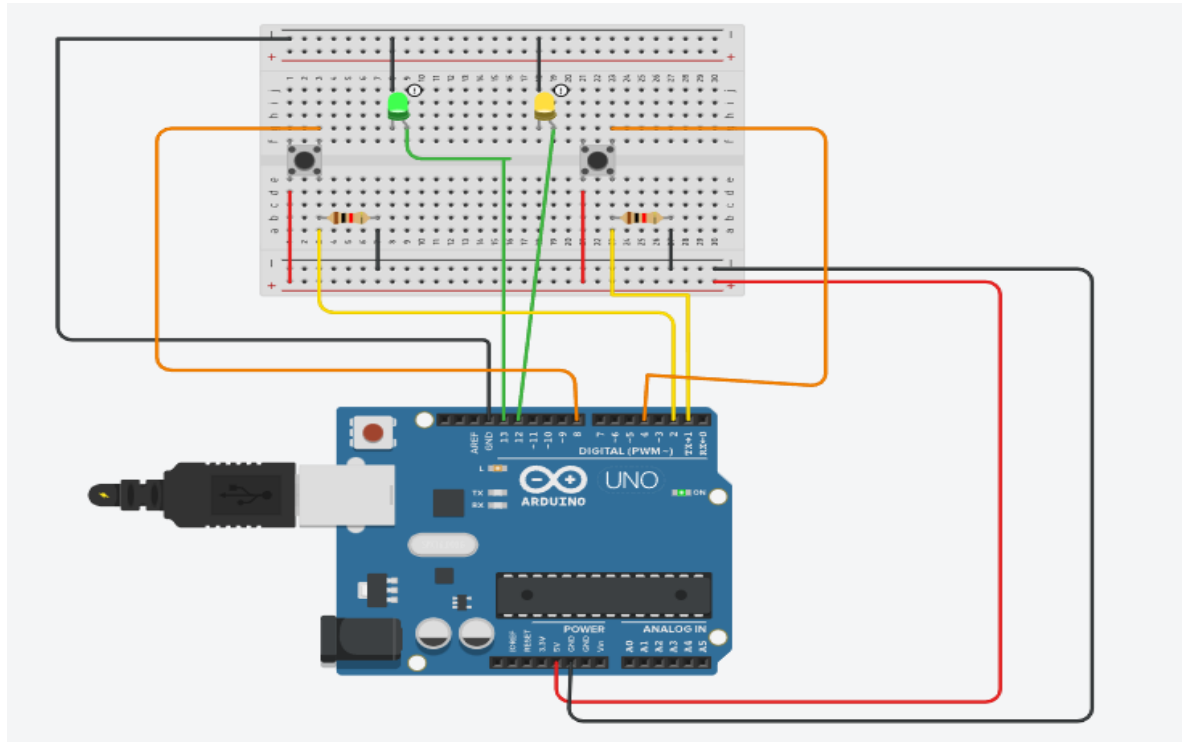
After Pushing Button 1:



Left push button = Button 1

After pushing Button 2:

Right push button = Button 2



5. Learning outcomes (What I have learnt):

1. Learned about ARDUINO UNO CHIP and its ports.
2. Learned about the connectivity of Arduino Uno chip with Breadboard using Jumper Wires.
3. Learned about how to give functionality to the circuit using code.
4. Learned about millis function.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet Completion		10 marks
2.	Post Lab Quiz Result		12 marks



3.	Student Engagement (Simulation/ Demonstrate/Performance and Pre-Lab Questions))		8 marks
	Total		30 marks