

LAB-01

CSE2020

INTRODUCTION TO CPS LAB

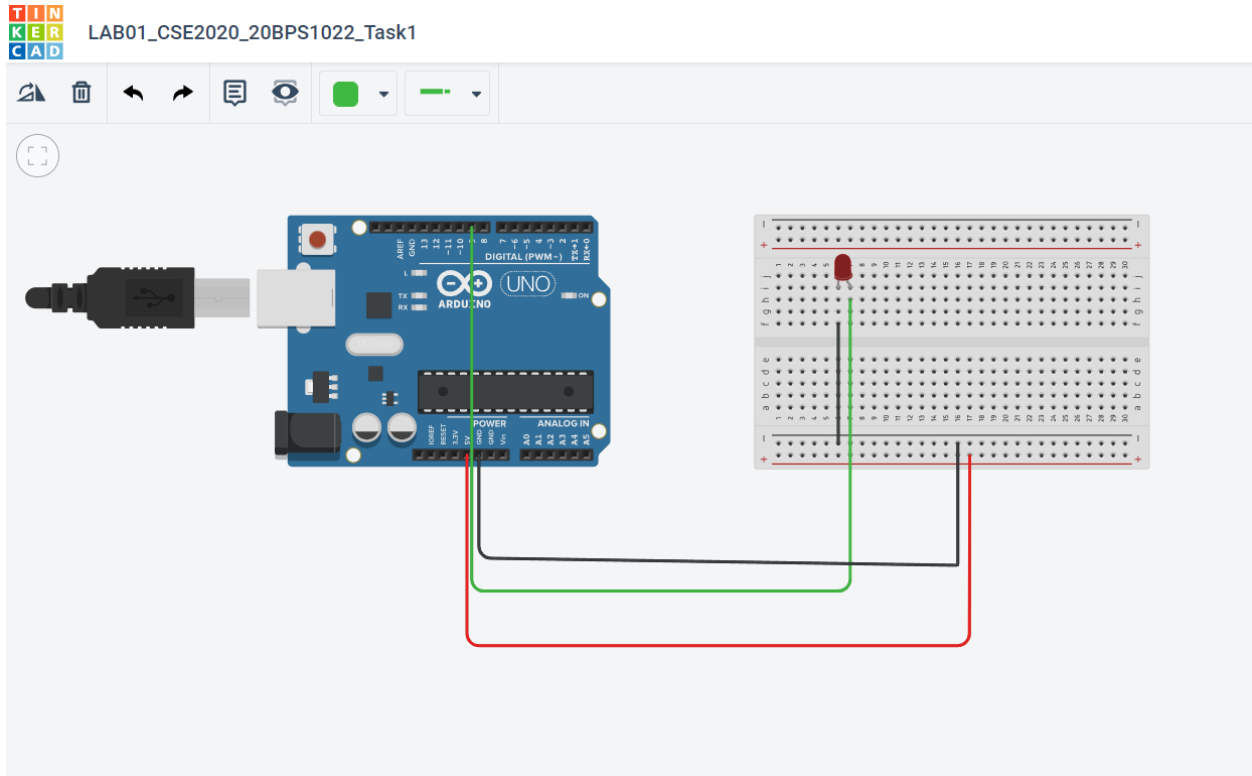
Name: Preyash

Reg No.: 20BPS1022

Date: January 10, 2022

Task 1: Single LED on/off connected in breadboard

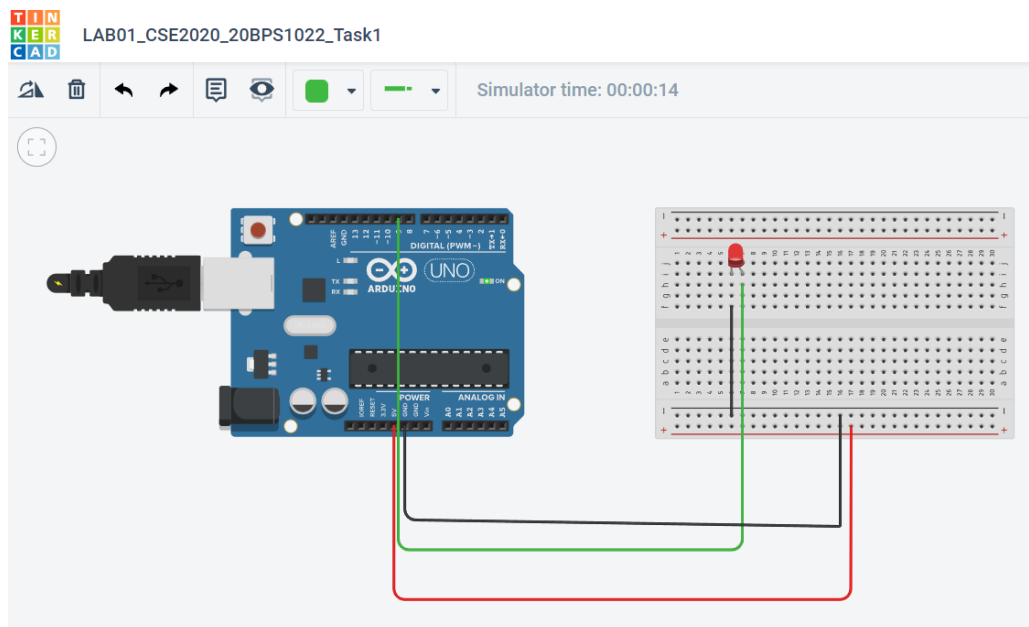
Circuit:



Code:

```
// C++ code  
void setup()  
{  
  pinMode(9, OUTPUT);  
}  
void loop()  
{  
  delay(1000); // Wait for 1000 millisecond(s)  
  digitalWrite(9, HIGH);  
  delay(1000);  
  digitalWrite(9, LOW);  
}
```

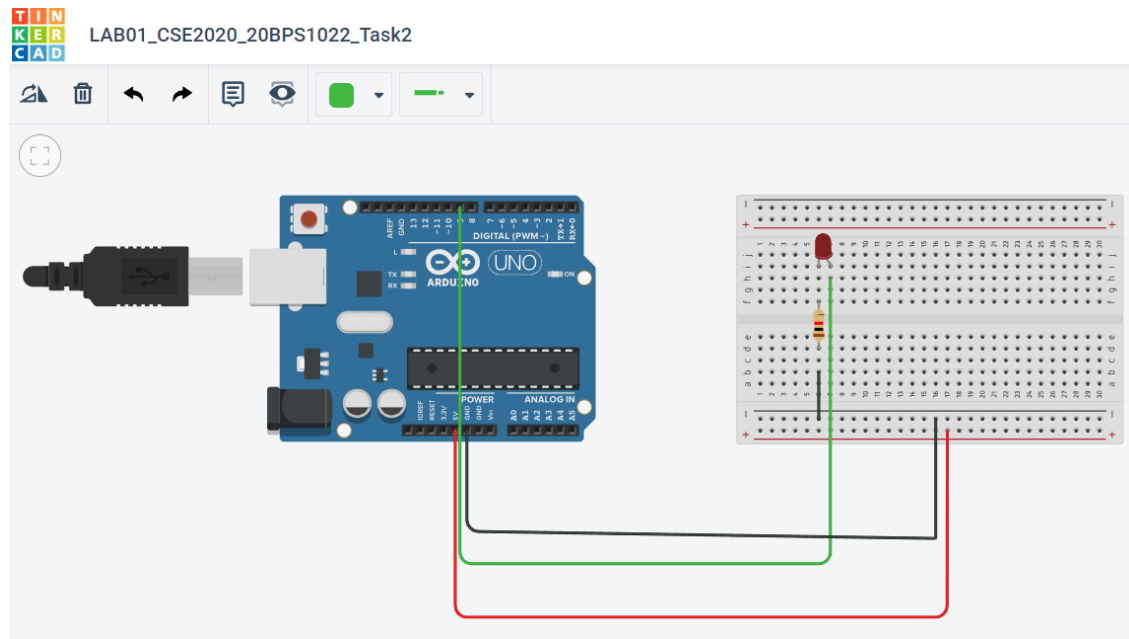
Output:



Link: <https://www.tinkercad.com/things/42WhK8pZ58L-lab01cse202020bps1022task1/editel>

Task 2: Single LED on/off connected in breadboard in Tinker CAD.

Circuit:



Code:

```
// C++ code

void setup()
{
    pinMode(9, OUTPUT);
}

void loop()
{
    delay(1000); // Wait for 1000 millisecond(s)

    digitalWrite(9, HIGH);

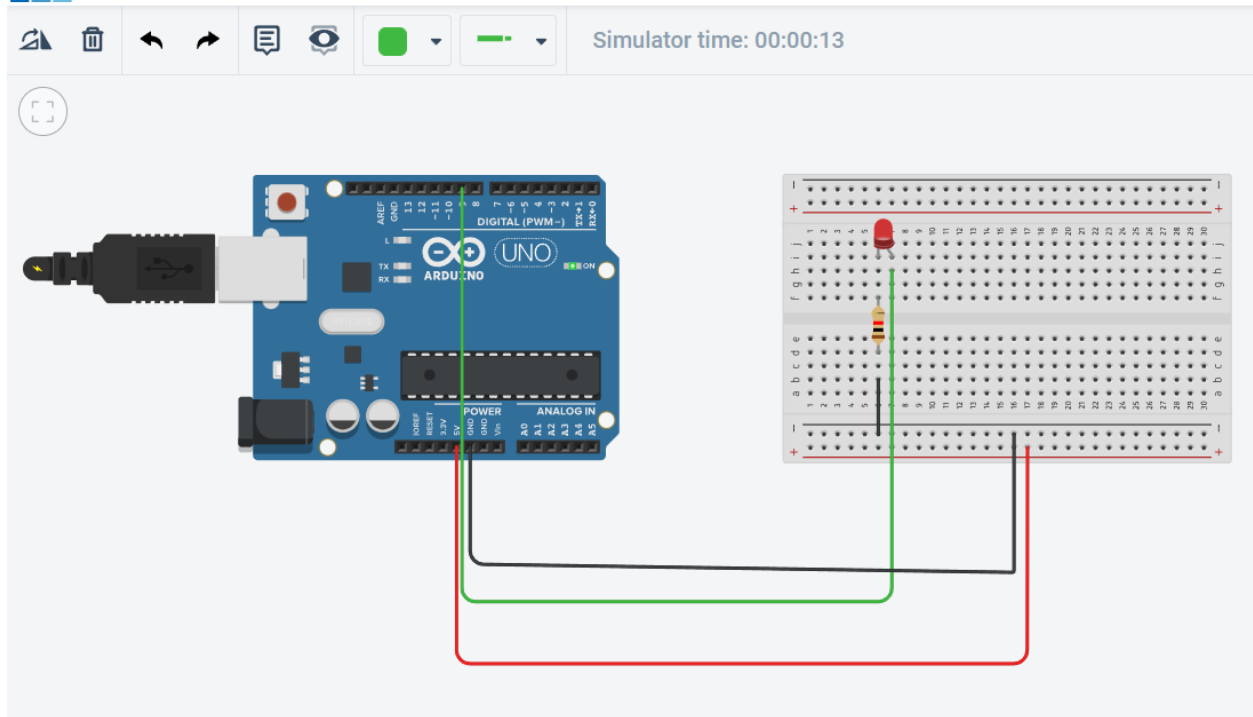
    delay(1000);

    digitalWrite(9, LOW);
}
```

Output:



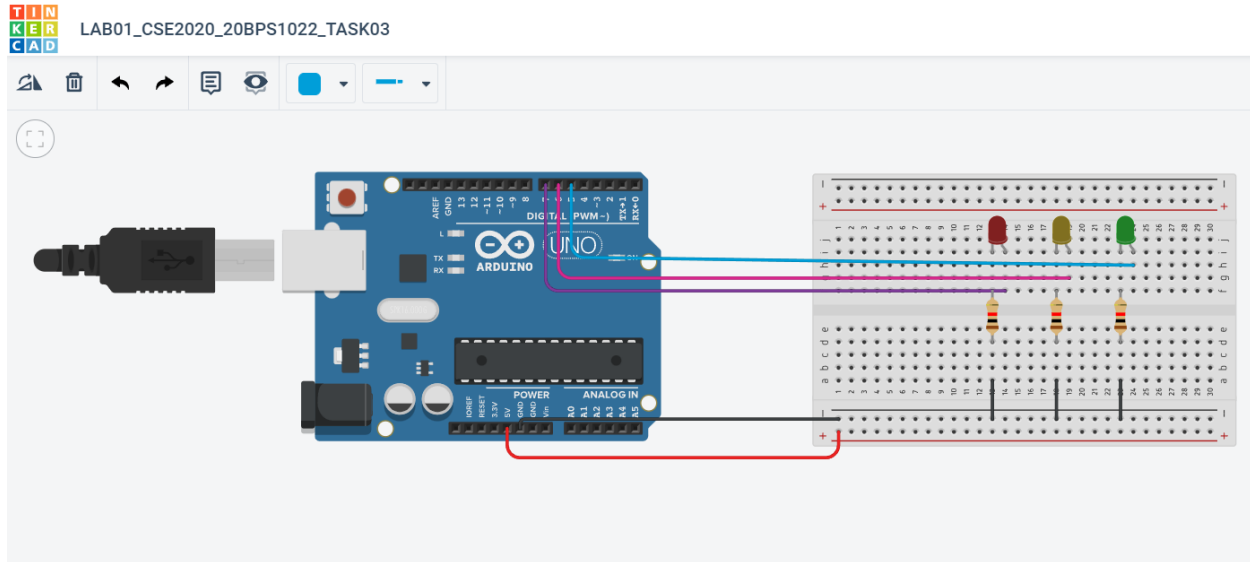
LAB01_CSE2020_20BPS1022_Task2



Link: <https://www.tinkercad.com/things/3C5txwcAYEx-lab01cse202020bps1022task2/editel>

Task 3: Three LED with different color connected with resistor in breadboard (on/off) in Tinker CAD .

Circuit:

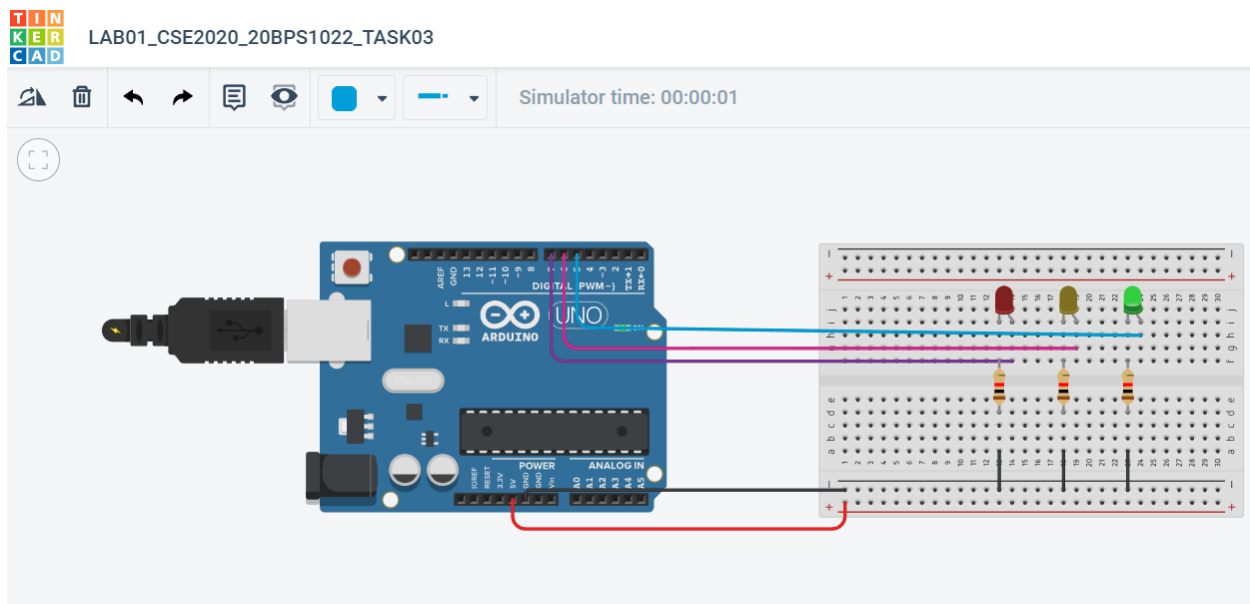


Code:

```
// C++ code
void setup()
{
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
}
void loop()
{
  delay(1000); // Wait for 1000 millisecond(s)
  digitalWrite(5, HIGH);
```

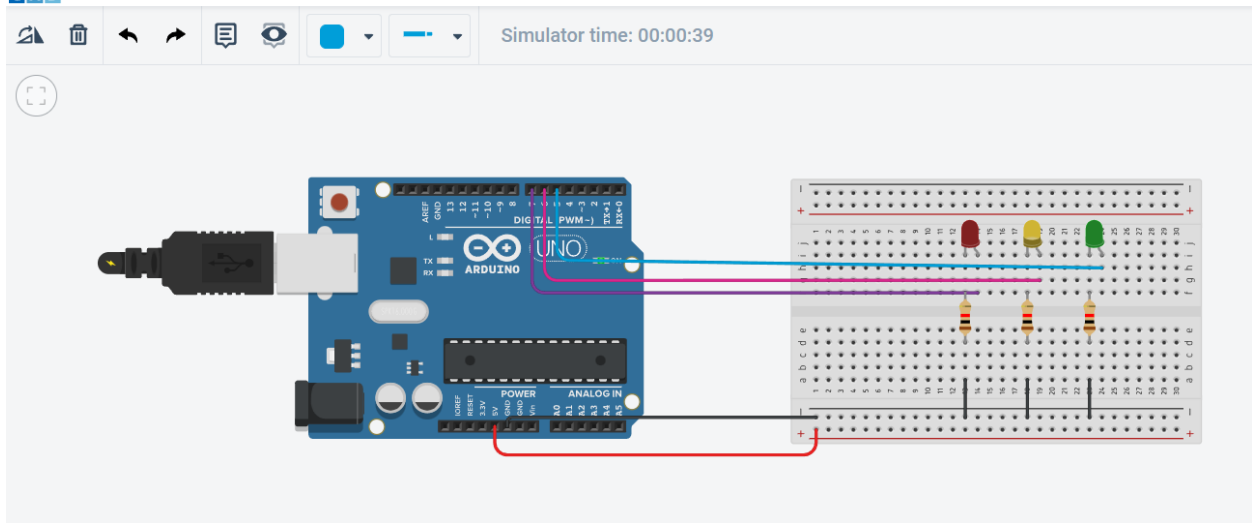
```
delay(1000);  
digitalWrite(5, LOW);  
delay(1000); // Wait for 1000 millisecond(s)  
digitalWrite(6, HIGH);  
delay(1000);  
digitalWrite(6, LOW);  
delay(1000); // Wait for 1000 millisecond(s)  
digitalWrite(7, HIGH);  
delay(1000);  
digitalWrite(7, LOW);  
}
```

Output:

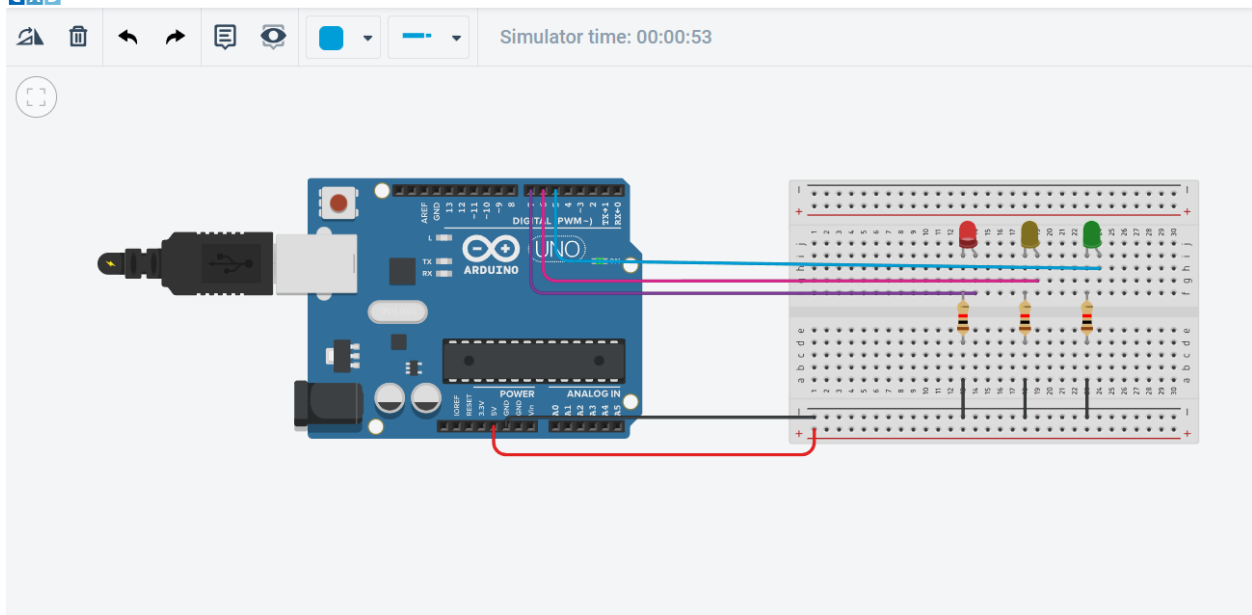




LAB01_CSE2020_20BPS1022_TASK03



LAB01_CSE2020_20BPS1022_TASK03

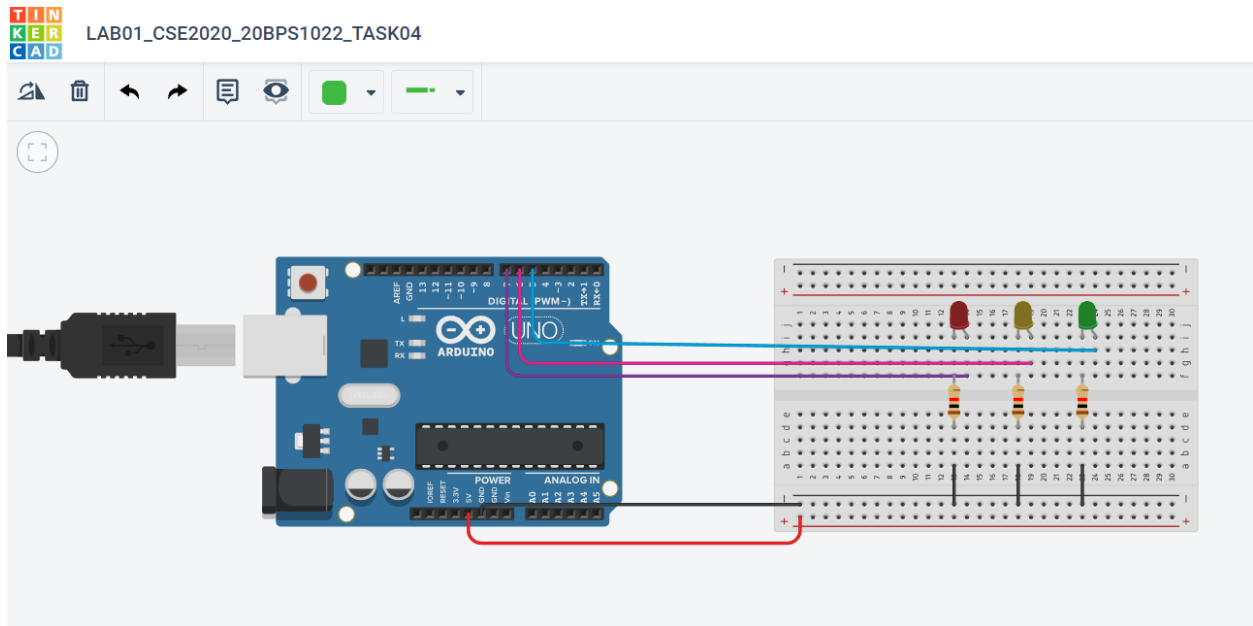


Link:

<https://www.tinkercad.com/things/fgsGIMrFpPp-incredible-maimu-wluff/editel?tenant=circuits>

Task 4: Between on/off of each LED, display a message for each LED.

Circuit:



Code:

// C++ code

```
void setup()
{
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  Serial.begin(9600);
}

void loop()
{
  delay(1000); // Wait for 1000 millisecond(s)
  digitalWrite(5, HIGH);
  Serial.println("Hello!");
```



```

delay(1000);

digitalWrite(5, LOW);

delay(1000); // Wait for 1000 millisecond(s)

digitalWrite(6, HIGH);

Serial.println("I'm Preyash");

delay(1000);

digitalWrite(6, LOW);

delay(1000); // Wait for 1000 millisecond(s)

digitalWrite(7, HIGH);

Serial.println("20BPS1022");

delay(1000);

digitalWrite(7, LOW);

}

```

Output:

TIN
KER
CAD

LAB01_CSE2020_20BPS1022_TASK04

Simulator time: 00:00:01

```

1 // C++ code
2 void setup()
3 {
4   pinMode(5, OUTPUT);
5   pinMode(6, OUTPUT);
6   pinMode(7, OUTPUT);
7   Serial.begin(9600);
8 }
9 void loop()
10 {
11   delay(1000); // W
12   digitalWrite(5, H
13   Serial.println("H
14   delay(1000);
15   digitalWrite(5, L
16   delay(1000); // W
17   digitalWrite(6, H
18   Serial.println("I
19   delay(1000);
20   digitalWrite(6, L
21   delay(1000); // W
22   digitalWrite(7, H
23   Serial.println("2
24   delay(1000);

```

Serial Monitor

Hello!



LAB01_CSE2020_20BPS1022_TASK04

Simulator time: 00:00:03

```
1 // C++ code
2 void setup()
3 {
4   pinMode(5, OUTPUT);
5   pinMode(6, OUTPUT);
6   pinMode(7, OUTPUT);
7   Serial.begin(9600);
8 }
9 void loop()
10 {
11   delay(1000); // Wait
12   digitalWrite(5, HIGH);
13   Serial.println("Hello!");
14   delay(1000);
15   digitalWrite(5, LOW);
16   delay(1000); // Wait
17   digitalWrite(6, HIGH);
18   Serial.println("I'm Preyash");
19   delay(1000);
20   digitalWrite(6, LOW);
21   delay(1000); // Wait
22   digitalWrite(7, HIGH);
23   Serial.println("20BPS1022");
24   delay(1000);
25 }
```

Serial Monitor

Hello!
I'm Preyash



LAB01_CSE2020_20BPS1022_TASK04

Simulator time: 00:00:05

```
1 // C++ code
2 void setup()
3 {
4   pinMode(5, OUTPUT);
5   pinMode(6, OUTPUT);
6   pinMode(7, OUTPUT);
7   Serial.begin(9600);
8 }
9 void loop()
10 {
11   delay(1000); // Wait
12   digitalWrite(5, HIGH);
13   Serial.println("Hello!");
14   delay(1000);
15   digitalWrite(5, LOW);
16   delay(1000); // Wait
17   digitalWrite(6, HIGH);
18   Serial.println("I'm Preyash");
19   delay(1000);
20   digitalWrite(6, LOW);
21   delay(1000); // Wait
22   digitalWrite(7, HIGH);
23   Serial.println("20BPS1022");
24   delay(1000);
25 }
```

Serial Monitor

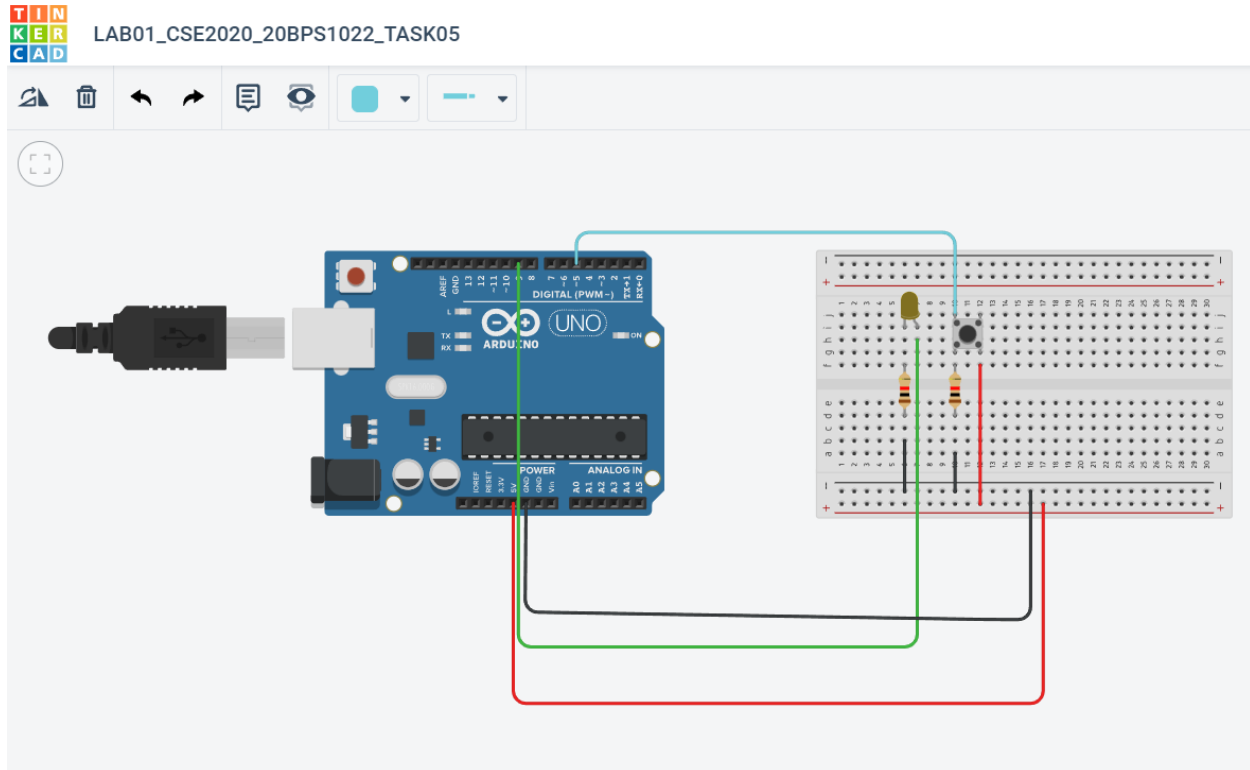
Hello!
I'm Preyash
20BPS1022

Link:

<https://www.tinkercad.com/things/hso01393Cf6-lab01cse202020bps1022task04/editel>

Task 5: Add a pushbutton to the breadboard with 1 LED connected with resistor. Whenever u push the button, LED should turn on, in Tinker CAD.

Circuit:

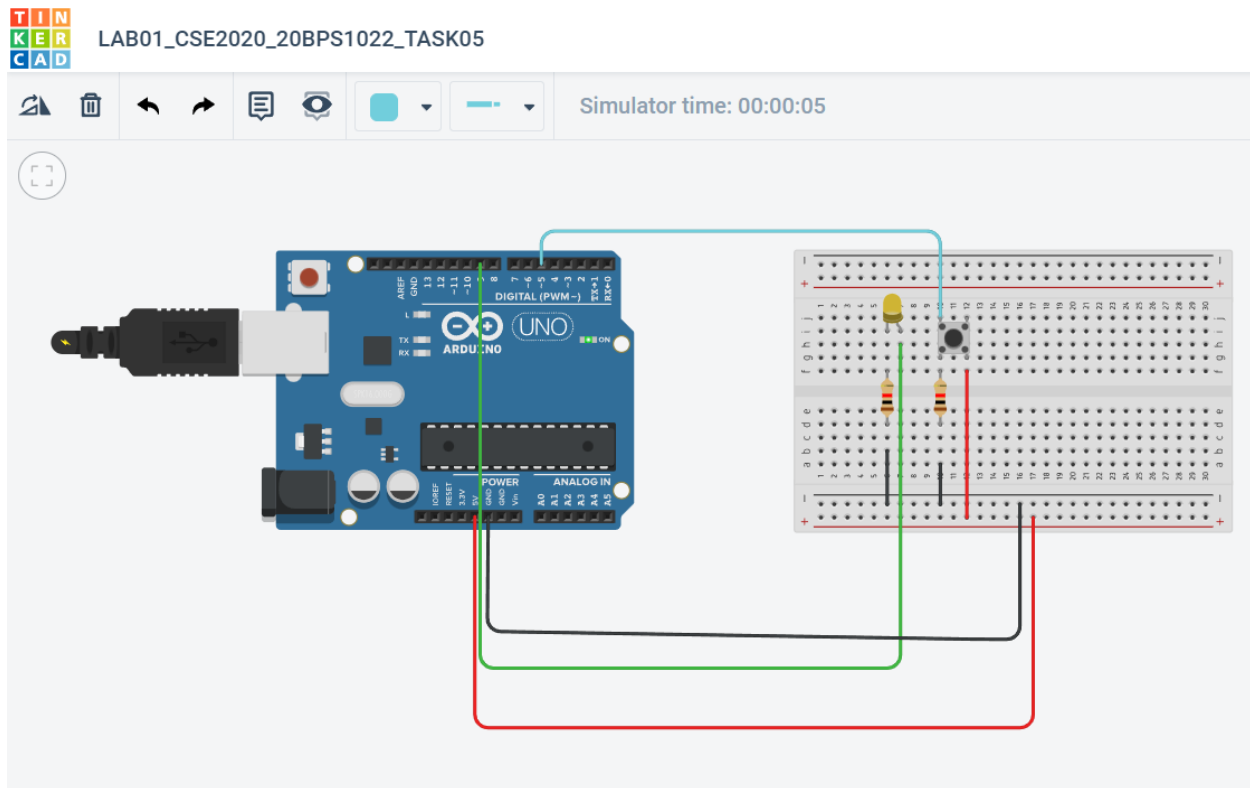


Code:

```
int button =0;
void setup()
{
  pinMode(5,INPUT);
  pinMode(9, OUTPUT);
}
void loop()
{
  // read the state of the pushbutton
  button = digitalRead(5);
  // check if pushbutton is pressed. if it is, the
```

```
// button state is HIGH
if (button == HIGH) {
  digitalWrite(9, HIGH);
  delay(1000);
} else {
  digitalWrite(9, LOW);
}
delay(1000); // Delay a little bit to improve simulation performance
}
```

Output:

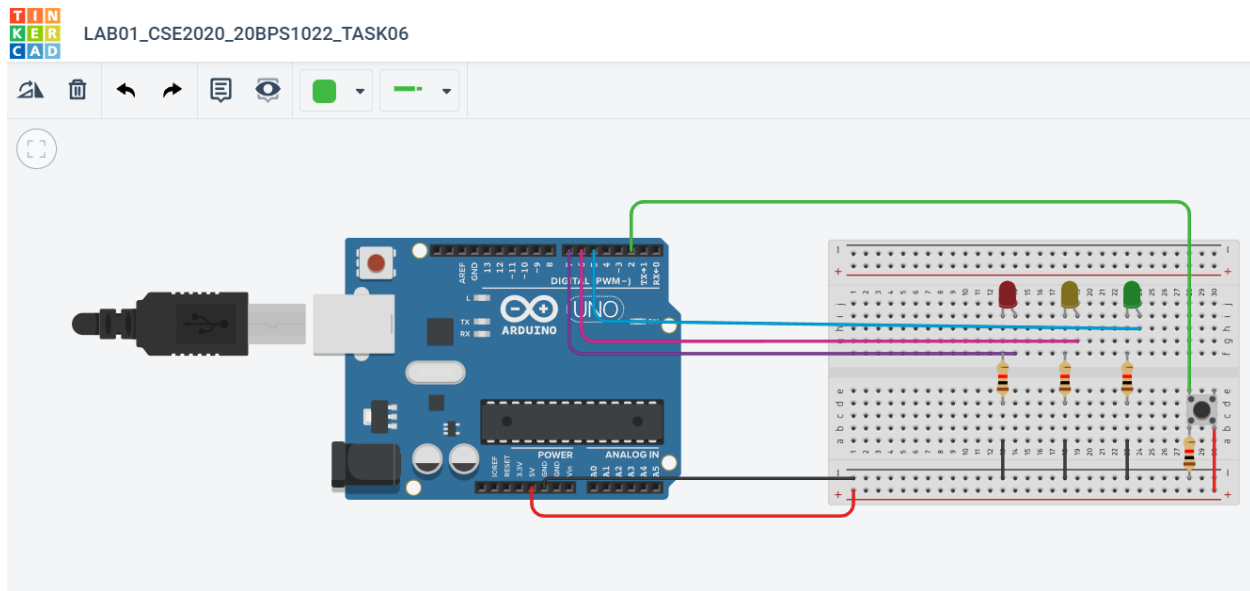


Link:

<https://www.tinkercad.com/things/4C2Git940b5-lab01cse202020bps1022task05/editel>

Task 6: Add a pushbutton to the breadboard with 3 LED connected with corresponding resistor. Whenever u push the button, LED should turn ON in sequence. Like, first time push the button, 1st LED will turn ON, second button press, 2nd LED will turn ON, 3rd time push the button, 3rd LED will turn ON.

Circuit:



Code:

```
int LED1=5;

int LED2=6;

int LED3=7;

int button =0;

int c=0;

void setup()

{

  pinMode(LED1, OUTPUT);

  pinMode(LED2, OUTPUT);

  pinMode(LED3, OUTPUT);

  pinMode(4,INPUT);

}
```

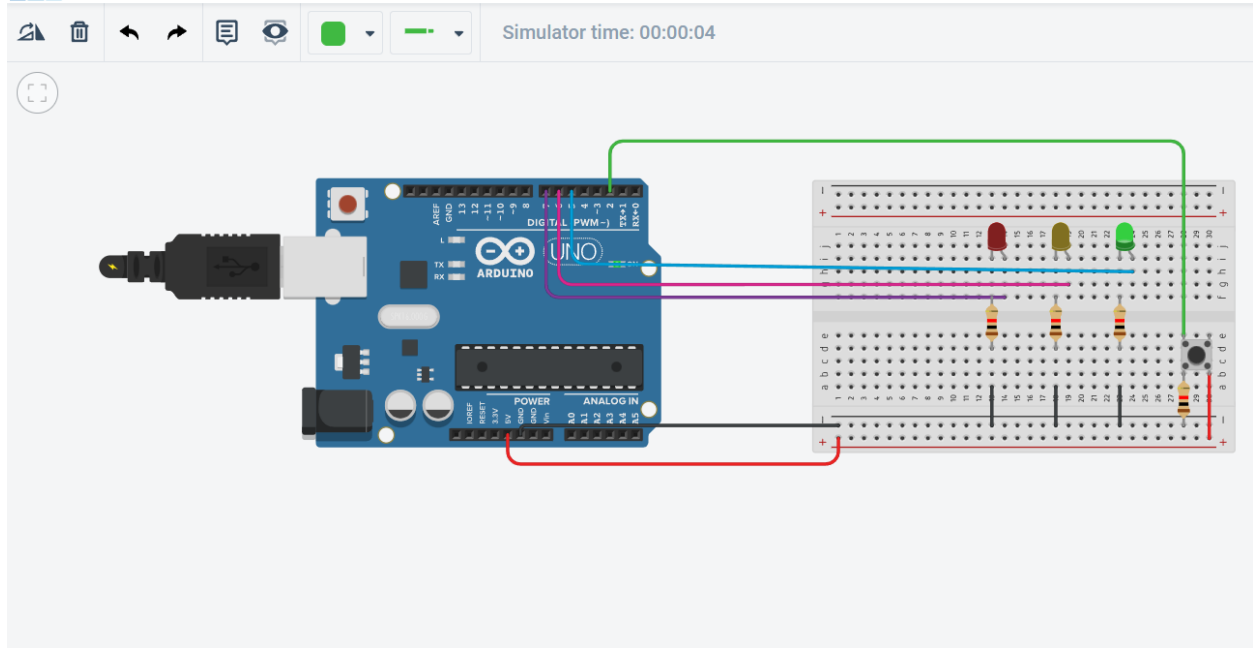
```
void loop()
{
  if(digitalRead(2)&& c==0)
  {
    digitalWrite(LED1, HIGH);
    digitalWrite(LED2, LOW);
    digitalWrite(LED3, LOW);
    delay(1000);
    c++;
  }
  if(digitalRead(2)&& c==1)
  {
    digitalWrite(LED1, LOW);
    digitalWrite(LED2, HIGH);
    digitalWrite(LED3, LOW);
    delay(1000);
    c++;
  }
  if(digitalRead(2)&& c==2)
  {
    digitalWrite(LED1, LOW);
    digitalWrite(LED2, LOW);
    digitalWrite(LED3, HIGH);
    delay(1000);
    c=0;
  }
  delay(10);
}
```

}

Output:

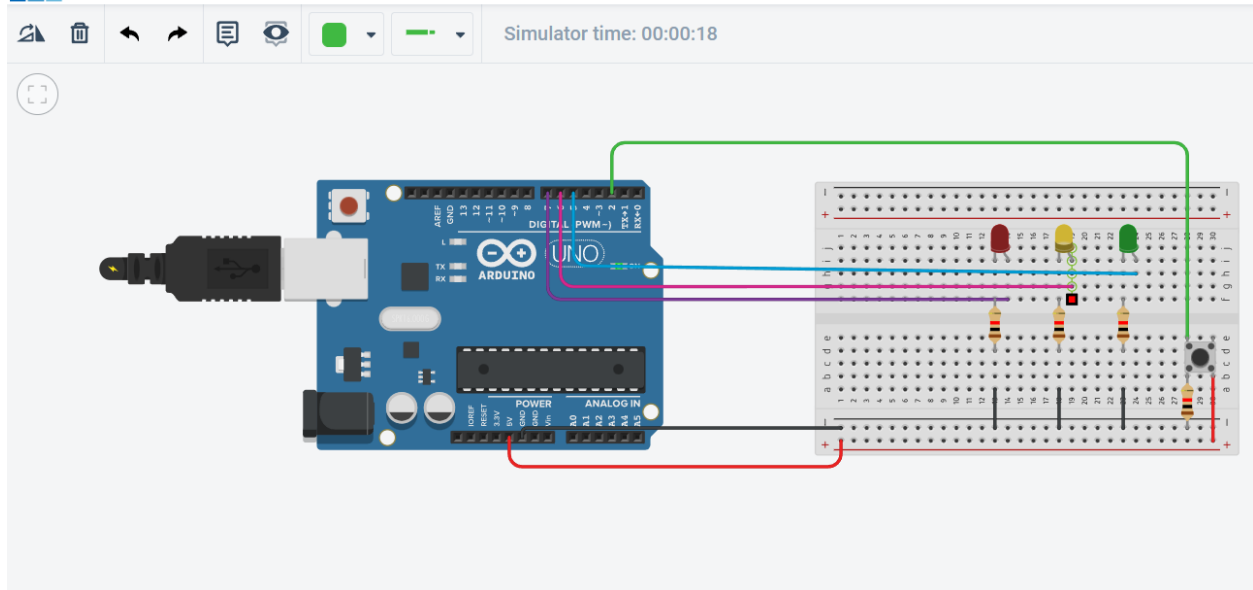
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CAD

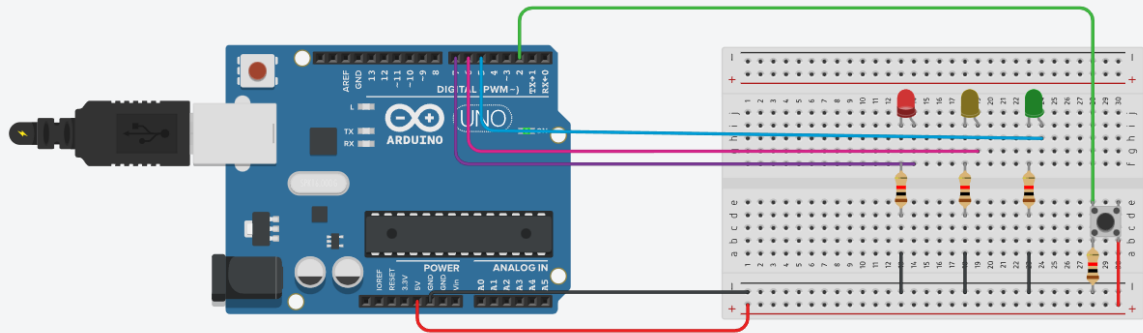
LAB01_CSE2020_20BPS1022_TASK06



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CAD

LAB01_CSE2020_20BPS1022_TASK06





Link:

<https://www.tinkercad.com/things/i5OQtLvIM5G-lab01cse2020bps1022task06/editel>