Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

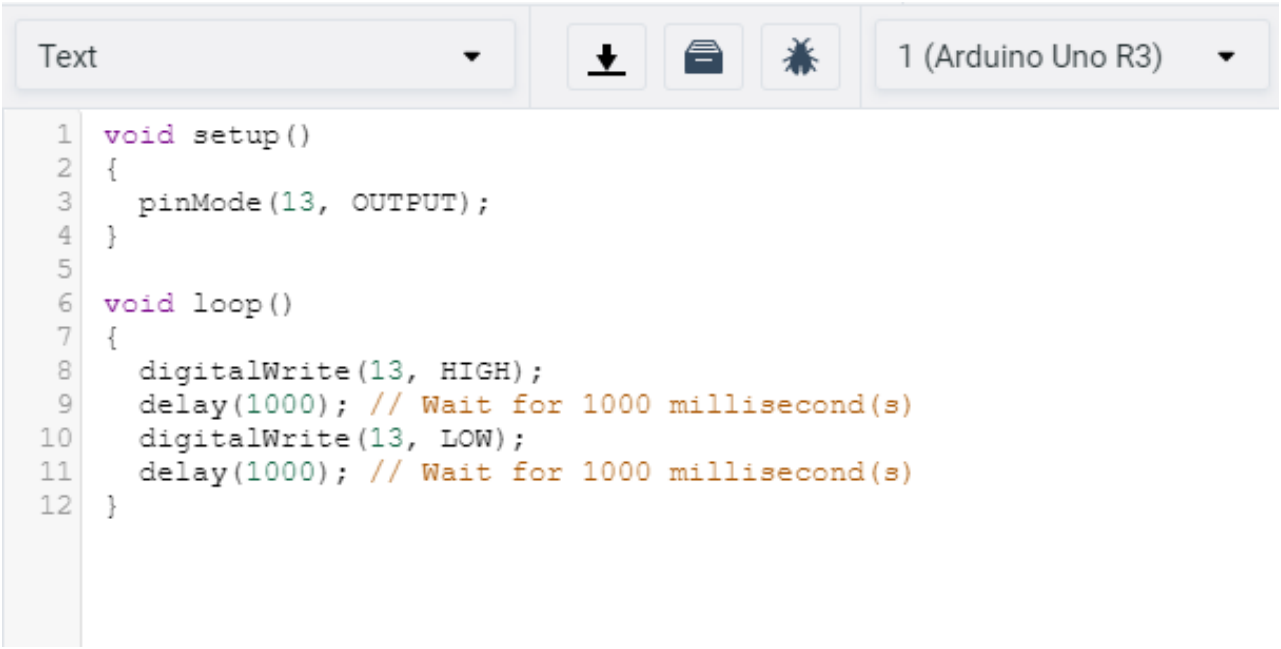
Date:25/03/2021

Name: R SHARMILA	SRN: PES2UG19CS309	Section E

Week#____7_____ Program Number: ____1__

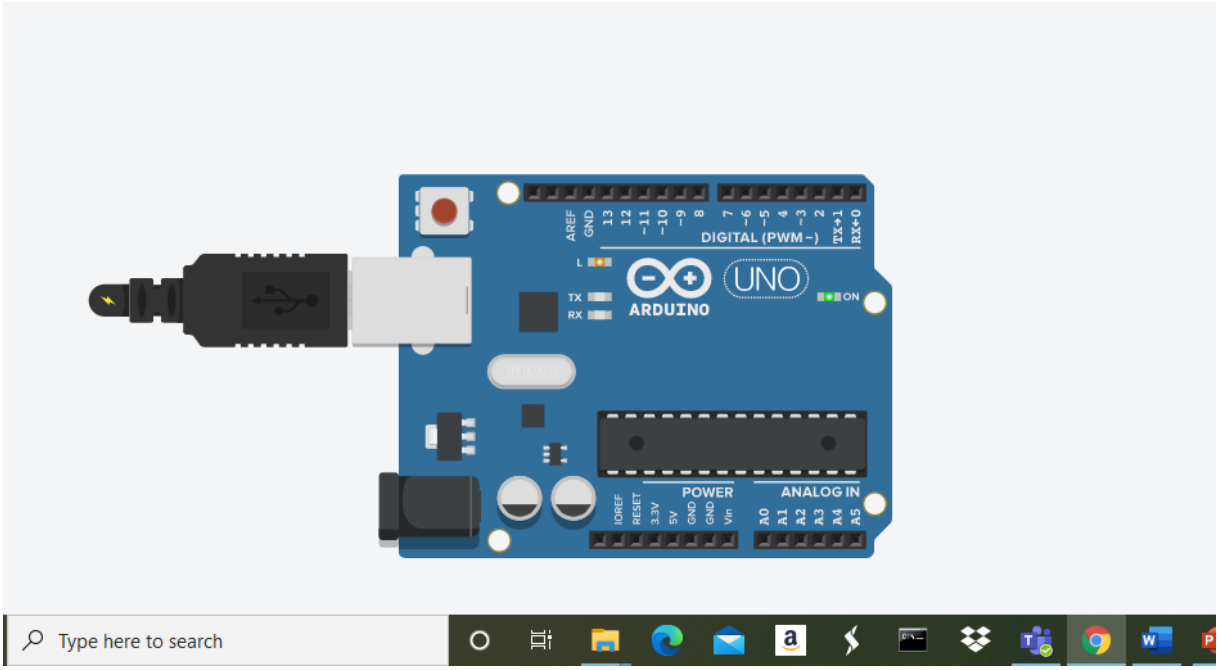
1. A) Implement a Tinkercad simulation to turn on and off the Arduino's on-board LED.

Arduino Code (1).




```
1  void setup()
2  {
3    pinMode(13, OUTPUT);
4  }
5
6  void loop()
7  {
8    digitalWrite(13, HIGH);
9    delay(1000); // Wait for 1000 millisecond(s)
10   digitalWrite(13, LOW);
11   delay(1000); // Wait for 1000 millisecond(s)
12 }
```

Output Screen Shot (1)



B) Implement a Tinkercad simulation to turn on and off an external LED connected to the Arduino board

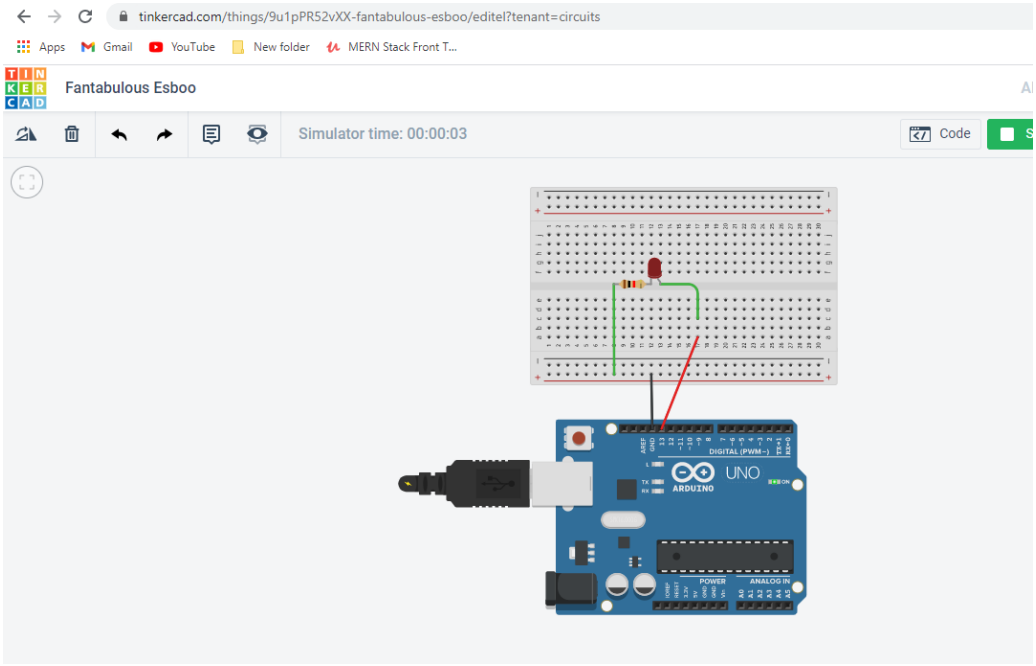
Arduino Code (1).

Text

1 (Arduino Uno R3)

```
1  void setup()
2  {
3    pinMode(13, OUTPUT);
4  }
5
6  void loop()
7  {
8    digitalWrite(13, HIGH);
9    delay(1000); // Wait for 1000 millisecond(s)
10   digitalWrite(13, LOW);
11   delay(1000); // Wait for 1000 millisecond(s)
12 }
```

Output Screen Shot (1)



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Name: R SHARMILA	SRN: PES2UG19CS309	Section E

Week#____7_____ Program Number: ____2__

Implement a Tinkercad simulation to alternately turn on and off two external LEDs connected to the Arduino board

Arduino Code (1).

Text 1 (Arduino Uno R3)

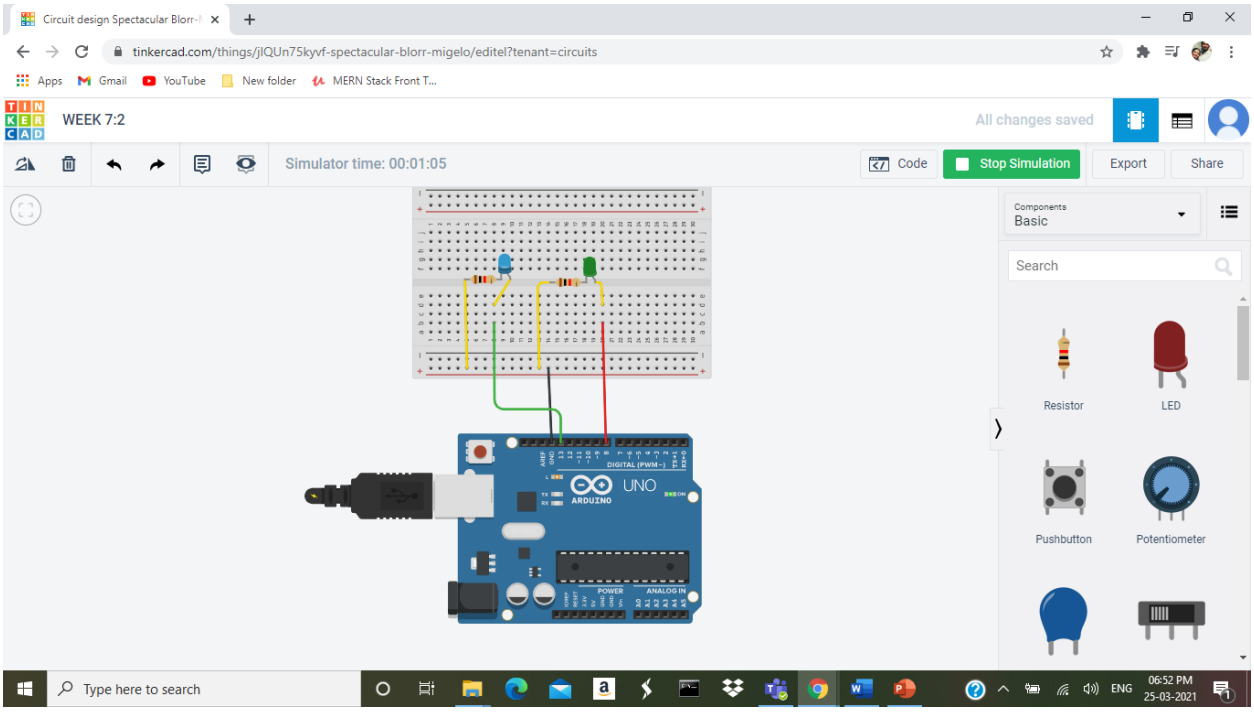
```
int green_led=13;
int blue_led=8;
int delay_time=1000;
int flag=1;

void setup()
{
  pinMode(green_led, OUTPUT);
  pinMode(blue_led, OUTPUT);
}

void loop()
{
  if(flag==1){
    digitalWrite(blue_led, HIGH);
    digitalWrite(green_led, LOW);
    flag=0;
  }
  else{
    digitalWrite(green_led, HIGH);
    digitalWrite(blue_led, LOW);
    flag=1;
  }

  delay(delay_time); // Wait for 1000 millisecond(s)
}
```

Output Screen Shot (1)



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Week#____7_____ Program Number: ____3__

Implement a Tinkercad simulation to use a pushbutton to control an LED.

Arduino Code (1).

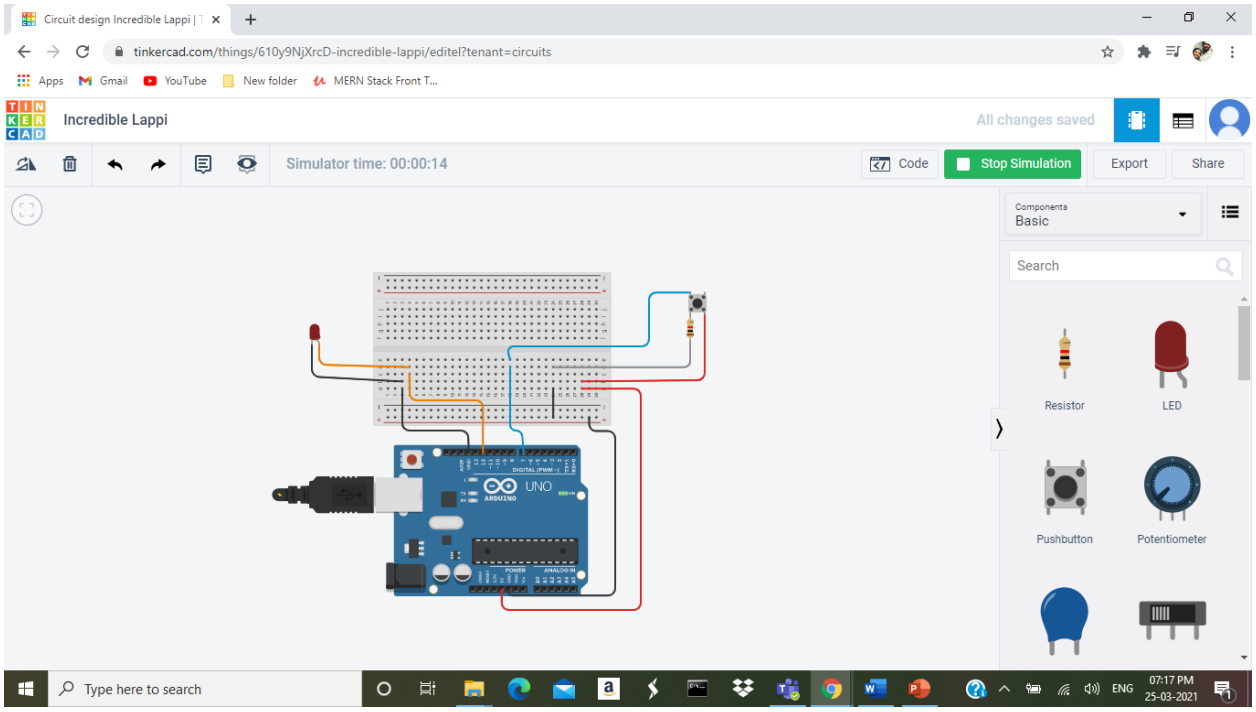
Text 1 (Arduino Uno R3)

```
int button_state;
int led=12;
int push_btn=7;

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

void loop()
{
  button_state=digitalRead(push_btn);
  if (button_state==1)
     digitalWrite(led, HIGH);
  else
     digitalWrite(led, LOW);
  delay(1000);
}
```

Output Screen Shot (1)



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Week#____7_____ Program Number: ___4__

Implement a Tinkercad simulation to demonstrate fading of an LED (zero to maximum brightness slowly)

Arduino Code (1).

Text 1 (Arduino Uno R3)

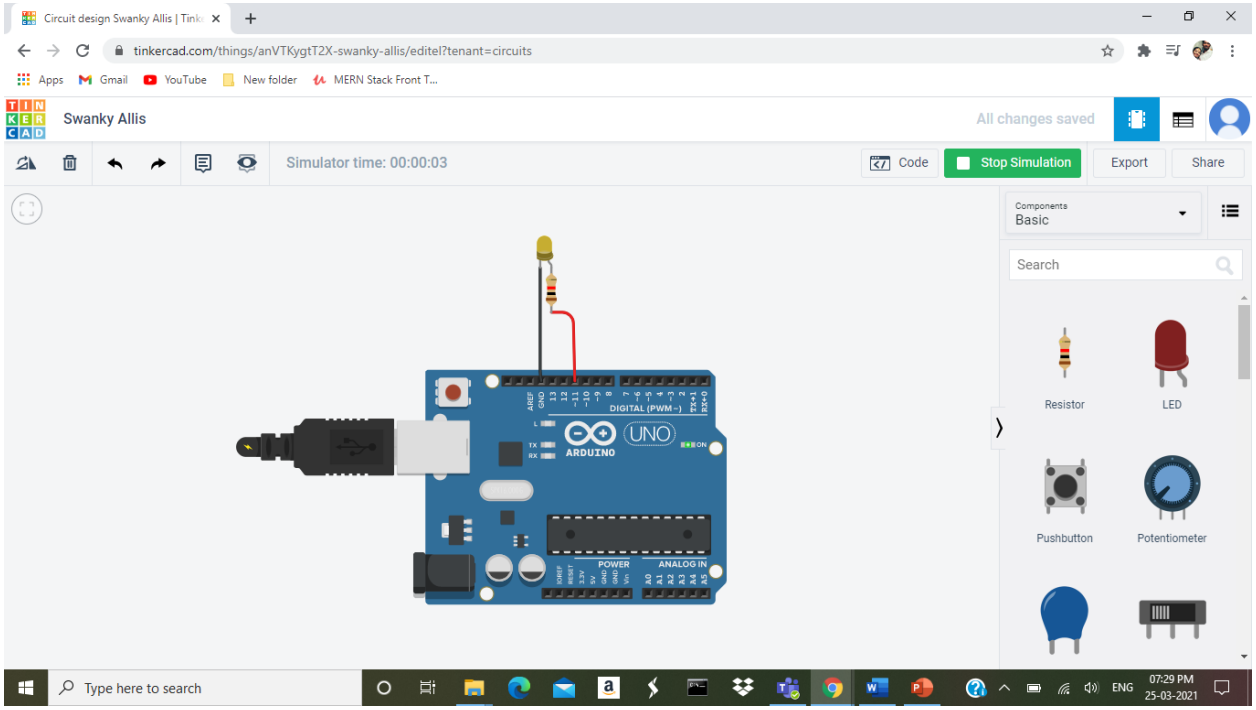
```
int led=11;
int brightness;

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

void loop()
{
  for(brightness=0;brightness<=255;brightness+=5)
  {
    analogWrite(led,brightness);
    delay(25);
  }
  for(brightness=255;brightness>=0;brightness-=5)
  {
    analogWrite(led,brightness);
    delay(25);
  }

}
```

Output Screen Shot (1)



Disclaimer:

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

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