

Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2022-23

Date: 10-04-2023

Name: NAGAVENI L G	SRN: PES2UG21CS315	Section F
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Week# ____9____

Program Number: ____1__

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

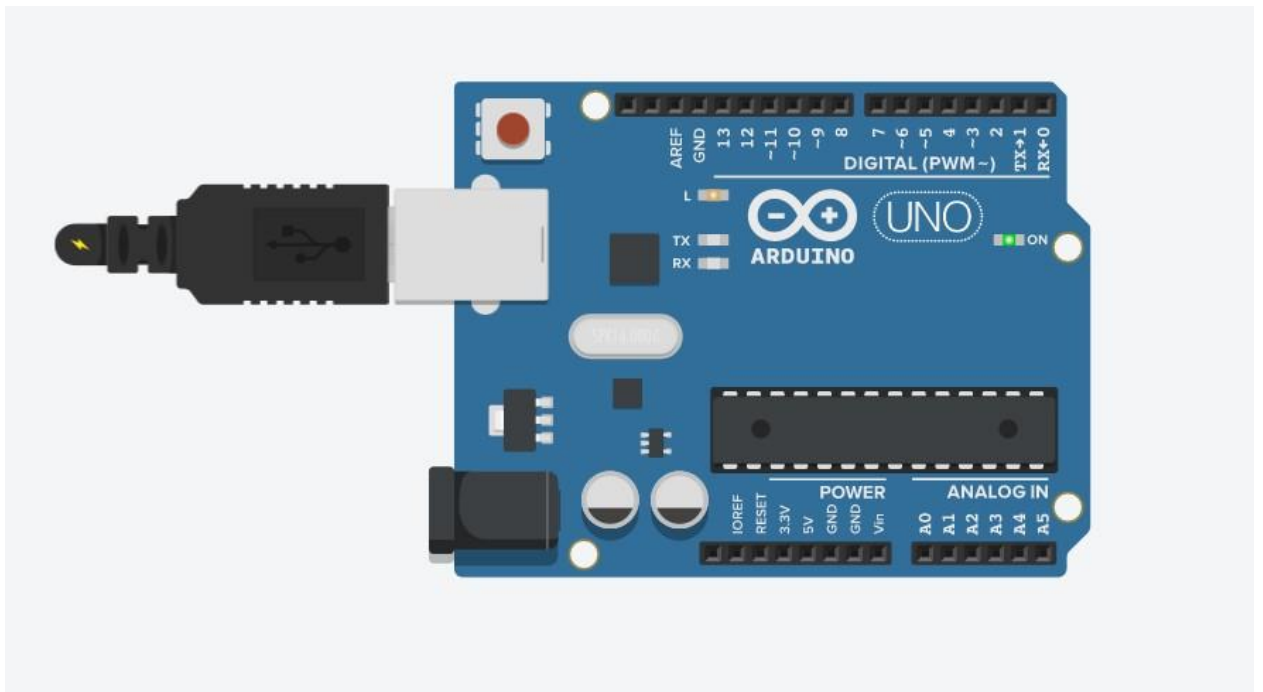
Arduino Code (1).

```
void setup()
{
  pinMode(LED_BUILTIN, OUTPUT);
}
```

```
void loop()
{
  digitalWrite(LED_BUILTIN, HIGH);
  delay(100);
}
```

```
digitalWrite(LED_BUILTIN, LOW);  
delay(1000);  
}
```

Output Screen Shot (1)

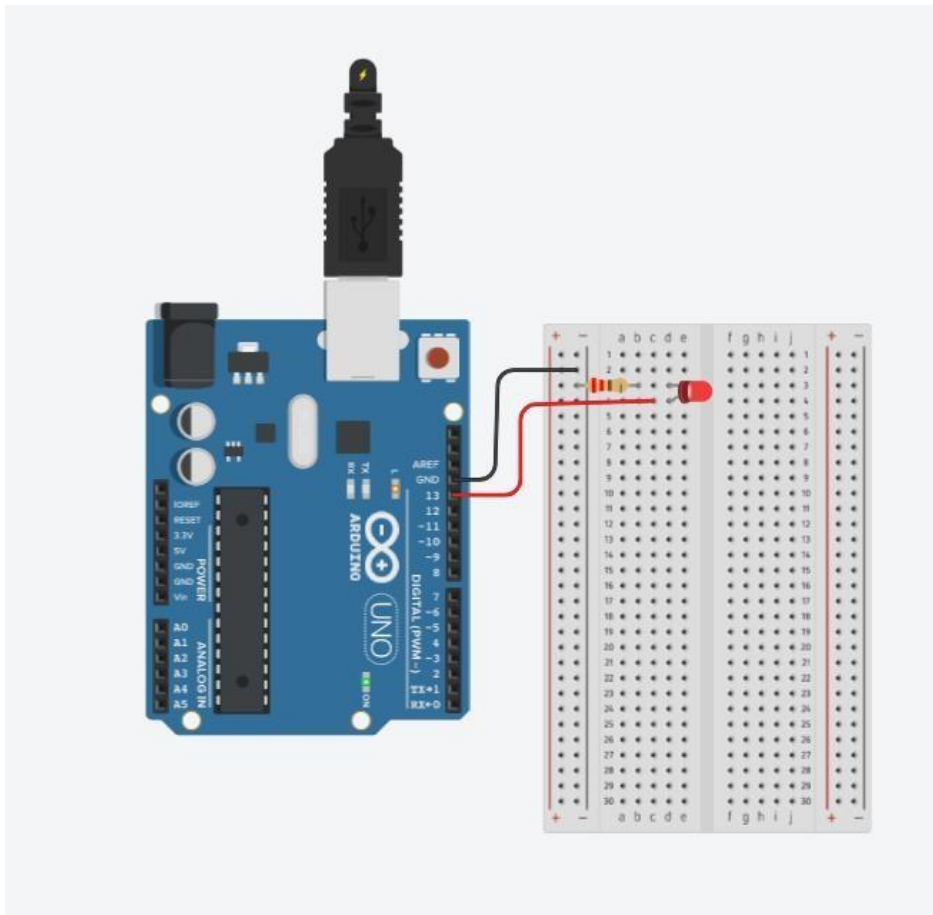


B) Implement a Tinkercad simulation to turn on and off an external LED connected to the Arduino board
Code (1).

```
void setup()  
{  
  pinMode(13, OUTPUT);  
}  
  
void loop()  
{
```

```
digitalWrite(13, HIGH);  
delay(1000); // Wait for 1000 millisecond(s)  
digitalWrite(13, LOW); delay(1000); //  
Wait for 1000 millisecond(s)  
}
```

Output Screen Shot (1)



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Week# ____9____

Program Number: ____2__

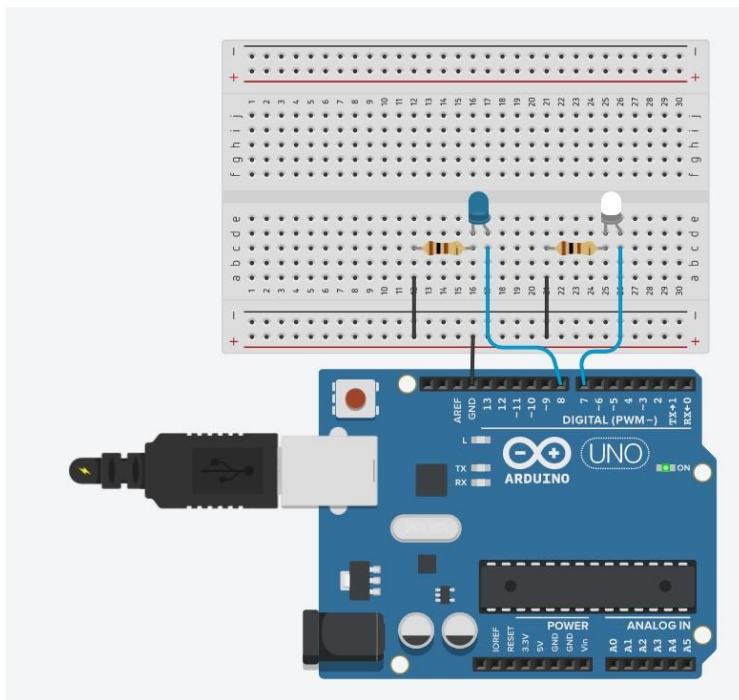
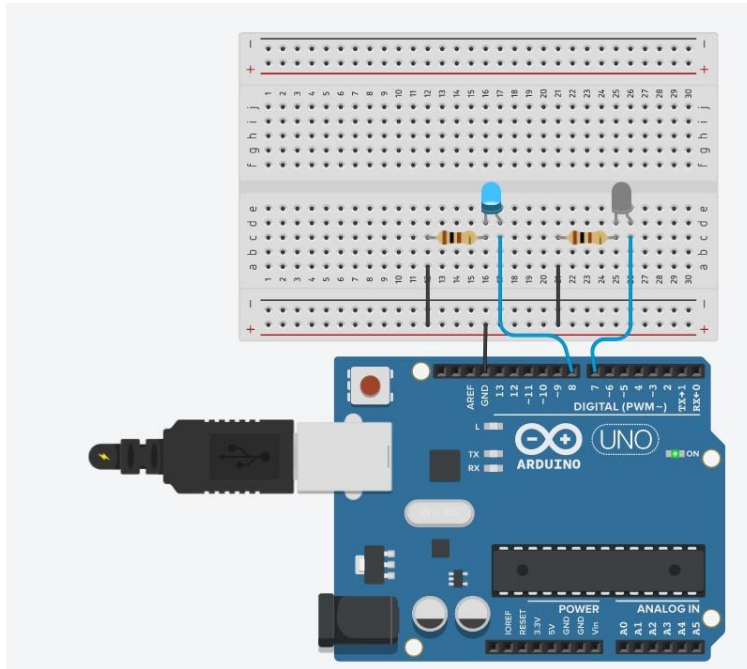
Implement a Tinkercad simulation to alternately turn on and off two external LEDs connected to the Arduino board

Arduino Code (1).

```
void setup()
{
  pinMode(7, OUTPUT);
  pinMode(8, OUTPUT);
}
void loop()
{
  digitalWrite(7, HIGH);
  delay(1000);
  digitalWrite(7, LOW);
```

```
digitalWrite(8, HIGH);  
delay(1000);  
digitalWrite(8, LOW); }
```

Output Screen Shot (1)



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Week# ____9____

Program Number: ____3__

Implement a Tinkercad simulation to use a ultrasonic sensor to calculate distance from a nearby object.

```
Arduino Code (1). long  
duration;  
int distance;
```

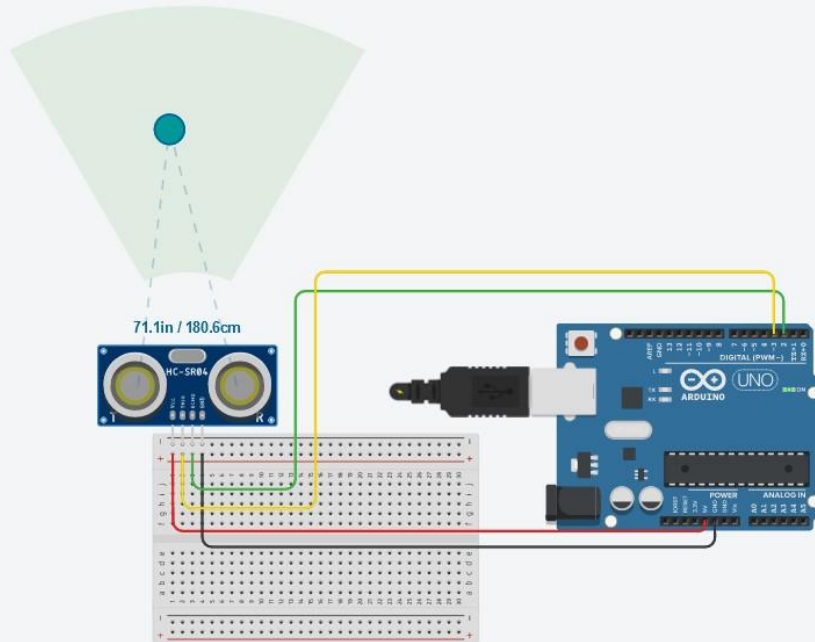
```
void setup() {  
  pinMode(trigPin, OUTPUT);  
  pinMode(echoPin, INPUT);  
  Serial.begin(9600);  
  Serial.println("Ultrasonic Sensor HC-SR04 Test");  
  Serial.println("with Arduino UNO R3");  
}
```

```
}  
void loop() {  
  
    digitalWrite(trigPin, LOW);  
    delayMicroseconds(2);  
  
    digitalWrite(trigPin, HIGH);  
    delayMicroseconds(10);  
    digitalWrite(trigPin, LOW);  
  
    duration = pulseIn(echoPin, HIGH);  
  
    distance = duration * 0.034 / 2;  
  
    Serial.print("Distance: ");  
    Serial.print(distance);  
    Serial.println(" cm");  
}
```

Output Screen Shot (1)

Ultrasonic Distance Sensor

Name 1



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Week# ____9____

Program Number: ____4__

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

Arduino Code (1). int brightness = 0;

```
void setup()
{
  pinMode(7, OUTPUT);
}
```

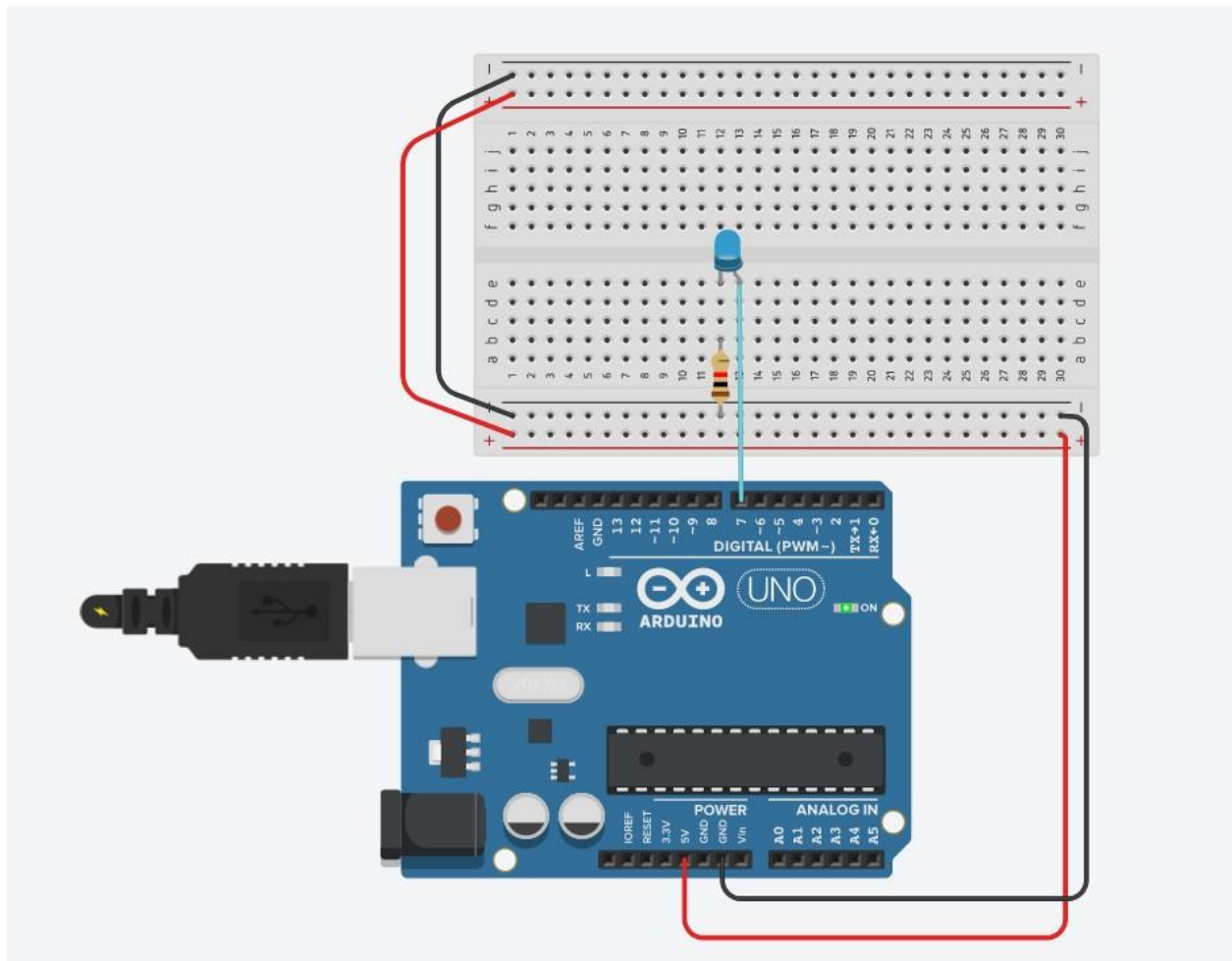
```
void loop()
{
```

```

for(brightness = 0; brightness <= 255; brightness += 5){
  analogWrite(7, brightness);
  delay(20);
}
for(brightness = 255; brightness >= 0; brightness -= 5){
  analogWrite(7, brightness);
  delay(20);
}
}

```

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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