

# IOT LAB REPORT 5<sup>TH</sup> SEM

SARVESHMURTHY A

1BM18CS144

## **Program Number - 1**

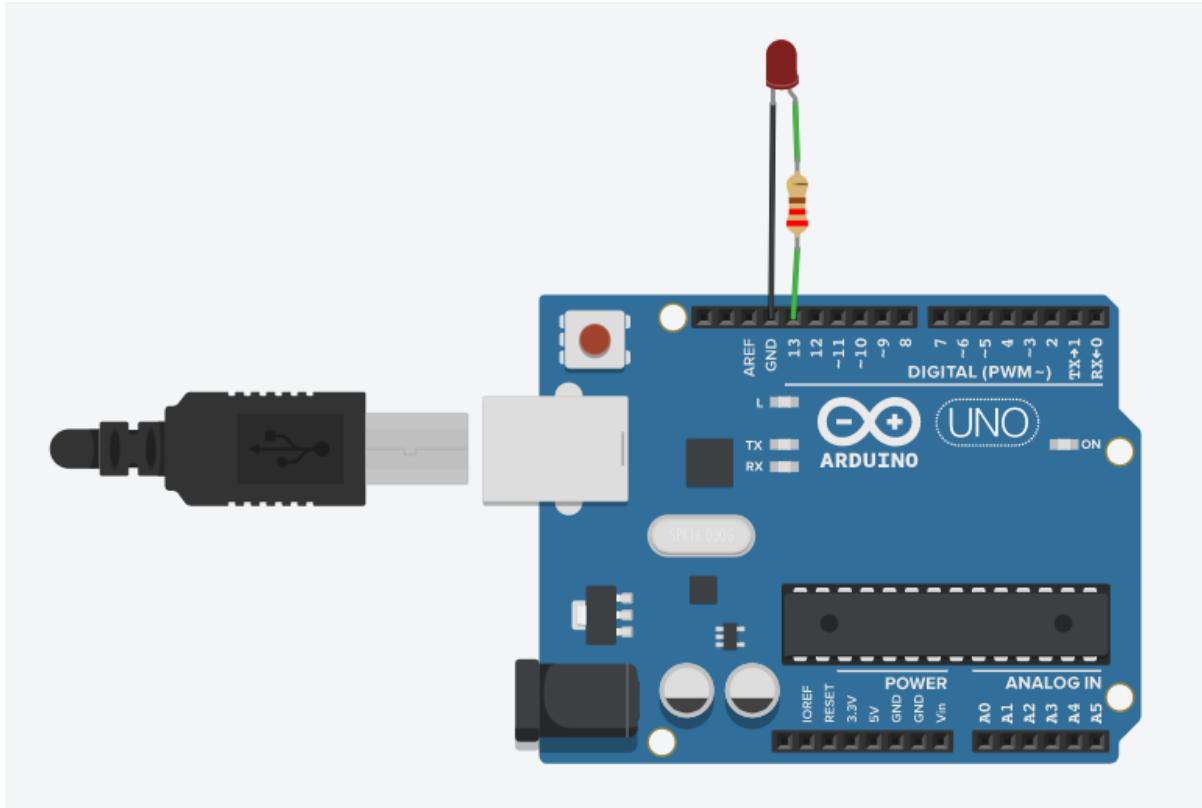
### **Program Title – LED Blink**

### **AIM – To make a LED Light blink**

### **Hardware Required -**

- Arduino Board
- LED
- Breadboard
- Wires

### **Circuit Diagram-**



## Code:

SARVESH MURTHY

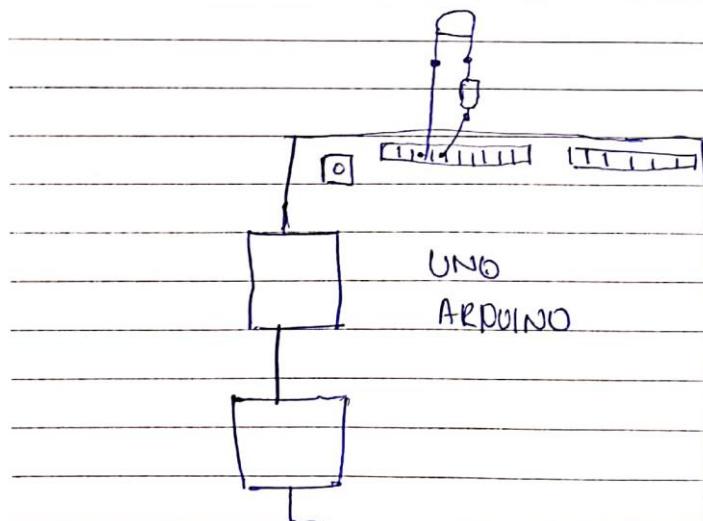
IBM18CS144

No: \_\_\_\_\_ Date: \_\_\_\_\_

## IOT LAB

1) Blink Program →

```
void setup ()  
{  pinMode (13, Output);  
}  
void loop ()  
{  
  digitalWrite (13, HIGH);  
  delay (1000);  
  digitalWrite (13, LOW);  
  delay (100);  
}
```



*Went* ✓

## Program Number - 2

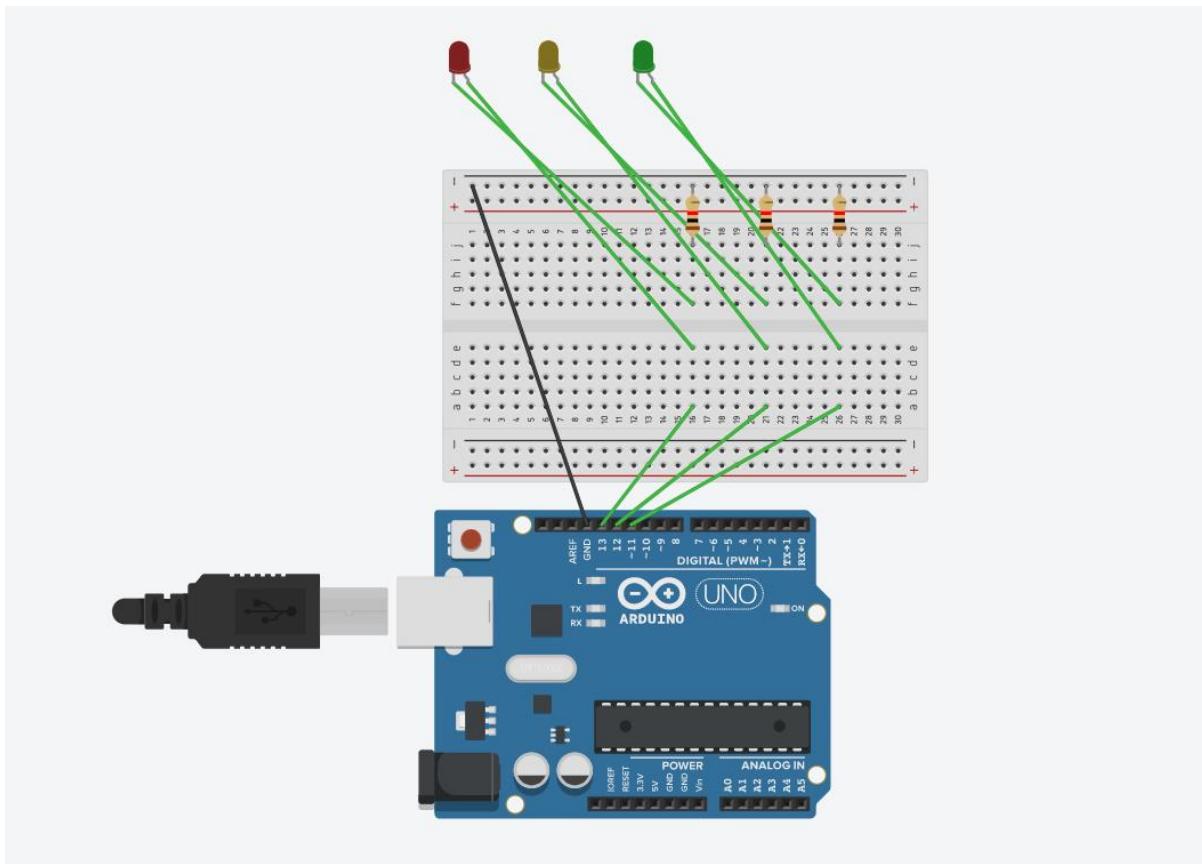
**Program Title: To create a Traffic Signal Simulation**

**AIM – To make a LED Light blink**

**Hardware Required -**

- Arduino Board
- LED
- Breadboard
- Wires

**Circuit Diagram-**



## Code-

SARVESH MURTHY

No:

Date:

IBM18CS144

IOT LAB

24 Traffic Light

void setup ()

{

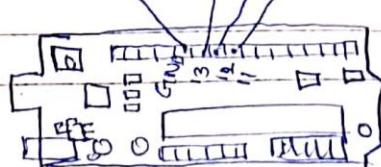
```
Serial.begin (9600);  
pinMode (13, OUTPUT);  
pinMode (12, OUTPUT);  
pinMode (11, OUTPUT);
```

}

void loop ( )

{

```
digitalWrite (13, HIGH);  
digitalWrite (12, LOW);  
digitalWrite (11, LOW);  
delay (5000);  
digitalWrite (13, LOW);  
digitalWrite (12, HIGH);  
digitalWrite (11, LOW);  
delay (1000);  
digitalWrite (13, LOW);  
digitalWrite (12, LOW);  
digitalWrite (11, HIGH);  
delay (5000);
```



✓

## Program Number- 3

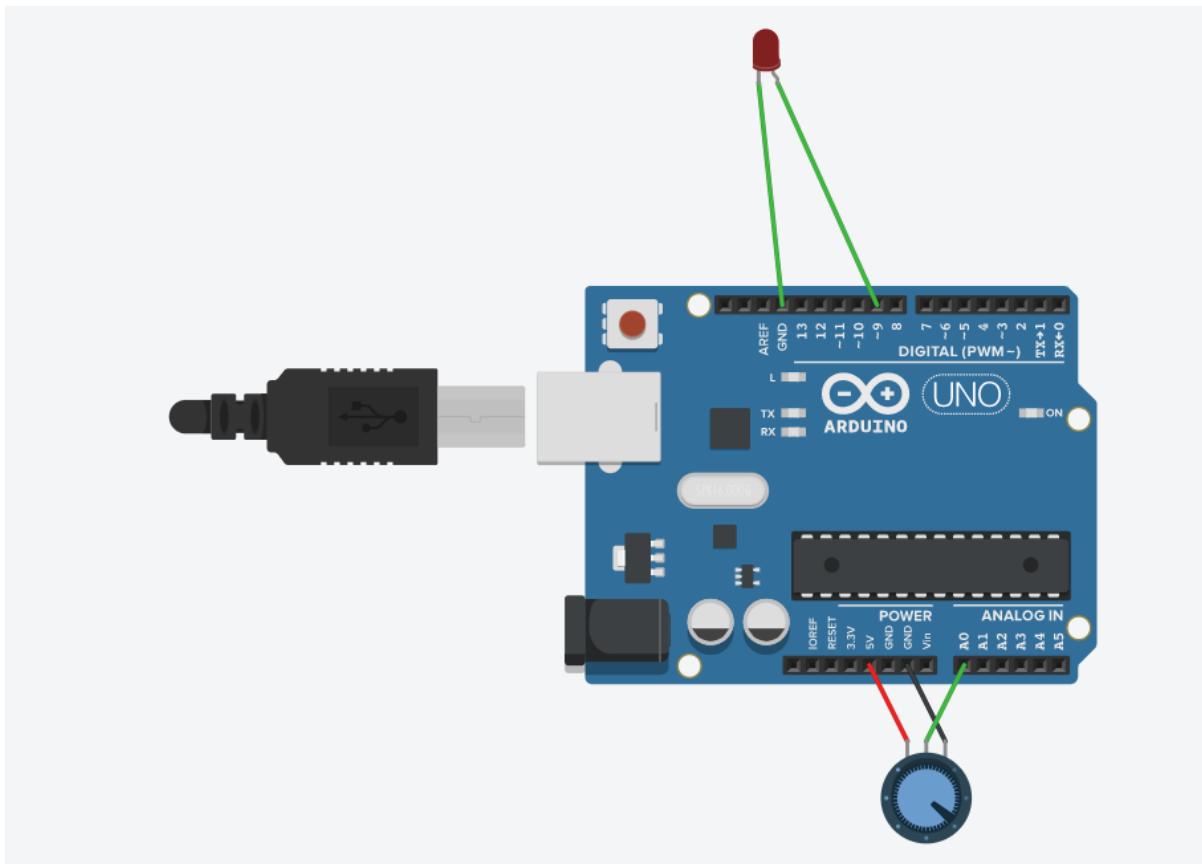
### Program Title- Potentiometer

**AIM – Demonstrate the working of LED using Potentiometer**

### Hardware Required -

- Arduino Board
- LED
- Breadboard
- Wires
- Potentiometer
- Resistor

### Circuit Diagram-



## Code-

SARVEESH MURTHY  
1BM18CS144

No: \_\_\_\_\_ Date: \_\_\_\_\_

Program : 3 - Fading LED using Potentiometer

Aim: Demonstrate a fading LED (Analog output)

Hardware requirements: Arduino Board, LED, Connecting wire, resistor.

Code:-

```
void setup()
{
    Serial.begin(9600)
    pinMode(9, OUTPUT);
}

void loop()
{
    int analog = analogRead(A0);
    int brightness = map(analog, 0, 1023, 0, 255);
    analogWrite(a, brightness);
    Serial.print("\n Analog values: ");
    Serial.print(analog);
    Serial.print("\n Brightness value ");
    Serial.print(brightness);
}
```

Murthy

## Program Number - 4

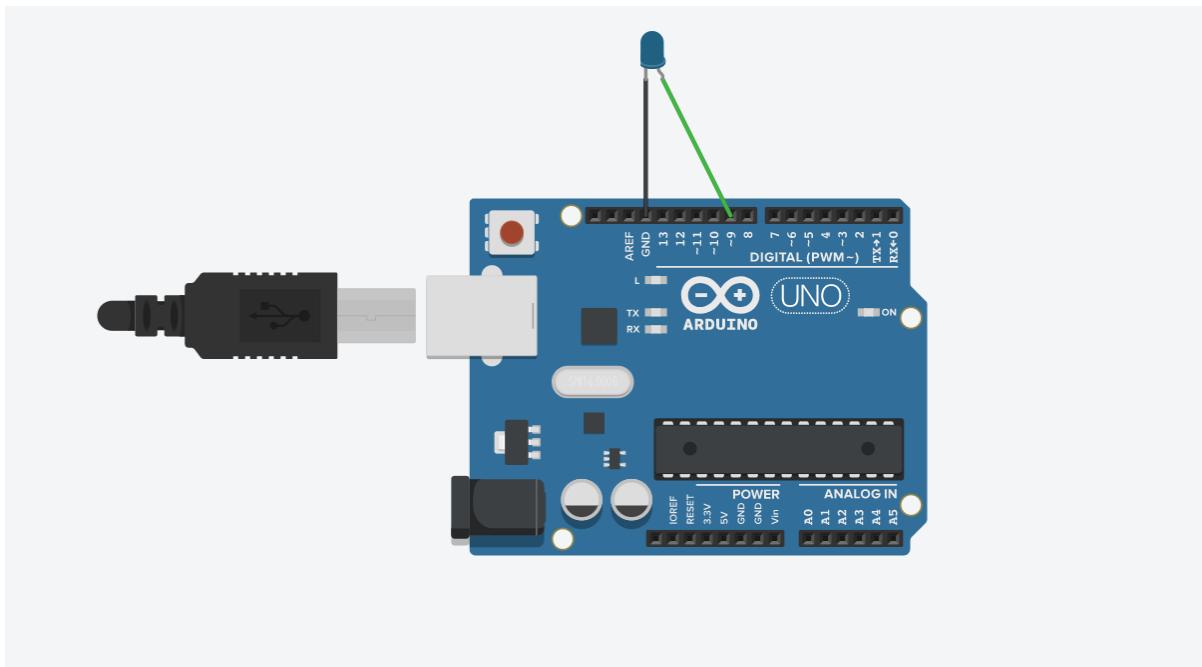
### Program Title: Fading of LED

AIM – Demonstrate the fading of LED

Hardware Required -

- Arduino Board
- LED
- Breadboard
- Wires

Circuit Diagram-



## Code-

SARVESHMURTHY  
IBM19CS144

No: Date:

Program: 4 - Fading LED

Aim: Demonstrate fading of a LED

Hardware Required: Arduino Board, LED, connecting wire, resistor.

Code:

```
int brightness = 0;  
void setup ()  
{ PinMode (11,OUTPUT); }  
void loop ()  
{ for (brightness = 0; brightness <= 255;  
      brightness += 5)  
{ analogWrite (11, brightness);  
  delay (30); }  
  for (brightness = 255; brightness >= 0; brightness -= 5)  
{ analogWrite (11, brightness);  
  delay (30); } }
```

Ans.

## Program Number - 5

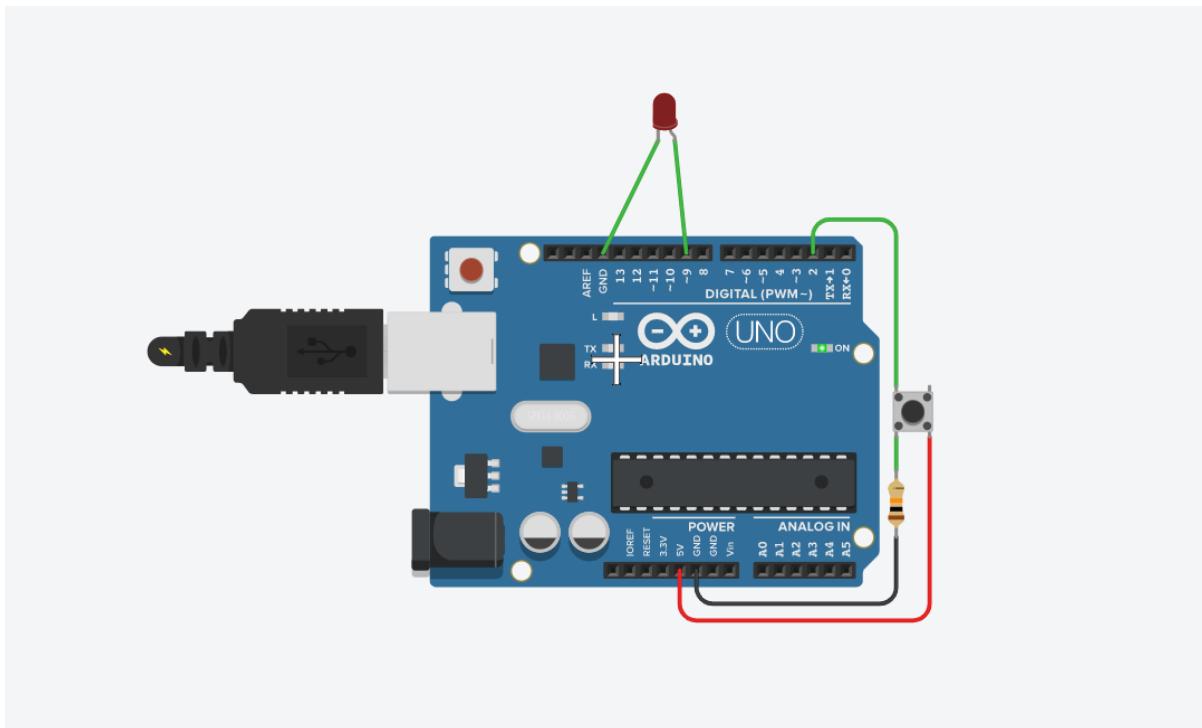
### Program Title: Push Button

**AIM – Demonstrate to show ON/OFF of a LED using push button**

### Hardware Required -

- Arduino Board
- LED
- Breadboard
- Wires
- Push Button
- Resistor

### Circuit Diagram-



## Code-

SARVESHMURTHY  
1BM18CS144

No: \_\_\_\_\_ Date: \_\_\_\_\_

Program:5- LED using Push Button

Aim: Demonstrate to show ON/OFF of a LED using push button.

Hardware Requirements: Arduino Board, LED, Push button, resistor

Code:

```
int buttonstate = 0;  
void setup()  
{ pinMode (13, OUTPUT);  
  pinMode (2, INPUT);  
}  
void loop ()  
{ buttonstate = digitalRead (2);  
  if (buttonstate == HIGH)  
  { digitalWrite (13, HIGH); }  
  else  
  { digitalWrite (13, LOW); }  
}
```

Subj.

# Program Number - 6

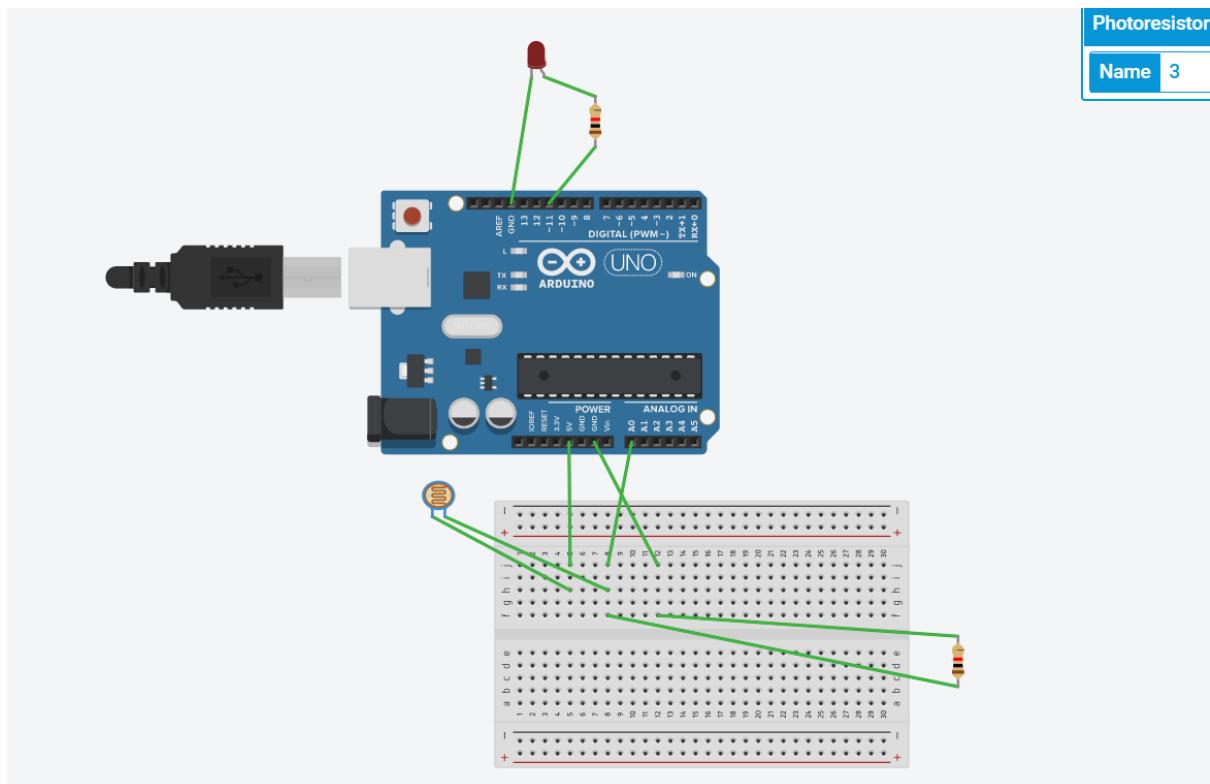
## Program Title: Light Dependent Resistor

## AIM – Demonstrate to show ON/OFF of a LED using LDR

## **Hardware Required -**

- Arduino Board
  - LED
  - Breadboard
  - Wires
  - LDR
  - Resistor

## Circuit Diagram-



## Code-

SARVESH MURTHY  
IBM 18 CSI HH

No: Date:

Program: 6 - ON/OFF LED using LDR

Aim: Demonstrate to show ON/OFF of a LED using LDR - Night light Simulator.

Hardware Requirements : Arduino Board LED, bread board, resistor, connecting wire, Photo resistor

Code:

```
const int ledPin=8;  
const int ldrPin=A0;  
void setup()  
{ Serial.begin(9600);  
  pinMode(ledPin, OUTPUT);  
  pinMode(ldrPin, INPUT); }  
void loop()  
{ int ldrStatus = analogRead(ldrPin);  
  Serial.println(ldrStatus);  
  if (ldrStatus <= 10)  
  { digitalWrite(ledPin, HIGH);  
    Serial.println("LDR is dark, LED is ON."); }  
  else  
  { digitalWrite(ledPin, LOW);  
    Serial.println("....."); } }
```

built.

## Program Number - 7

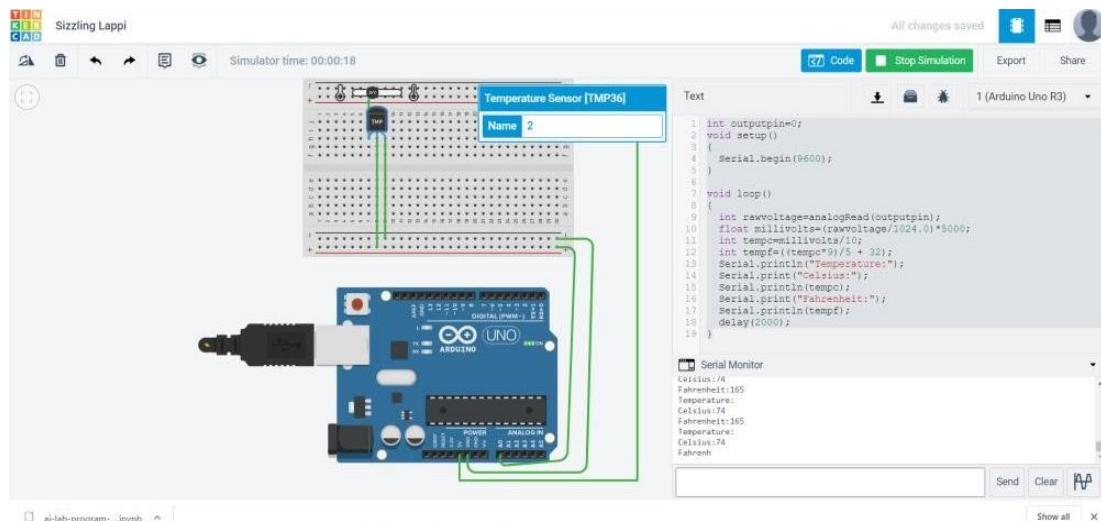
### Program Title: Temperature Sensor

AIM – Demonstrate the working of temperature sensor

### Hardware Required -

- Arduino Board
- Temperature Sensor
- Breadboard
- Wires

### Circuit Diagram-



## Code-

SARVESHMURTHY  
1BM18CS144

No: Date:

### Program 7:- Demonstration of Temperature Sensor

```
int outpin=0;
void setup()
{
    Serial.begin (9600);
}

void loop ()
{
    int voltage = analogRead (outpin);
    float mvolts= (voltage/1024)* 5000;
    int tempC = mvolts*10;
    int tempF = ((tempC*9)/5 + 32);
    Serial.println ("Temp.:" "Celsuis :");
    Serial.println (tempC);
    Serial.println ("Fahrenheit :");
    Serial.println (tempF);
    delay (2000);
}
```

Sarveshmurtthy

## Program Number - 8

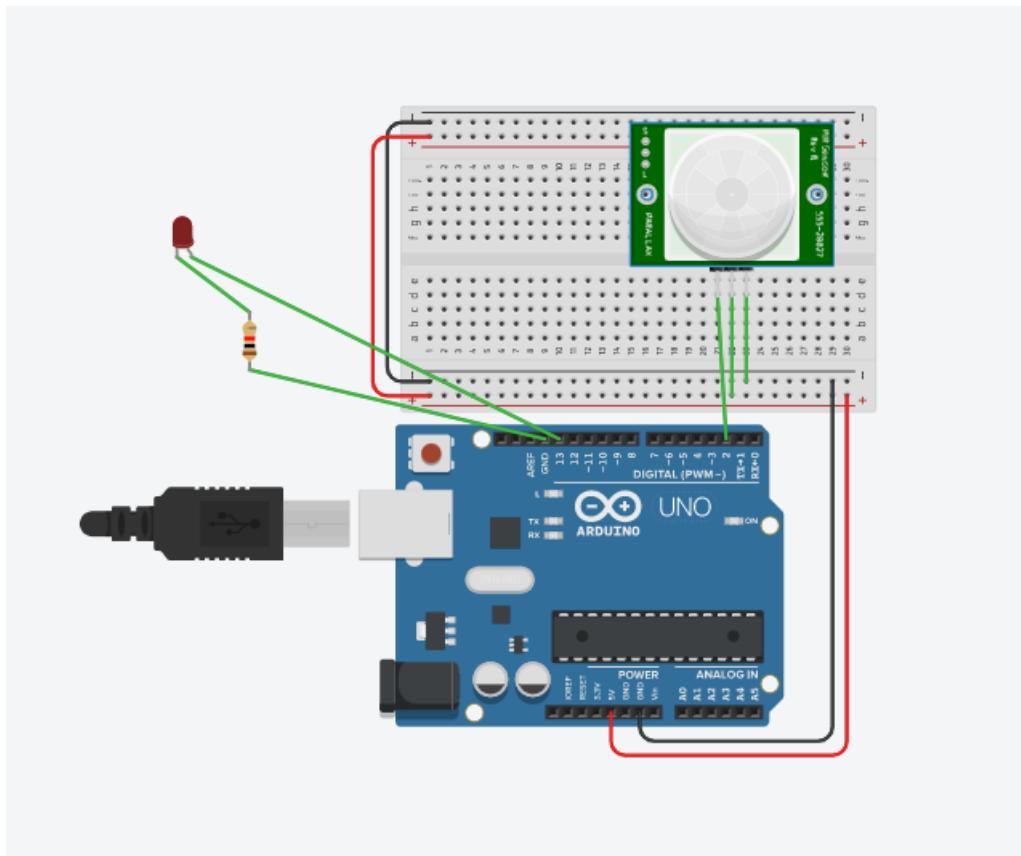
### Program Title: PIR Sensor

**AIM – Demonstrate the working of PIR sensor**

### Hardware Required -

- Arduino Board
- Temperature Sensor
- Breadboard
- Wires
- PIR Sensor
- LED
- Resistor

### Circuit Diagram-



## Code-

SARVESHMURTHY  
IBM 18CSI44

No: \_\_\_\_\_ Date: \_\_\_\_\_

Program: 7 - PIR Sensor

Aim: Demonstrate the working of a PIR.

Hardware Requirements: Arduino Board, LED, resistor, bread board, connecting wires, PIR sensor

Code:

```
int led = 13;  
int sensor = 6;  
int state = LOW;  
int val = 0;  
void setup()  
{  
    pinMode(led, OUTPUT);  
    pinMode(sensor, INPUT);  
    Serial.begin(9600);  
}  
  
void loop()  
{  
    val = digitalRead(sensor);  
    if (val == HIGH)  
    {  
        digitalWrite(led, HIGH);  
        delay(10);  
        if (state == LOW)  
        {  
            Serial.println("Motion Detected!");  
            state = HIGH;  
        }  
    }  
    else {  
        digitalWrite(led, LOW);  
        delay(10);  
        if (state == HIGH)  
        {  
            Serial.println("Motion Stopped");  
            state = LOW;  
        }  
    }  
}
```

# Program Number - 9

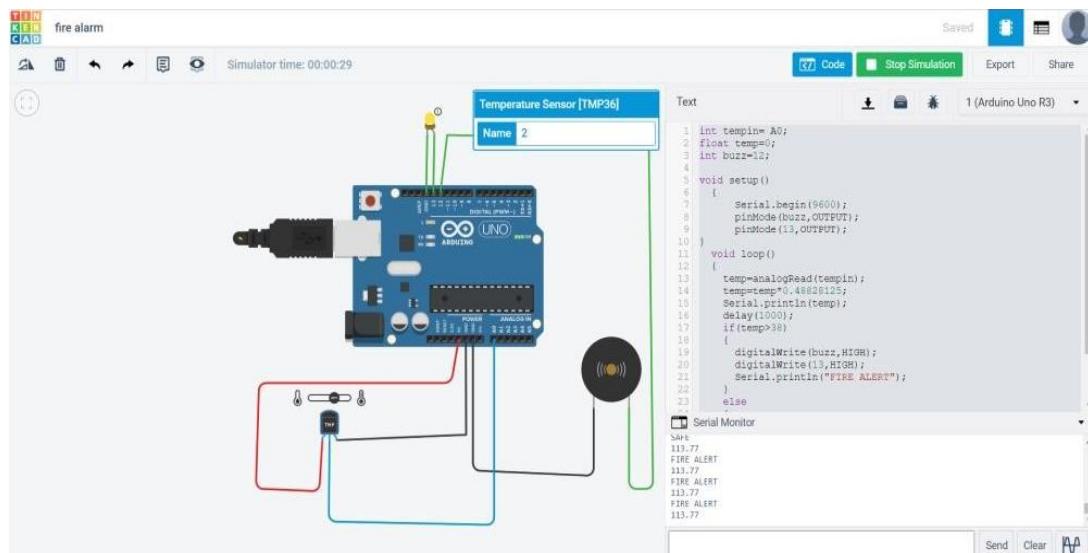
## Program Title: Fire Alarm

## AIM – Demonstrate the working of fire alarm

## **Hardware Required -**

- Arduino Board
  - Temperature Sensor
  - Breadboard
  - Wires
  - LED
  - Buzzer

## Circuit Diagram-



## Code-

SARVESH MURTHY

1BM18CS144

No: Date:

### Program 9: Fire Alarm

Code;

```
int tempin = A0;  
float temp = 0;  
int buzz = 12;  
void setup ()  
{  serial.begin (9600);  
  pinMode (buzz, output);  
  pinMode (13, output);  
}  
void loop ()  
{  temp = analogRead (tempin);  
  temp = temp * 0.48828125;  
  serial.println (temp);  
  delay (1000);  
  if (temp > 38)  
  {    digitalWrite (buzz, HIGH);  
    digitalWrite (13, HIGH);  
    serial.println ("FIRE ALERT");  
  }  
  else  
  {    digitalWrite (buzz, LOW);  
    serial.println ("SAFE");  
  }  
}
```

*Murthy*

## Program Number - 10

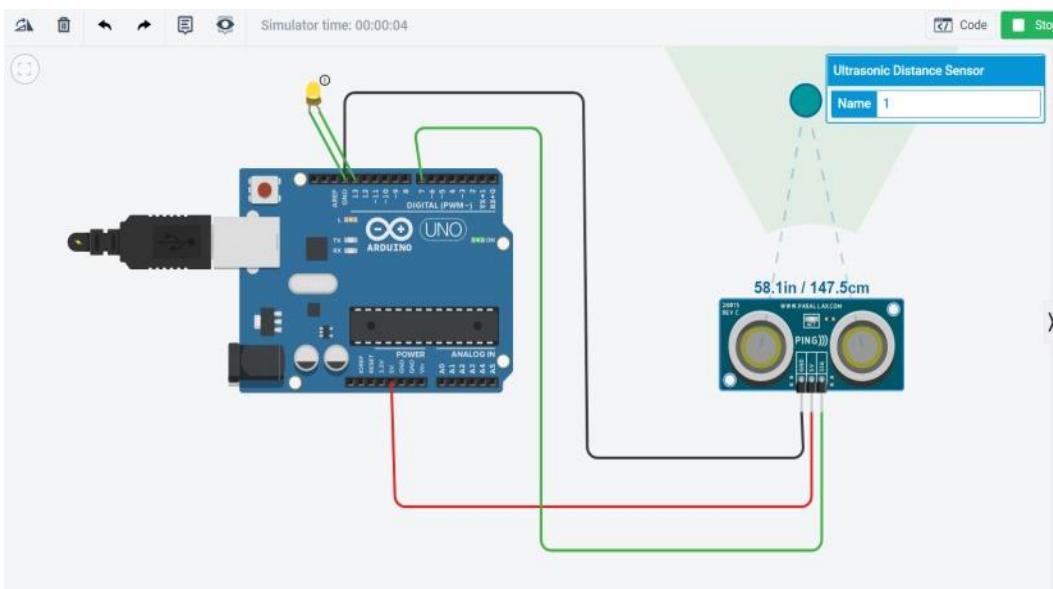
### Program Title: Distance Sensor

**AIM – Demonstrate the working of ultra sonic distance sensor**

### Hardware Required -

- Arduino Board
- Temperature Sensor
- Breadboard
- Wires
- LED
- Buzzer

### Circuit Diagram-



## Code-

SARVESHMURTHY  
1BM18CS144

No: Date:

### Lab 10: Distance Sensor

Code:

```
const int pingpin = 7;  
void setup()  
{ serial.begin(9600);  
  pinMode(13, OUTPUT);  
}  
void loop()  
{ long duration, inch, cm  
  digitalWrite(pingpin, OUTPUT);  
  digitalWrite(pingpin, LOW);  
  delay(2);  
  digitalWrite(pingpin, HIGH);  
  delay(10);  
  pinMode(7, INPUT);  
  duration = pulseIn(7, HIGH);  
  Serial.println(" Distance in cm:");  
  Serial.println(cm);  
  Serial.println(" Distance in inch:");  
  Serial.println(inch);  
  delay(1000);  
}
```

lufi.

## Program Number - 11

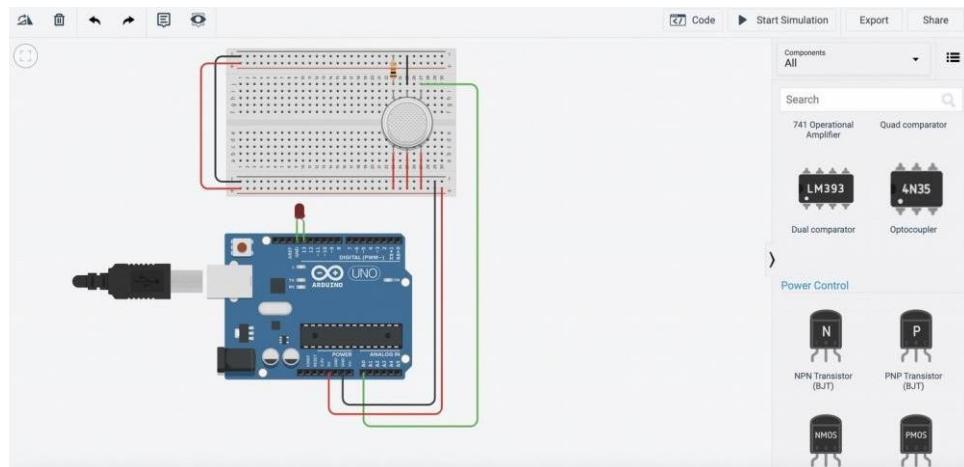
## Program Title: Gas Sensor

## AIM – Design a smart gas leakage indicator system

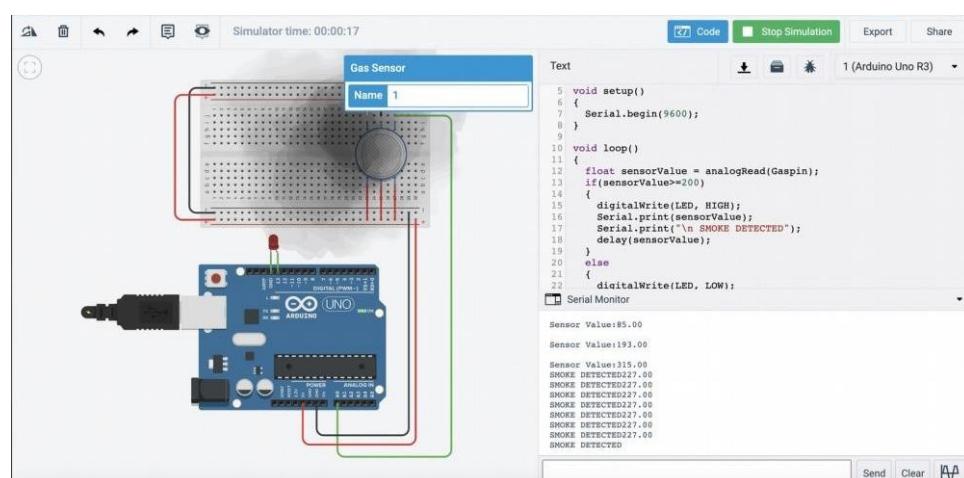
## **Hardware Required -**

- Arduino Board
  - Gas Sensor
  - Breadboard
  - Wires
  - LED

## Circuit Diagram-



## Output-



## Code-

SARVESH MURTHY  
1BM18CS144

No: Date:

### Lab 11: Gas Sensor

```
Code: int LED=13;  
const int gas=0;  
int gaspin=40;  
void setup()  
{ serial.begin(9600);  
}  
void loop()  
{ float sensorvalue=analog.read(0);  
if (sensorvalue>=200)  
{ digitalWrite(LED,HIGH);  
serial.println("SMOKE DETECTED");  
delay(sensorvalue);  
}  
else  
{digitalWrite(LED,LOW);  
serial.println("Sensor Value : " sensorvalue);  
} delay(1000);  
}
```

Ques?

# Program Number - 12

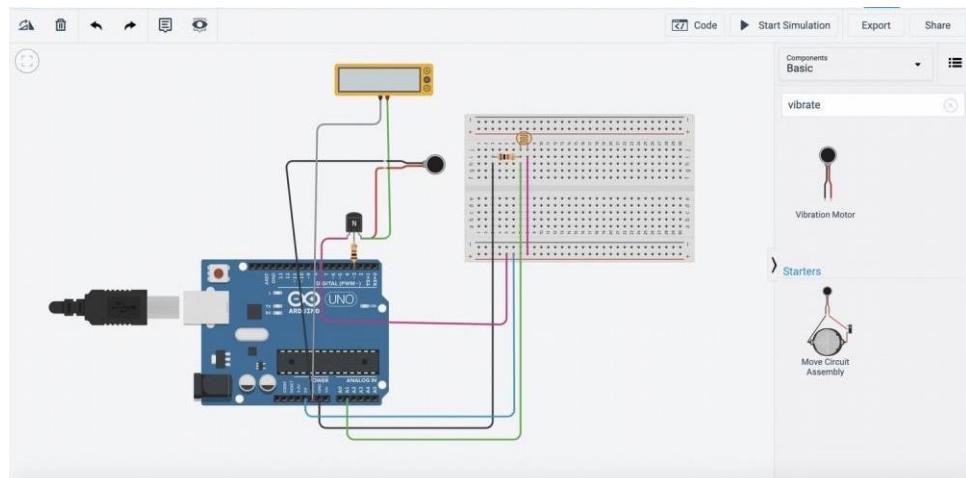
## Program Title: Vibrator

## AIM – Design an automated DAT indicator system

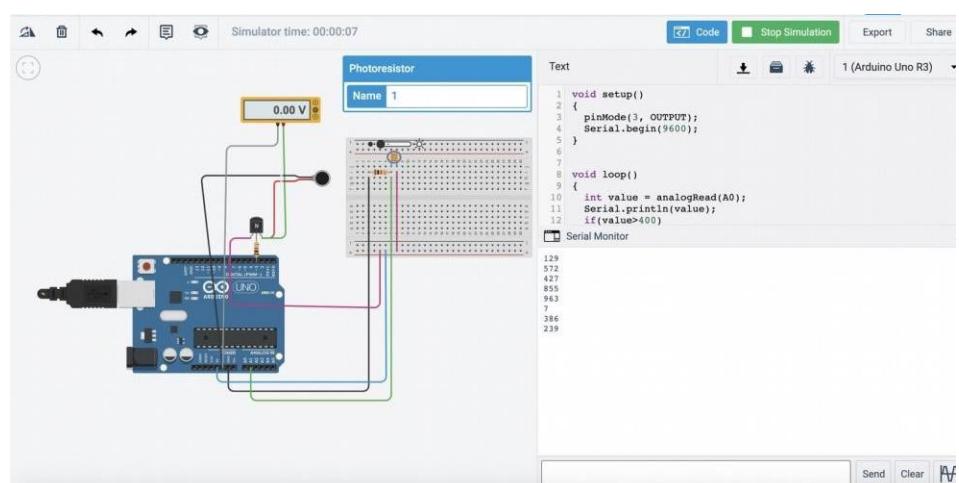
## **Hardware Required -**

- Arduino Board
  - LDR
  - Breadboard
  - Wires
  - Vibration Motor

## Circuit Diagram-



## Output-



## Code-

SARVESHMURTHY  
1BM18CS114

No: Date:

### Lab 12: Vibrator

Code:

```
void setup()
{
    pinmode (3, OUTPUT);
    Serial.begin (9600);
}

void loop()
{
    int value = analogRead (A0);
    Serial.println (values);
    if (value > 400)
    {
        digitalWrite (3, HIGH);
    }
    else
        digitalWrite (3, LOW);
    delay (1000);
}
```

Ans

## Program Number - 13

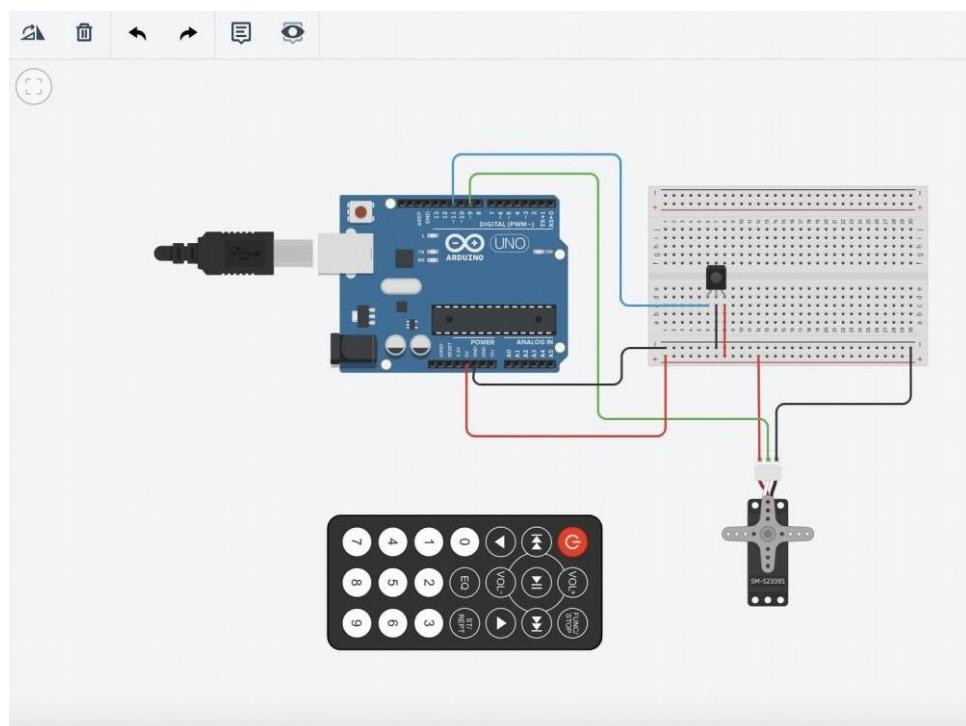
### Program Title: Servo Motor

**AIM – Design IR based SERVO Motor controller. (Clockwise and Anticlockwise rotation of shaft)**

### Hardware Required -

- Arduino Board
- IR Sensor
- IR Remote
- Breadboard
- Wires
- Servo Motor

### Circuit Diagram-



## Code-

SARVESHMURTHY  
IBM 18CS144

o: Date:

### Lab 13: Servo Motor

Code:

```
#include <servo.h>
SERVO myservo;
int pos=0;

void setup()
{
    myservo.attach(1);
}

void loop()
{
    for (pos=0; pos<=180; pos+=1)
    {
        myservo.write(pos);
        delay(15);
    }

    for (pos=180; pos>=0; pos-=1)
    {
        myservo.write(pos);
        delay(15);
    }
}
```

Sarv.

## Program Number - 14

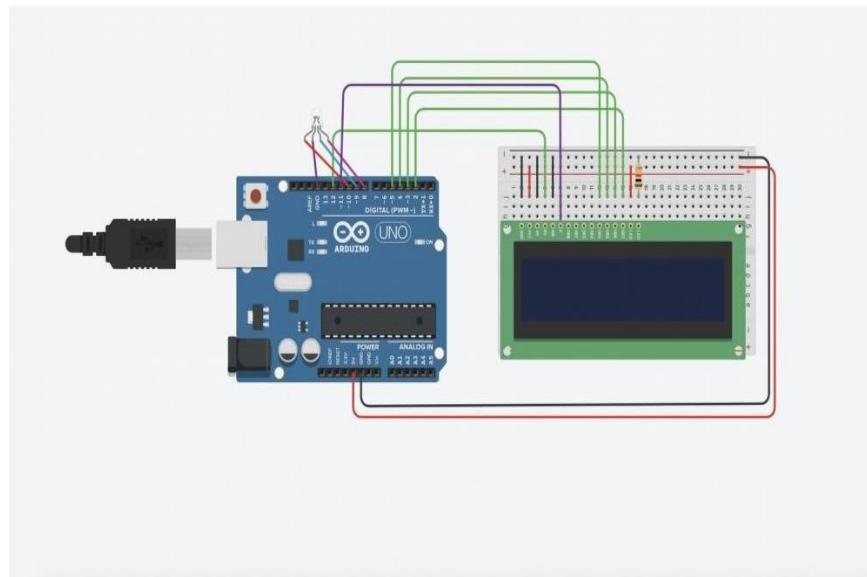
### Program Title- RGB LED and LCD

**AIM – Design a display system to print red, blue and green colours**

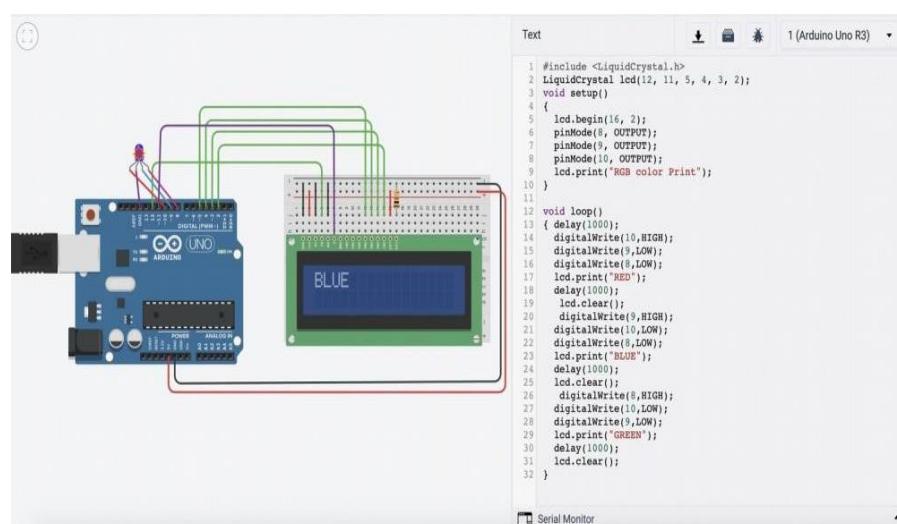
### Hardware Required -

- Arduino Board
- Resistor
- Breadboard
- Wires
- LED Display
- LED RGB

### Circuit Diagram-



### Output-



## Code-

SARVESH MURTHY  
1BM18CS144

No: Date:

Lab14: RGB LED and LCD

Code:

```
#include <LiquidCrystal.h>
LiquidCrystal led(12, 11, 5, 4, 3, 2);
void setup()
{
    led.begin(16, 2);
    pinMode(8, OUTPUT);
    pinMode(4, OUTPUT);
    pinMode(10, OUTPUT);
    led.print("RGB color print");
}
void loop()
{
    delay(1000);
    digitalWrite(10, HIGH);
    digitalWrite(8, HIGH);
    led.print("RED");
    delay(1000);
    led.write();
    digitalWrite(9, HIGH);
    digitalWrite(10, LOW);
    led.print("BLUE");
    delay(1000);
}
```

Ans.

## Program Number - 15

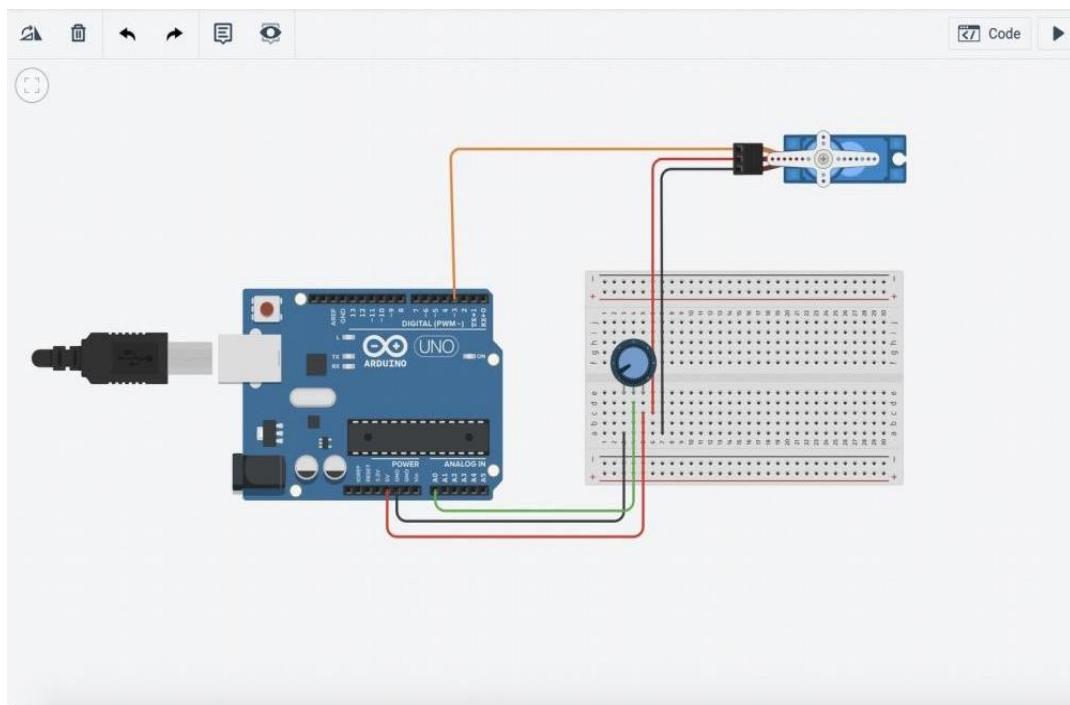
### Program Title: Smart Irrigation

**AIM – Design a smart irrigation system**

### Hardware Required -

- Arduino Board
- Micro Servo
- Breadboard
- Wires
- Potentiometer

### Circuit Diagram-



Code-

SAROJESH MURTHY  
IBM18CS144

lo: Date:

## Lab 15: Smart Irrigation

Code:

```
#include <Servo.h>
Servo myservo;
int potpin = 0;
int value;
void setup()
{
  myservo.attach(9);
}
void loop()
{
  val = analogRead(potpin);
  val = map(val, 0, 1023, 0, 180);
  myservo.write(val);
  delay(15);
}
```

Mur.