

Name – Shreya Laddha

Program No. – 01

Program Title – LED Blinking

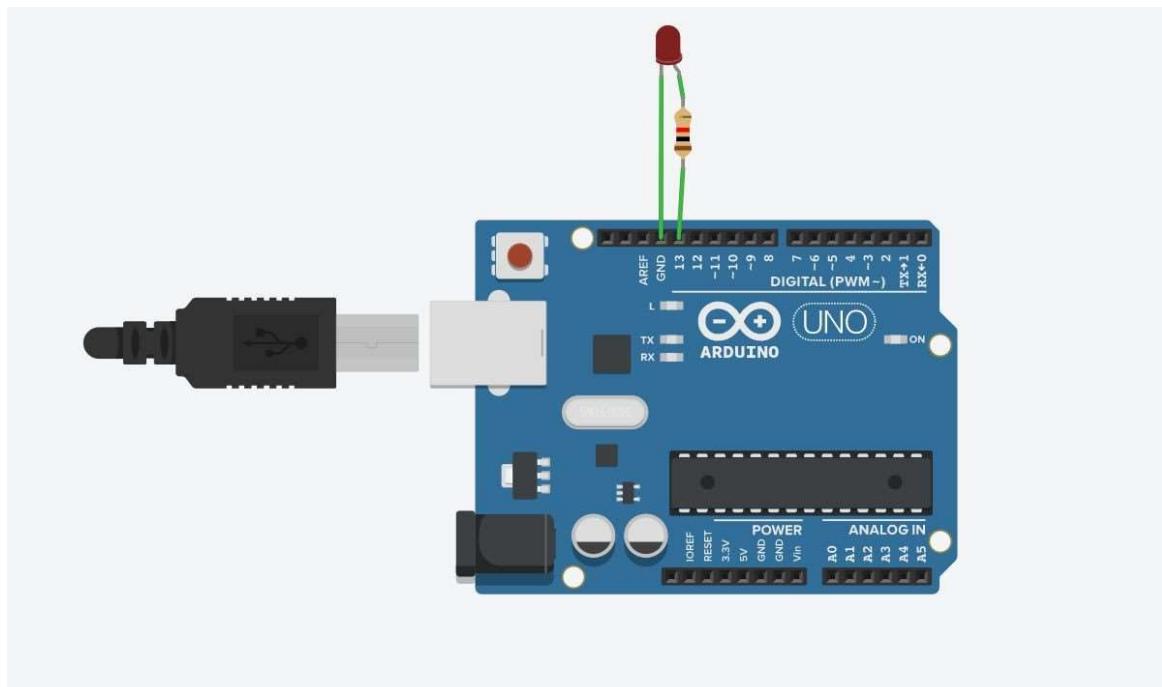
AIM

Turn the LED on for a second, then off for a second, repeatedly.

HARDWARES REQUIRED

- Arduino Board
- LEDs

CIRCUIT DIAGRAM



WRITE-UP

Name: Shreya Ladha
USN: IBM18CS103
Page No.: _____

Expt. No. _____

LAB - 1.

Program: 1 BLINKING LED

Items required : Arduino Board, Bread Board, LED, resistors.

Aim: Turns on an LED on for one second, then turns off for one seconds, repeatedly.

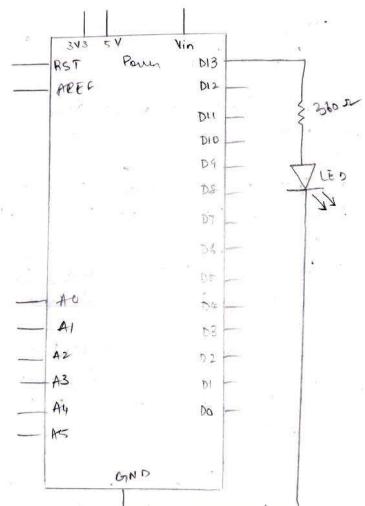
Code:

```
int led = 13;  
void setup()  
{  
    pinMode(led, OUTPUT);  
}  
void loop()  
{  
    digitalWrite(led, HIGH);  
    delay(1000);  
    digitalWrite(led, LOW);  
    delay(1000);  
}
```

① Teacher's Signature : _____

Name: Shreya Ladha
USN: IBM18CS103

CIRCUIT DIAGRAM



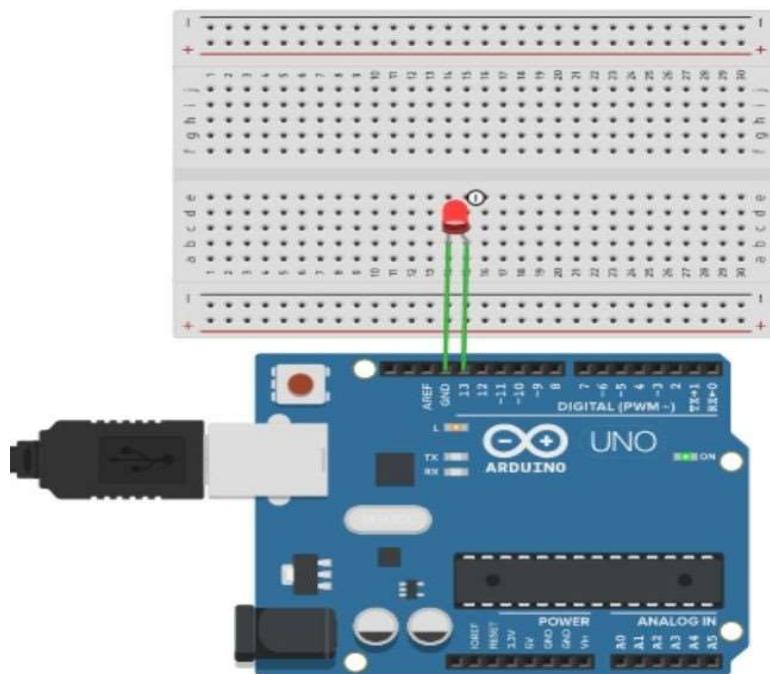
CODE

```
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

The LED was found to be blinking at an interval of 1000 ms.



Name – Shreya Laddha

Program No. – 02

Program Title – Traffic Controller

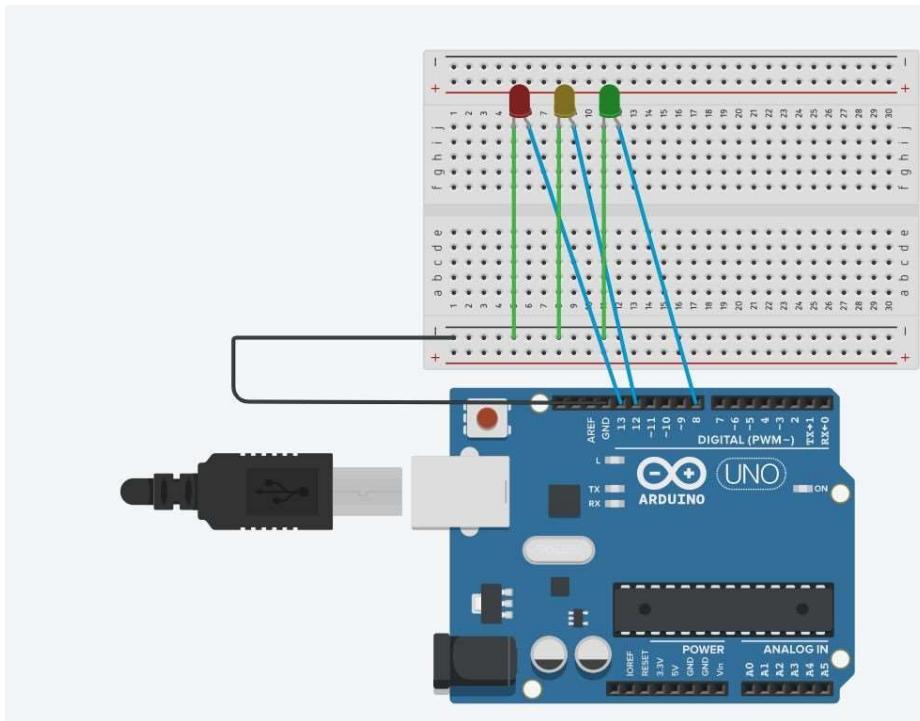
AIM

Traffic Signal Simulator.

HARDWARES REQUIRED

- Arduino Board
- LEDs
- Breadboard

CIRCUIT DIAGRAM



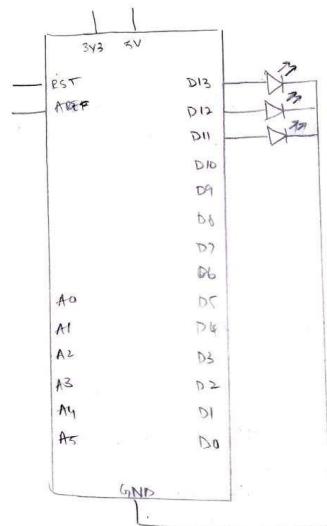
WRITE-UP

Expt. No.	Date
Page No.	Name: Shreya Ladakhe USN: 1BMEFCS103
Program : 2 TRAFFIC CONTROLLER	
Aim: Traffic Signal Simulation	
<u>Hardware requirements :</u>	
<ul style="list-style-type: none"> • Arduino Board • LED's • Resistors → • BreadBoard. 	
Code :	
<pre>void setup() { pinMode(13, OUTPUT); pinMode(12, OUTPUT); pinMode(11, OUTPUT); } void red() { digitalWrite(13, HIGH); digitalWrite(12, LOW); digitalWrite(11, LOW); } void yellow() { digitalWrite(13, LOW); }</pre>	
Teacher's Signature : 	

Expt. No.	Page No.
	Name: Shreya Ladakhe USN: 1BMEFCS103
<pre>digitalWrite(12, HIGH); digitalWrite(11, LOW); void green() { digitalWrite(13, LOW); digitalWrite(12, LOW); digitalWrite(11, HIGH); } void loop() { red(); delay(3000); yellow(); delay(3000); green(); delay(3000); }.</pre>	
Teacher's Signature : 	

Name: Shweta Ladly
USN: 1BM18CS103

CIRCUIT DIAGRAM



(2)

CODE

```
void setup()
{
    pinMode(13, OUTPUT);
    pinMode(12,OUTPUT);
    pinMode(8,OUTPUT);
}
```

```
void red()
{
    digitalWrite(13, HIGH);
    digitalWrite(12,LOW);
```

```
    digitalWrite(8,LOW);  
}  
  
void yellow()
```

```
{  
    digitalWrite(13, LOW);  
    digitalWrite(12,HIGH);  
    digitalWrite(8,LOW);  
}
```

```
void green()  
{  
    digitalWrite(13, LOW);  
    digitalWrite(12,LOW);  
    digitalWrite(8,HIGH);  
}
```

```
void loop()  
{  
    red();  
    delay(3000);  
    yellow();  
    delay(1500);  
    green();  
    delay(3000);
```

```
yellow();  
delay(1500);  
}
```

OUTPUT

All the three LEDs blink one after the other at an interval of 1000ms.

Name – Shreya Laddha

Program No. – 03

Program Title – LED fading without potentiometer

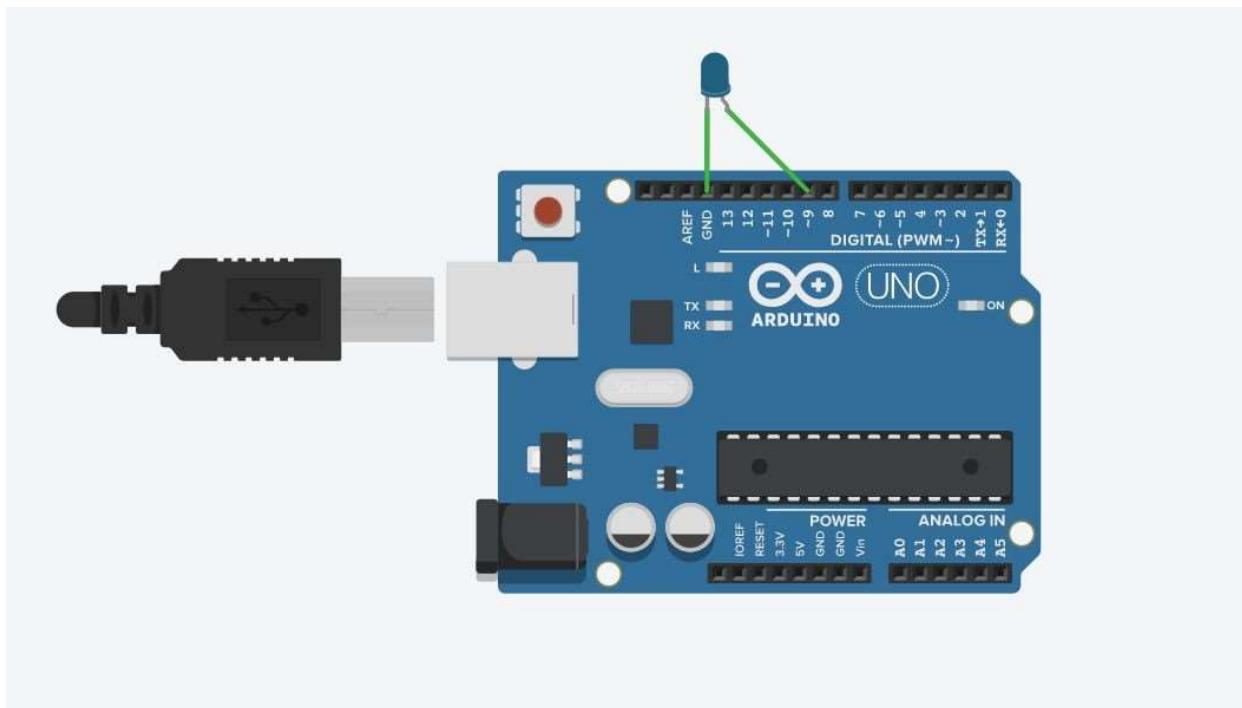
AIM

Demonstrate to show LED fading.

HARDWARES REQUIRED

- Arduino Board
- LED bulb

CIRCUIT DIAGRAM



WRITE-UP

Date
Expt. No. Page No.
Name: Shreya Laddha
USN: 18M18CS103

PROGRAM NO : 4
PROGRAM TITLE : LED FADING

Aim: Demonstrate to show LED fading

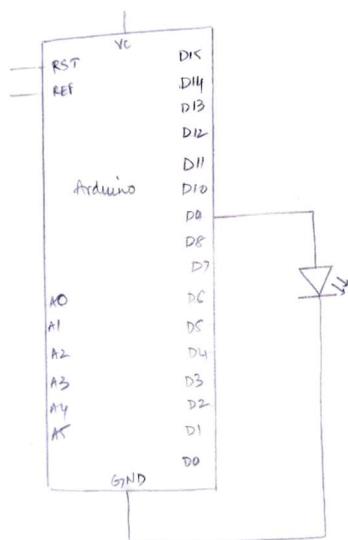
Hardware Required:
• Arduino Board
• LED

Code:

```
void setup() {  
    pinMode (2, OUTPUT);  
}  
  
void loop()  
{  
    for (int fade = 0 ; fade <= 255 ; fade += 5 )  
    {  
        analogWrite (9, fade);  
        delay (30);  
    }  
    for (int fade = 255 ; fade >= 0 ; fade -= 5 )  
    {  
        analogWrite (9, fade);  
        delay (30);  
    }  
}
```

① Teacher's Signature: _____

Name: Shreya Laddha
USN: 18M18CS103



②

Shreya

CODE

```
void setup()
{
    pinMode(2, OUTPUT);
}

void loop()
{
    for(int fade =0;fade <=255; fade+=5)
    {
        analogWrite(9,fade);
        delay(30);
    }
    for(int fade = 255; fade>=0;fade-=5)
    {
        analogWrite(9, fade);
        delay(30);
    }
}
```

}

OUTPUT

Fading of LED.

Name – Shreya Laddha

Program No. – 04

Program Title – LED fading with potentiometer

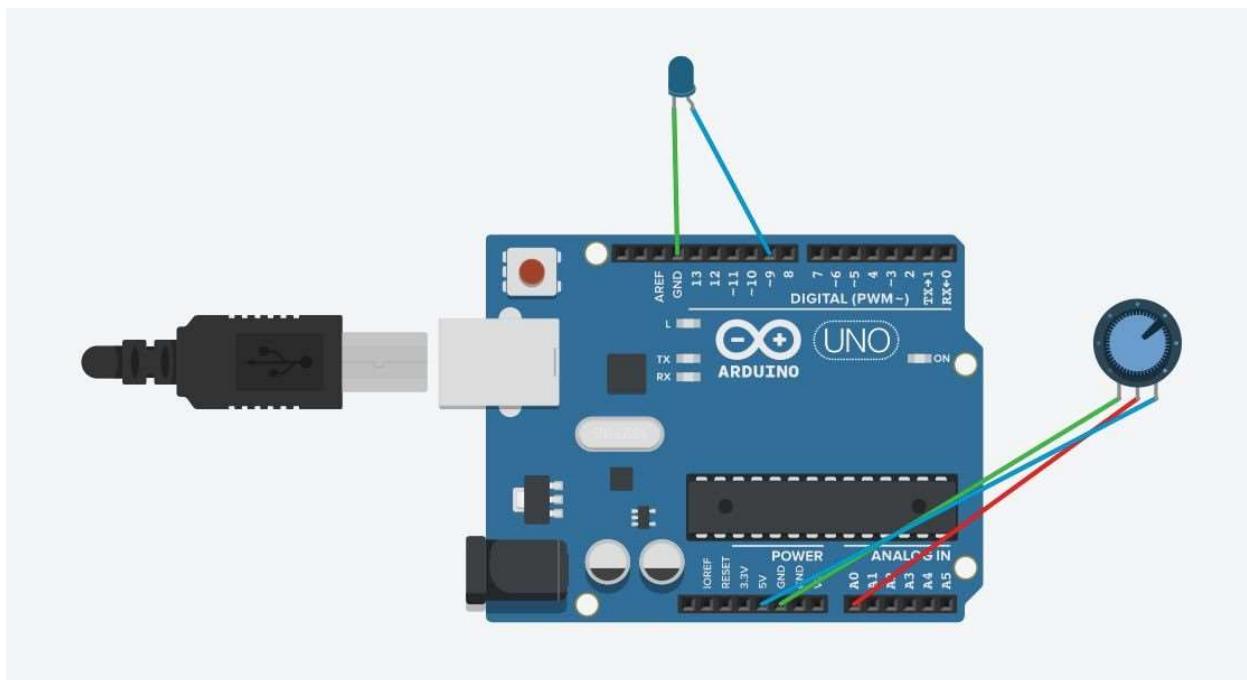
AIM

Demonstrate to show LED fading(analog output).

HARDWARES REQUIRED

- Arduino Board
- LED bulb
- Potentiometer

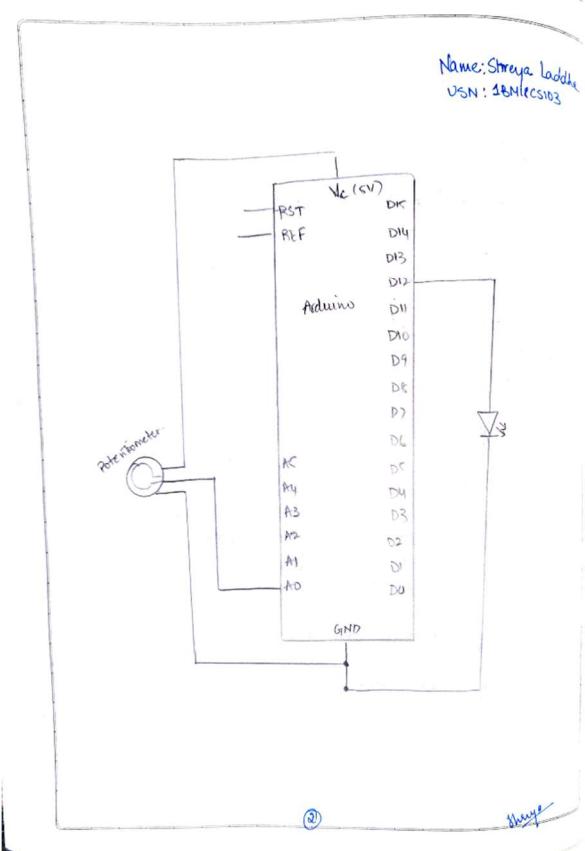
CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	Name: Shreya Ladde USN: 18M1ECS103
PROGRAM NO.: 5	
PROGRAM TITLE: LED FADING WITH POTENTIOMETER	
Aim: Demonstrate to show LED fading (Analog Output)	
Hardware Required:	
<ul style="list-style-type: none"> • Arduino Board • Potentiometer • LED 	
Code:	
<pre> int ledPin = 9; void setup() { Serial.begin(9600); pinMode(ledPin, OUTPUT); } void loop() { int analogValue = analogRead(A0); int brightness = map(analogValue, 0, 1023, 0, 255); analogWrite(ledPin, brightness); Serial.print("Analog: "); Serial.print(analogValue); Serial.print(","); Serial.print(" Brightness: "); Serial.println(brightness); delay(100); } </pre>	

① Teacher's Signature: *Shreya*



CODE

```
int LED_PIN = 9;

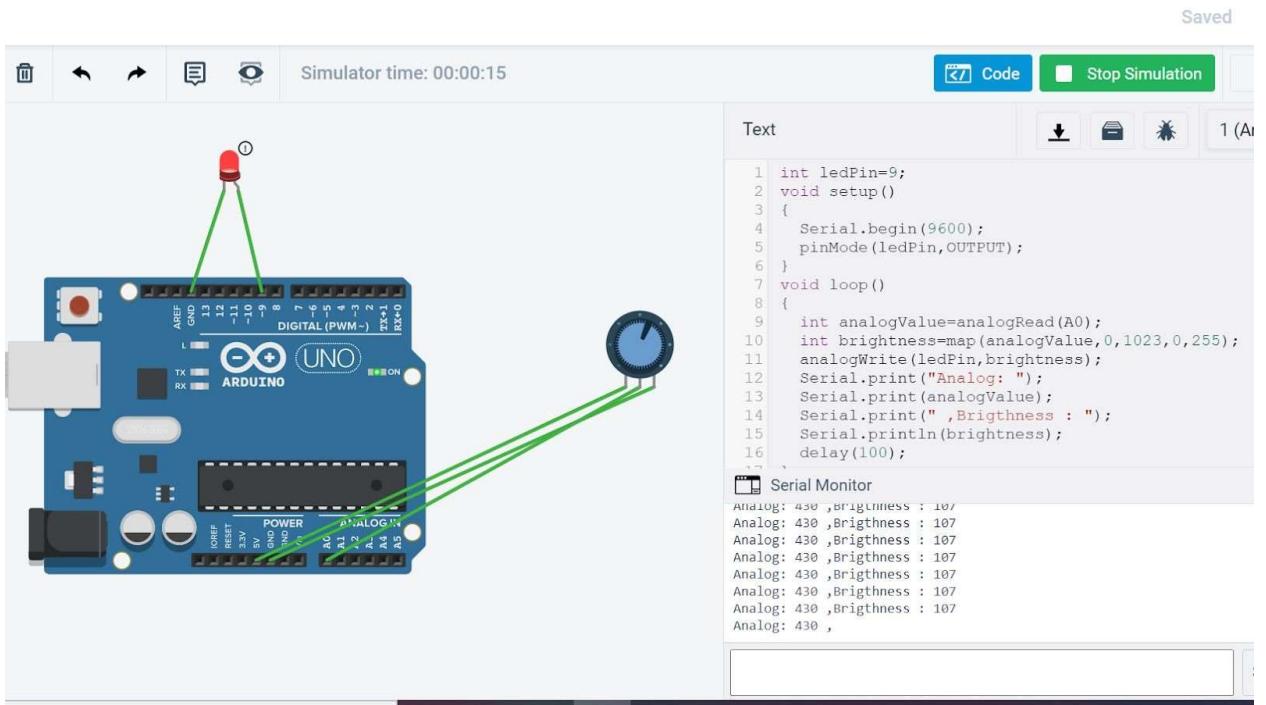
void setup()
{
    Serial.begin(9600);
    pinMode(LED_PIN, OUTPUT);
}

void loop()
{
    int analogValue = analogRead(A0);
    int brightness = map(analogValue, 0, 1023, 0, 255);
    analogWrite(LED_PIN, brightness);
    Serial.print("Analog: ");
    Serial.print(analogValue);
    Serial.print(", Brightness : ");
    Serial.println(brightness);
```

```
delay(100);  
}  
  
}
```

OUTPUT

Fading of LED with potentiometer.



Name – Shreya Laddha

Program No. – 05

Program Title – ON/OFF LED using Push Button

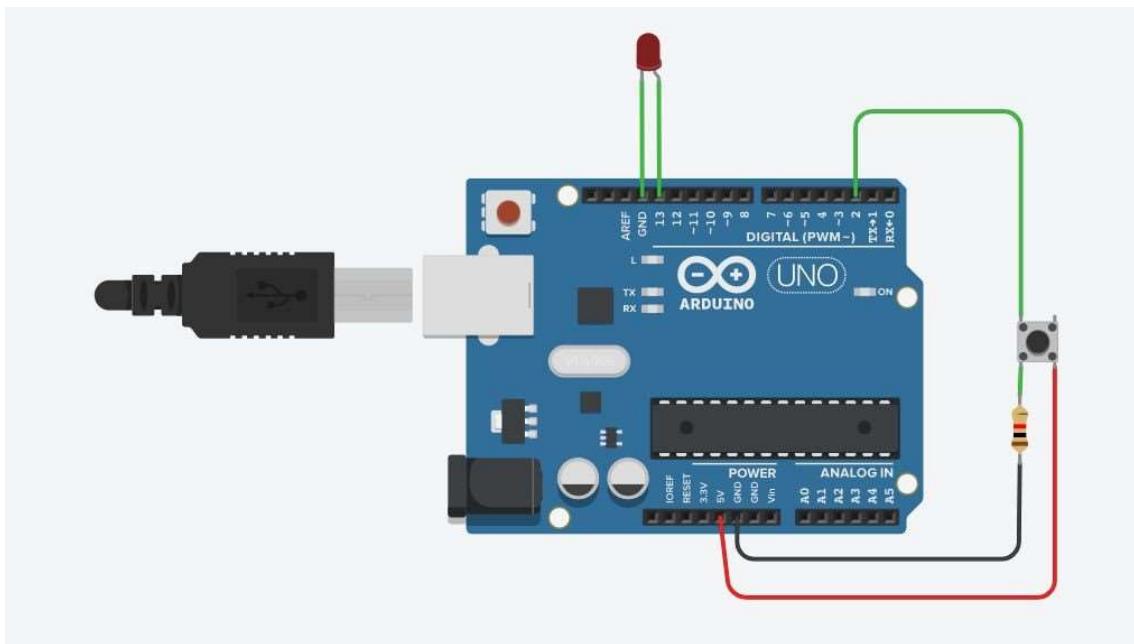
AIM

Demonstrate to show ON/OFF of a LED using push button(Digital Output).

HARDWARES REQUIRED

- Arduino Board
- LED bulb
- Push Button
- Resistor

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.

Page No.

Name: Shreya Ladha
VSN: IITMIECS103

PROGRAM No : 3

PROGRAM TITLE: LED using Pushbutton

Aim: Demonstrate to show on/off of a LED using push button(Digital output)

Hardware requirement :

- Arduino Board
- LED
- Push button
- Resistor

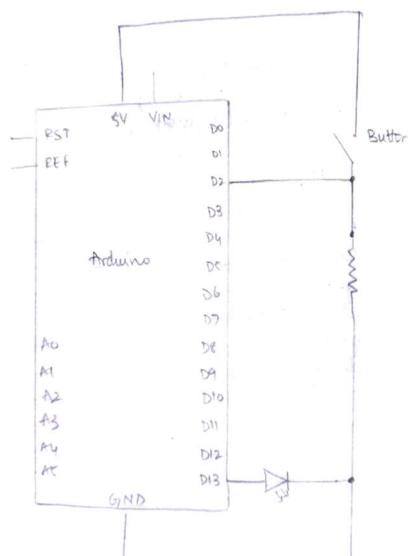
Code/Circuit Diagram/Code :

```
int buttonState = 0;  
const int buttonPin = 2;  
const int ledPin = 13;  
void setup()  
{  
    pinMode(13, OUTPUT);  
    pinMode(2, INPUT);  
}  
void loop()  
{  
    buttonState = digitalRead(buttonPin);  
    if (buttonState == HIGH)  
    {  
        digitalWrite(ledPin, HIGH);  
    }  
}
```

Teacher's Signature :

①

Name: Shreya Ladha
VSN: IITMIECS103



②

Shreya

CODE

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

OUTPUT

ON/OFF of a LED using push button(Digital Output).

Name –Shreya Laddha

Program No. – 06

Program Title – LDR

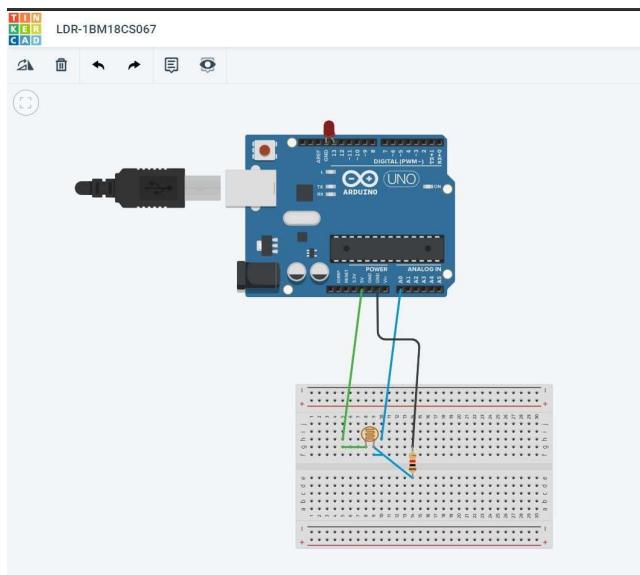
AIM

Demonstrate to show on/off of a LED using LDR night light simulation.

HARDWARES REQUIRED

- Arduino Board
- PhotoResistor
- Resistor
- LED
- Breadboard Small

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	Name: Shreya Ladha USN: 1BN18CS03
PROGRAM: 6	
PROGRAM TITLE: Night - light simulation.	
Aim: Demonstrate to show ON/OFF of a LED using LDR - Night light simulation.	
Hardware Required :	
* Arduino Board	
* Photodiode Photo Resistor	
* LED	
Code:	
<pre>const int ledPin = 13; 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); } }</pre>	
Teacher's Signature : _____	

Expt. No.	Date
Page No.	Name: Shreya Ladha USN: 1BN18CS03
<pre>} Serial.println("LDR is Dark , LED is ON "); else { digitalWrite(ledPin, LOW); Serial.println ("LDR is BRIGHT , LED is OFF "); Serial.println ("-----"); }</pre>	
Teacher's Signature : _____	

CODE

```
const int ledPin = 13;

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(" -----");

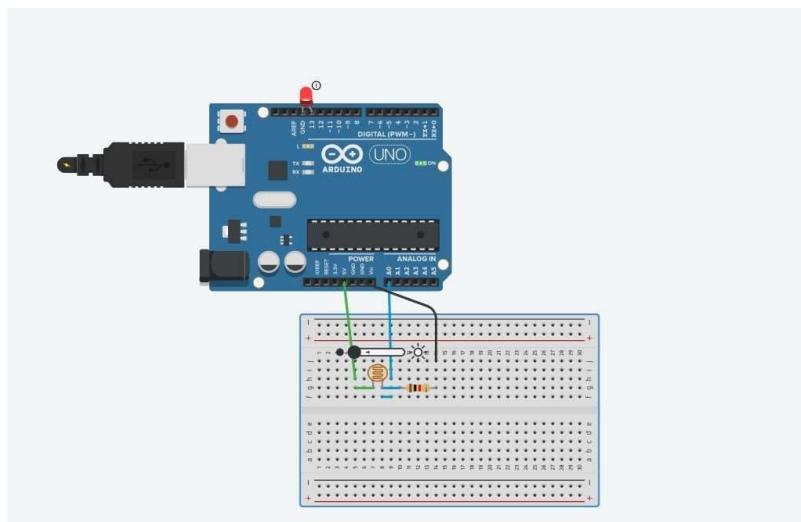
}

}

```

OUTPUT

Design a system to show on/off of a LED using LDR night light simulation.



Name – Shreya Laddha

Program No. – 07

Program Title – PIR

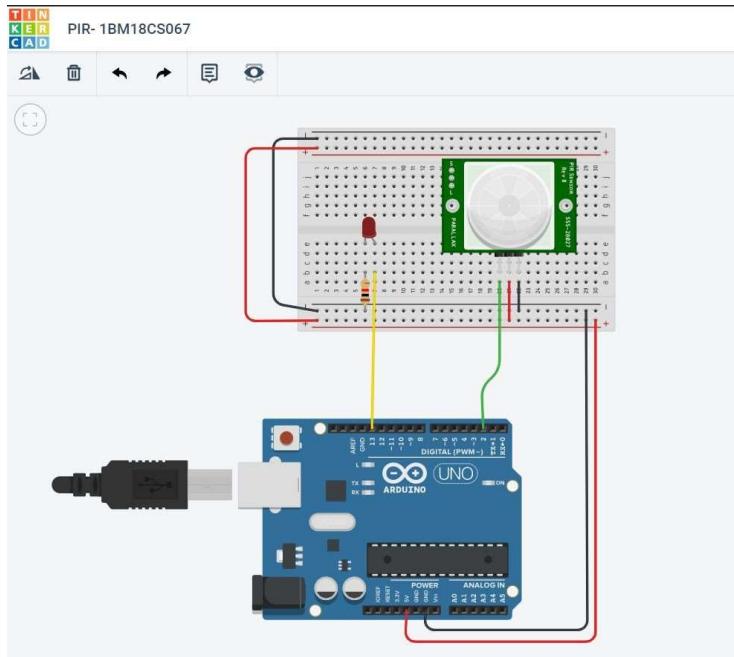
AIM

Demonstrate to show working of PIR sensor.

HARDWARES REQUIRED

- Arduino Board
- PIR sensor
- Resistor
- LED pin
- Breadboard Small

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	Name: Shreya Ladha USN: 2BM18CS103
PROGRAM :] <u>PROGRAM TITLE:</u> Night - light - Human Detection.	
<u>AIM:</u> Demonstrate to show the working of PIR sensor	
<u>Hardware Required:</u> * Arduino * PIR Sensor * LED	
<u>Code:</u> int ledPin = 13; int inputPin = 2; int PIRstate = LOW; int val = 0; void setup() { pinMode(ledPin, OUTPUT); pinMode(inputPin, INPUT); Serial.begin(9600); } void loop() { val = digitalRead(inputPin); if (Val == HIGH) digitalWrite(ledPin, HIGH); if (PIRstate == LOW) }	
Teacher's Signature: _____	

Expt. No.	Date
Page No.	Name: Shreya Ladha USN: 2BM18CS103
dr Serial.println ("Sensor Activated"); PIRstate = HIGH; } } else { digitalWrite (ledPin, LOW); if (PIRstate == HIGH) } Serial.println ("Motion ended!"); PIRstate = LOW; } }	
Teacher's Signature: _____	

CODE

```
int sensorState = 0;

void setup()
{
    pinMode(2, INPUT);
    pinMode(13, OUTPUT);
    Serial.begin(9600);
}

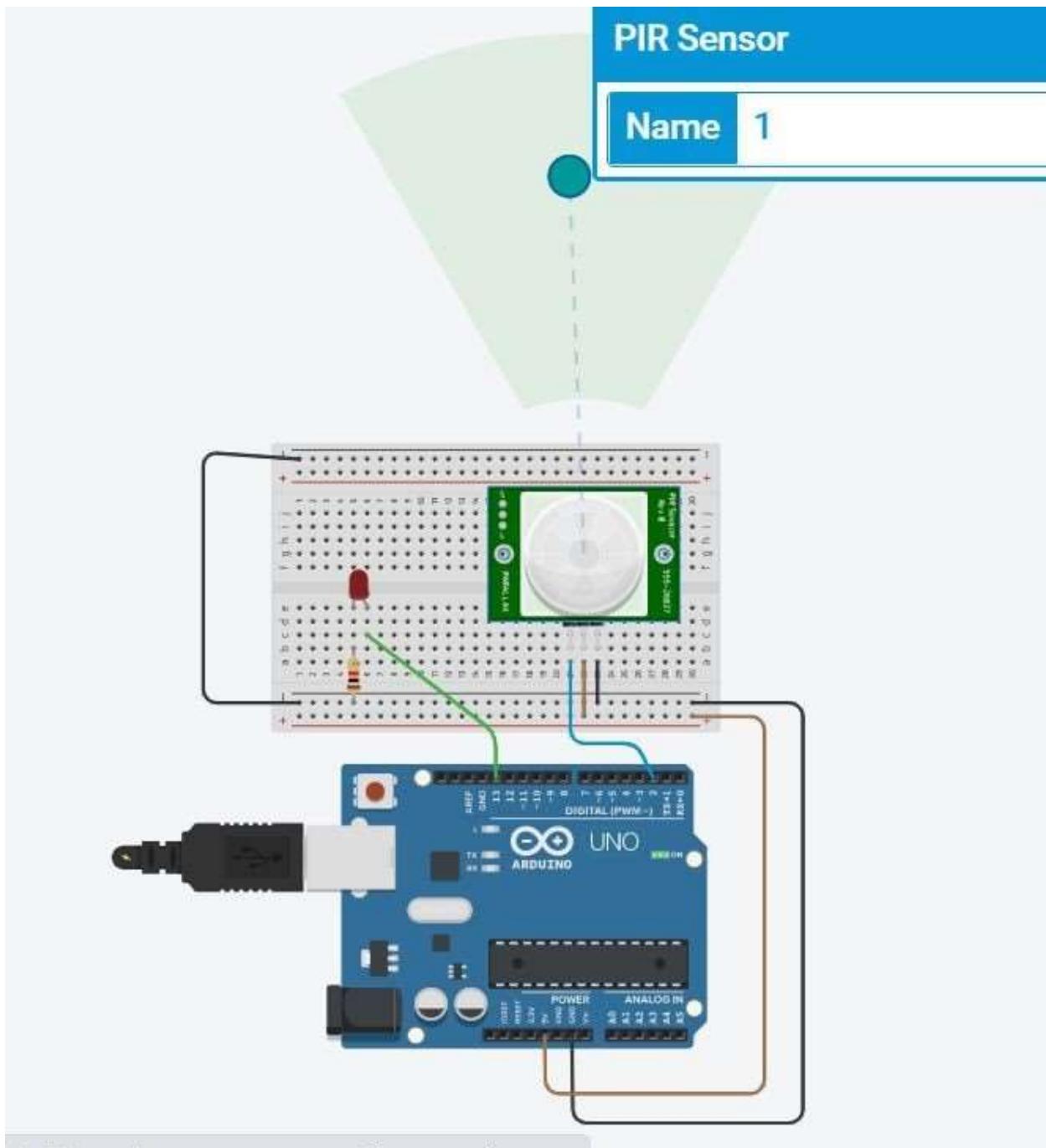
void loop()
{
    sensorState = digitalRead(2);

    if (sensorState == HIGH) {
        digitalWrite(13, HIGH);
        Serial.println("Sensor activated!");
    } else {
        digitalWrite(13, LOW);
        Serial.println("Sensor deactivated!");
    }
}
```

```
delay(5); }
```

OUTPUT

Designed a system to show working of PIR Sensor.



Name – Shreya Laddha

Program No. – 08

Program Title – Distance Measurement using ultrasonic sensor

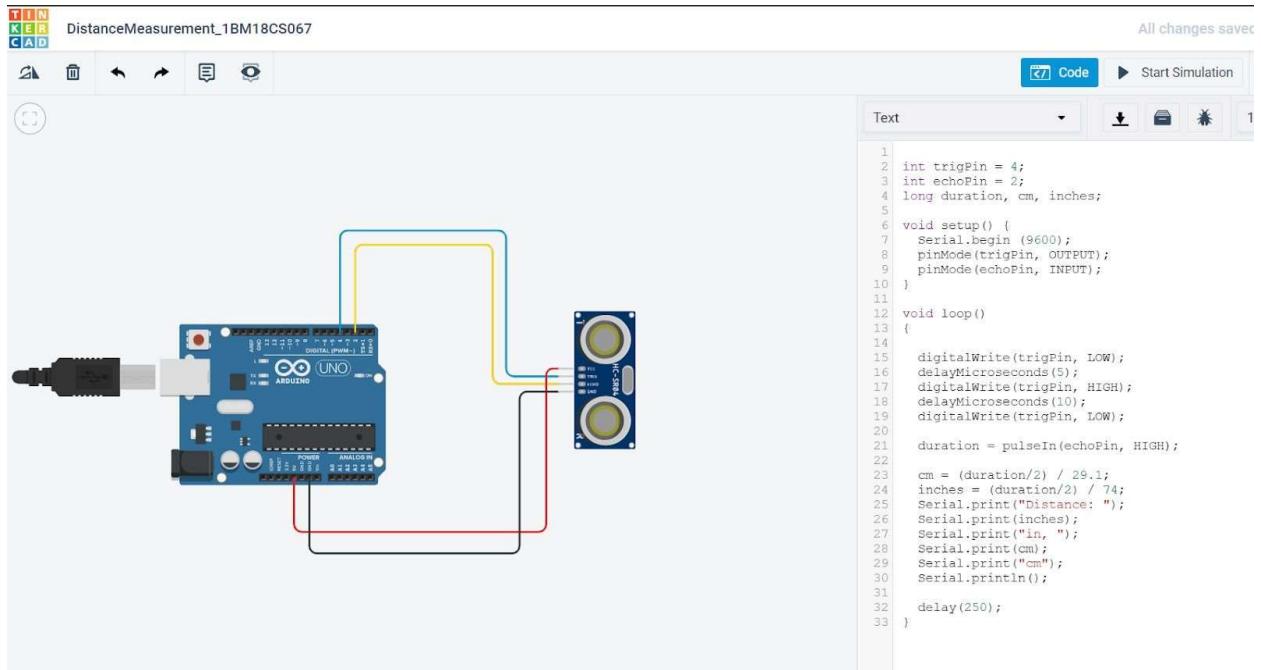
AIM

Design a system to measure the distance between objects.

HARDWARES REQUIRED

- Arduino Board
- Ultrasonic sensor HC-SR04

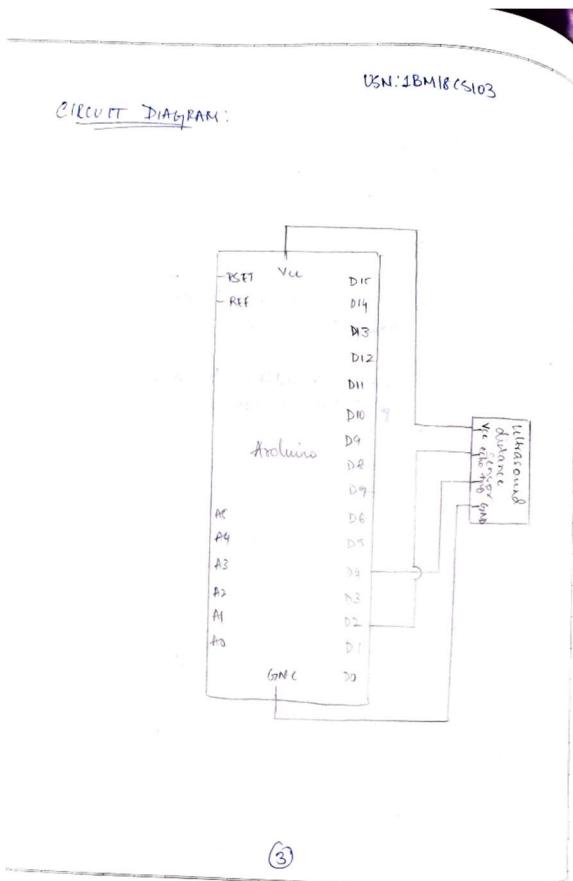
CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	VSN: 1BM18CS103
PROGRAM: 8	
PROGRAM TITLE : OBJECT DISTANCE MEASUREMENT	
Aim: Design a system to measure the distance between objects	
Hardware Required:	
• Arduino	
• Ultrasonic Distance Sensor	
CODE:	
<pre>int trigPin = 4; int echoPin = 2; long distance, cm, inches; void setup() { Serial.begin(9600); pinMode(trigPin, OUTPUT); pinMode(echoPin, INPUT); } void loop() { digitalWrite(trigPin, LOW); delayMicroseconds(5); digitalWrite(trigPin, HIGH); delayMicroseconds(10); digitalWrite(trigPin, LOW); }</pre>	
(1)	Teacher's Signature: _____

Expt. No.	Date
Page No.	VSN: 1BM18CS103
duration = pulseIn(echoPin, HIGH) cm = (duration / 2) / 7.1; inches = (duration / 2) / 74; Serial.print("Distance: "); Serial.print(cm); Serial.print(" inches, "); Serial.print(cm); Serial.print(" cm"); Serial.print(" : cms "); delay(250); }	
(2)	Teacher's Signature: _____



CODE

```

int trigPin = 4;
int echoPin = 2;
long duration, cm, inches;
void setup() {
    Serial.begin (9600);
    pinMode(trigPin, OUTPUT);
    pinMode(echoPin, INPUT);
}
void loop()
{

```

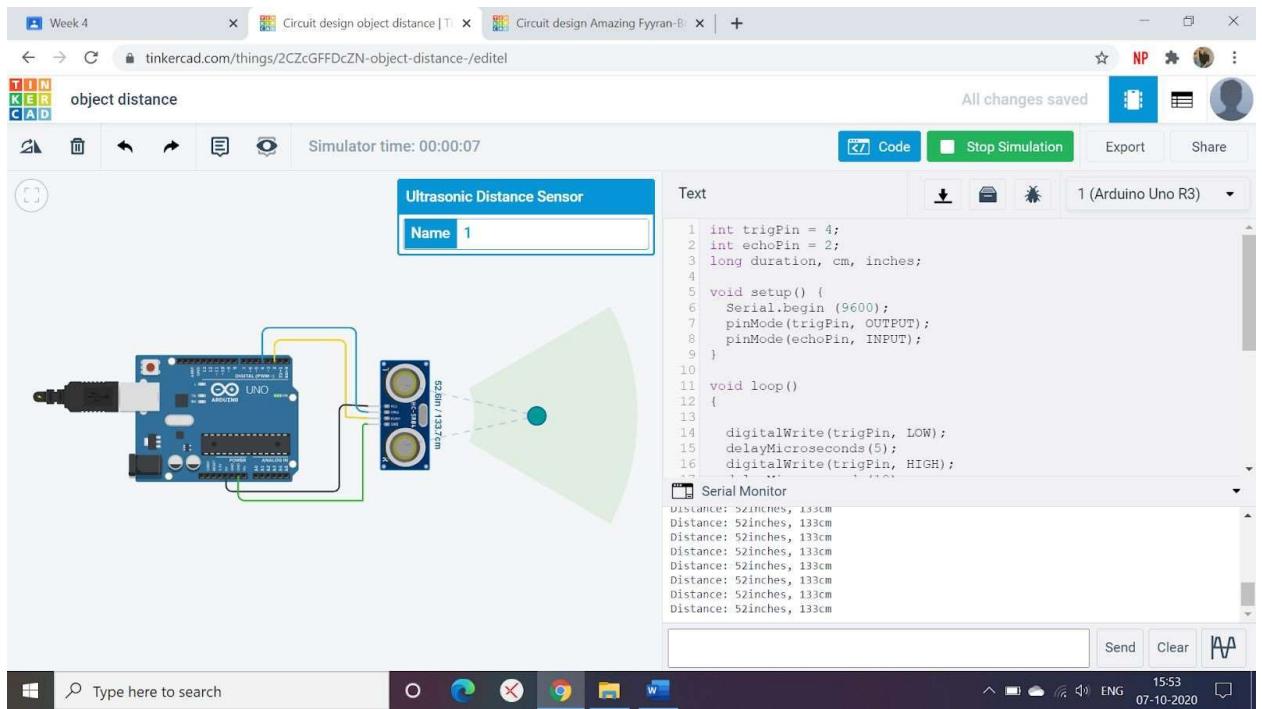
```
digitalWrite(trigPin, LOW);
delayMicroseconds(5);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);

duration = pulseIn(echoPin, HIGH);
cm = (duration/2) / 29.1;
inches = (duration/2) / 74;
Serial.print("Distance: ");
Serial.print(inches);
Serial.print("inch, ");
Serial.print(cm);
Serial.print("cm");
Serial.println();
delay(250);

}
```

OUTPUT

Design a system to measure the distance between objects using ultrasonic device.



Name –Shreya Laddha

Program No. – 09

Program Title – Fire Alarm using flame Sensor

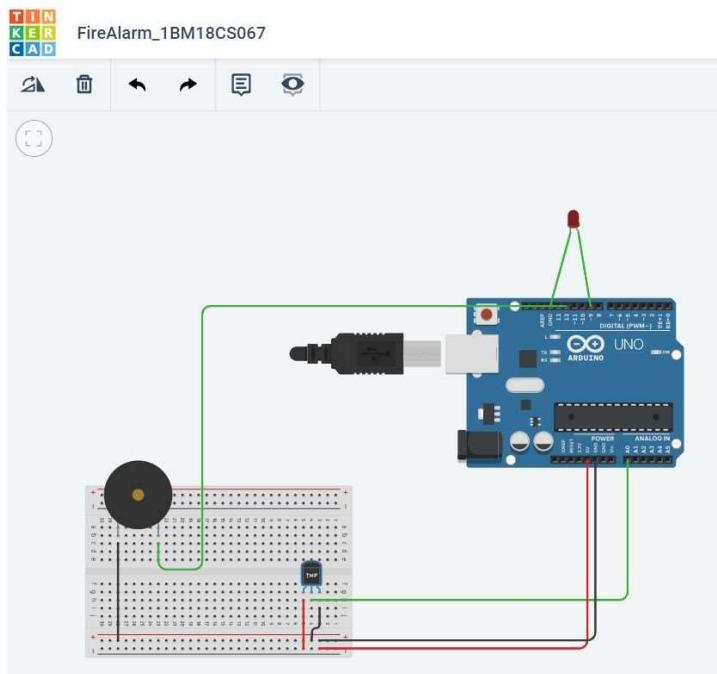
AIM

Design an alert system using a flame sensor.

HARDWARES REQUIRED

- Arduino Board
- Piezo
- Temperature Sensor
- Breadboard small

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	USN: 2BMECS103
<p><u>PROGRAM : 9</u></p> <p><u>PROGRAM TITLE : Alert System</u></p> <p><u>AIM : Design an alert system using flame sensor (use temp sensor for experiments in tinkercad).</u></p> <p><u>Hardware Required :</u></p> <ul style="list-style-type: none"> • Arduino • Piezo • Temperature Sensor • LED <p><u>CODE :</u></p> <pre> int temperaturePin = 0; int buzzer = 12; void setup() { Serial.begin(9600); pinMode(buzzer, OUTPUT); pinMode(9, OUTPUT); } float getVoltage(int pin) { return (analogRead(pin) + 0.004882814); } </pre> <p>(1) Teacher's Signature : _____</p>	

Expt. No.	Date
Page No.	USN: 2BMECS103
<pre> void loop() { float voltage, degreesC; voltage = getVoltage(temperaturePin); degreesC = (voltage - 0.5) * 100.0; digitalWrite(9, LOW); if(degreesC > 37) { Serial.print(degreesC); Serial.println("ALERT!"); digitalWrite(buzzer, HIGH); digitalWrite(9, HIGH); tone(12, 10000, 100); delay(200); } else { Serial.print(degreesC); Serial.print(" SAFE!"); delay(200); } } </pre> <p>(2) Teacher's Signature : _____</p>	

CODE

```
const int temperaturePin = 0;  
int buzzer = 12;  
  
void setup()  
{  
    Serial.begin (9600);  
    pinMode(buzzer, OUTPUT);  
    pinMode(9, OUTPUT);  
}  
  
void loop()  
{  
    float voltage, degreesC;  
    voltage = getVoltage(temperaturePin);  
    degreesC = (voltage-0.5)*100.0;  
  
    if(degreesC < 37)
```

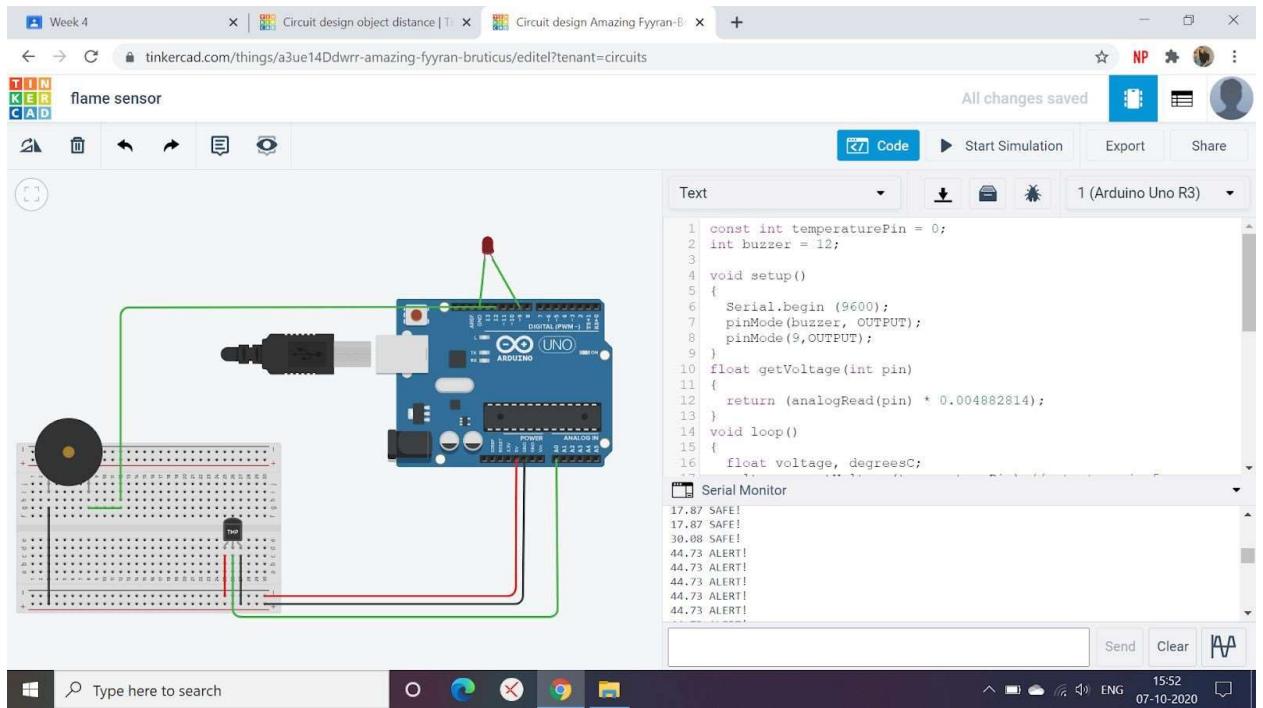
```
{  
    Serial.print(degreesC);  
    Serial.println(" SAFE!");  
}  
  
}
```

```
if(degreesC > 37)  
{  
    Serial.print(degreesC);  
    Serial.println("FIRE !!!");  
    digitalWrite(9, HIGH);  
    digitalWrite(buzzer, LOW);  
    tone(12, 10000,100);  
    delay(100);  
}  
  
}
```

```
float getVoltage(int pin)  
{  
    return (analogRead(pin) * 0.004882814);  
}
```

OUTPUT

Designed an alert system using flame sensor.



Name – Shreya Laddha

Program No. – 10

Program Title – Gas Sensor

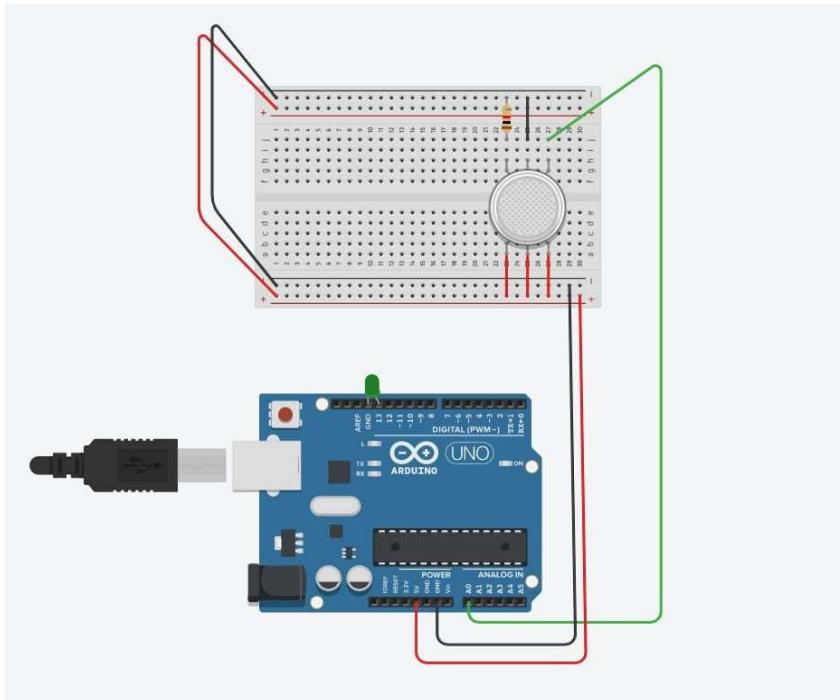
AIM

To design a smart gas leakage indicator system.

HARDWARES REQUIRED

- Arduino Board
- Gas sensor
- Resistor
- LED
- Breadboard Small

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	
VSN: 1BM18CS103	
<u>PROGRAM: 10</u> <u>PROGRAM TITLE:</u> Smart gas leakage indicator .	
<u>Aim:</u> Design a smart gas leakage indicator system (gas sensor and LED).	
<u>Hardware requirement:</u> <ul style="list-style-type: none"> • Arduino • Gas Sensor • Bread board • Resistor • LED 	
<u>CODE:</u> <pre> int led = 13; const int gas = 0; int gasPin = A0; void setup() { Serial.begin(9600); } void loop() { float sensorValue = analogRead(gasPin); if (sensorValue > 300) { digitalWrite(led, HIGH); Serial.print(sensorValue); } }</pre>	
① Teacher's Signature : _____	

Expt. No.	Date
Page No.	
VSN: 1BM18CS103	
<pre> Serial.println("*** SMOKE DETECTED ***"); delay(1000); else { digitalWrite(led, LOW); Serial.println("Serial Value: "); Serial.println(sensorValue); } delay(1000); </pre>	
② Teacher's Signature : _____	

CODE

```
int LED = 13;  
  
const int gas = 0;  
  
int Gaspin = A0;  
  
  
void setup()  
{  
    Serial.begin(9600);  
}  
  
void loop()  
{  
    float sensorValue = analogRead(Gaspin);  
    if(sensorValue >= 300)  
    {  
        digitalWrite(LED, HIGH);  
        Serial.print(sensorValue);  
        Serial.println(" *** SMOKE DETECTED ***");  
        delay(sensorValue);  
    }  
}
```

```

}

else

{
    digitalWrite(LED, LOW);

    Serial.println("Serial Value : ");

    Serial.println(sensorValue);

}

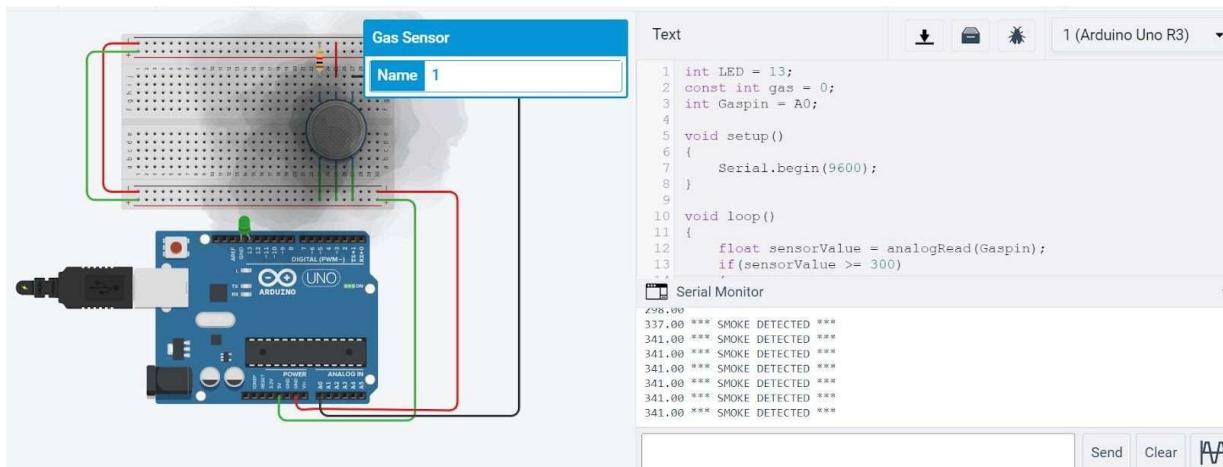
delay(1000);

}

```

OUTPUT

Designed a smart gas leakage indicator system.



Name – Shreya Laddha

Program No. – 11

Program Title – Vibration motor and LDR

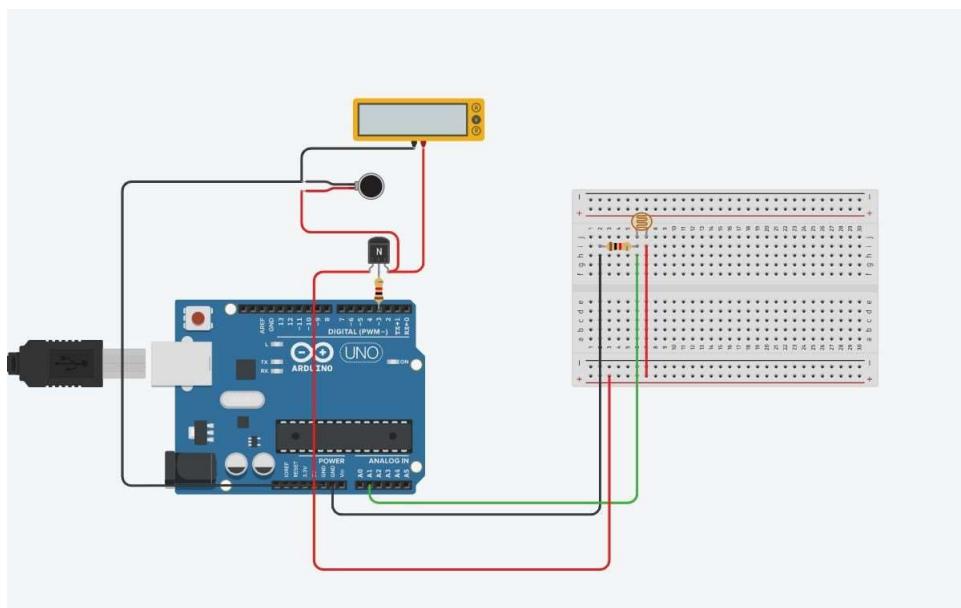
AIM

To design an automated day indicator system.

HARDWARES REQUIRED

- Arduino Board
- NPN Transistor
- Resistor
- Vibration motor
- Multimeter
- Photoresistor

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	
PROGRAM : II PROGRAM TITLE : Day indicator system. VSN: 1BM18CS103	
Aim : Design an automated day indicator (Vibration motor and LDR).	
Hardware Required : <ul style="list-style-type: none"> • Arduino • BreadBoard • LDR • NPN transistor • Multimeter • Resistors. 	
Code : <pre> int motorPin = 3; int sensorPin = A3; int threshold = 400; void setup() { pinMode(motorPin, OUTPUT); Serial.begin(9600); } void loop() { int sensorValue = analogRead(sensorPin); Serial.println(sensorValue); if (sensorValue > threshold) </pre>	
Teacher's Signature : <u>(1)</u>	

Expt. No.	Date
Page No.	
VSN: 1BM18CS103	
<pre> digitalWrite(motorPin, HIGH); else { digitalWrite(motorPin, LOW); } </pre>	
<u>(2)</u> Teacher's Signature : _____	

CODE

```
int motorPin = 3;  
int sensorPin = A1;  
int threshold = 400;  
  
void setup()  
{  
    pinMode(motorPin, OUTPUT);  
    Serial.begin(9600);  
}  
  
void loop()  
{  
    int sensorValue = analogRead(sensorPin);  
    Serial.println(sensorValue);  
    if(sensorValue > threshold)  
    {  
        digitalWrite(motorPin, HIGH);  
    }  
}
```

```

        }

    else

    {

        digitalWrite(motorPin, LOW);

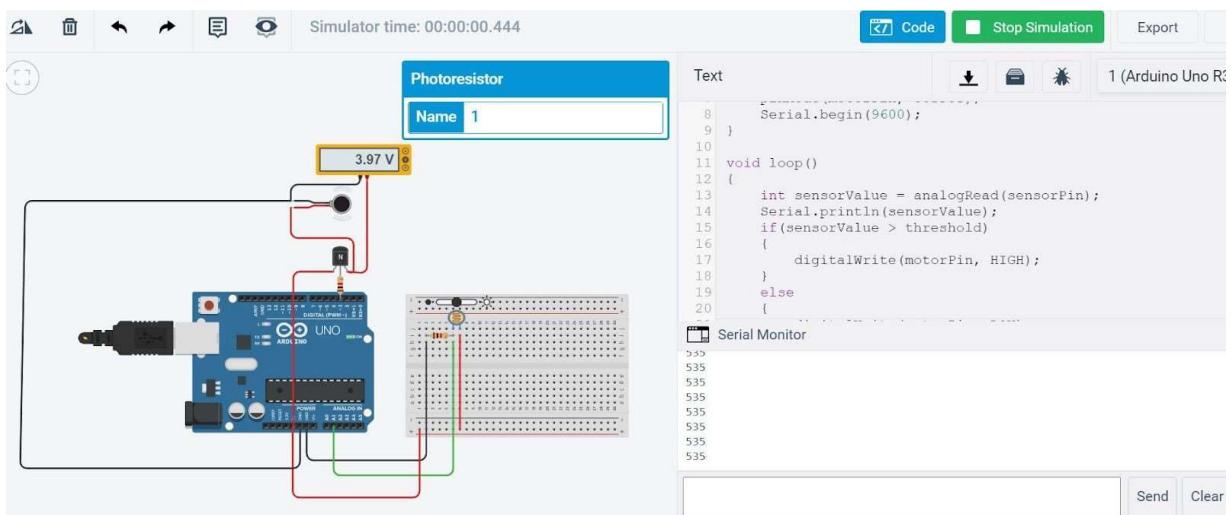
    }

}

```

OUTPUT

Designed an automated day indicator system.



Name – Shreya Laddha

Program No. – 12

Program Title – Tilt Sensor

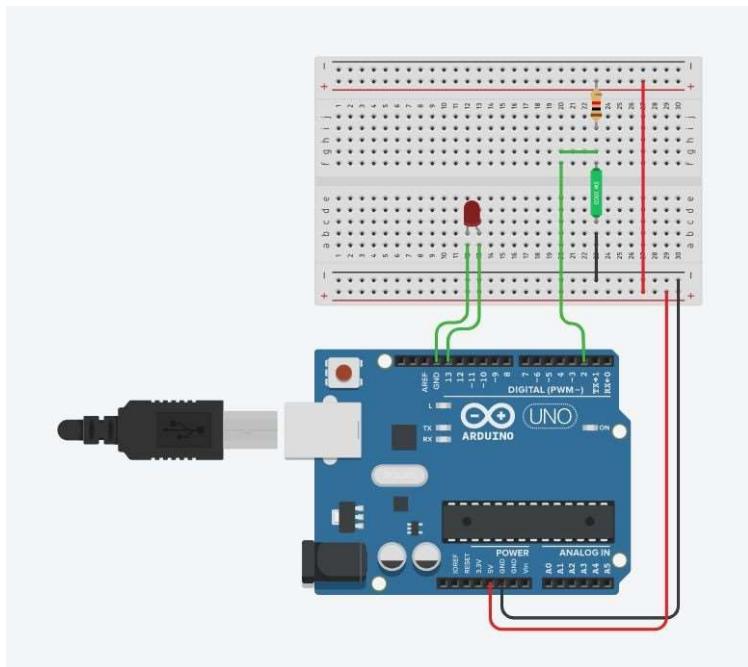
AIM

Design a Smart Package handling system (Tilt sensor and LED)

HARDWARES REQUIRED

- Arduino Board
- Breadboard Small
- LEDs
- Tilt Sensor
- Resistor

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Page No.
Name: Shreya Ladha USN: 1BMECS103	
PROGRAM NO. = 13 PROGRAM TITLE = IR based Servo Motor Controller.	
AIM: Design IR based servo Motor controller. (Clockwise and Counter Clockwise rotation of shaft).	
Hardware Required. <ul style="list-style-type: none"> • Arduino Board • Breadboard • IR Sensor • IR Remote • Micro Servo 	
Code: <pre>#include <Servo.h> #include <IRremote.h> int RECV_PIN = 11 IRrecv irrecv(RECV_PIN); decode_results results; Servo myservo; void setup() { Serial.begin(9600); irrecv.enableIRIn(); } void loop()</pre>	
Teacher's Signature : _____	

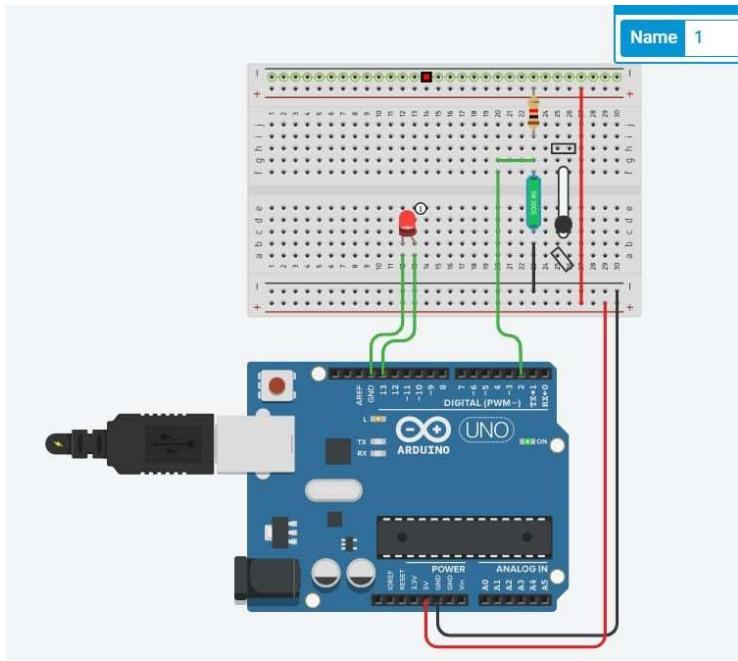
Page No. Name: Shreya Ladha USN: 1BMECS103	
<pre>if (irrecv.decode(&results)) switch (results.value) { case 0XF000FF: myservo.attach(9); Serial.println("start ... "); break; case 0XF020DF: myservo.write(-360); Serial.println("Counter Clockwise "); break; default: Serial.print("Unrecognized code received : 0x "); Serial.println(results.value, HEX); break; } irrecv.resume(); }</pre>	
Teacher's Signature : _____	

CODE

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

OUTPUT

Designed a Smart Package handling system using Tilt Sensor and LED.



Name – Shreya Laddha

Program No. – 13

Program Title – IR based SERVO Motor controller

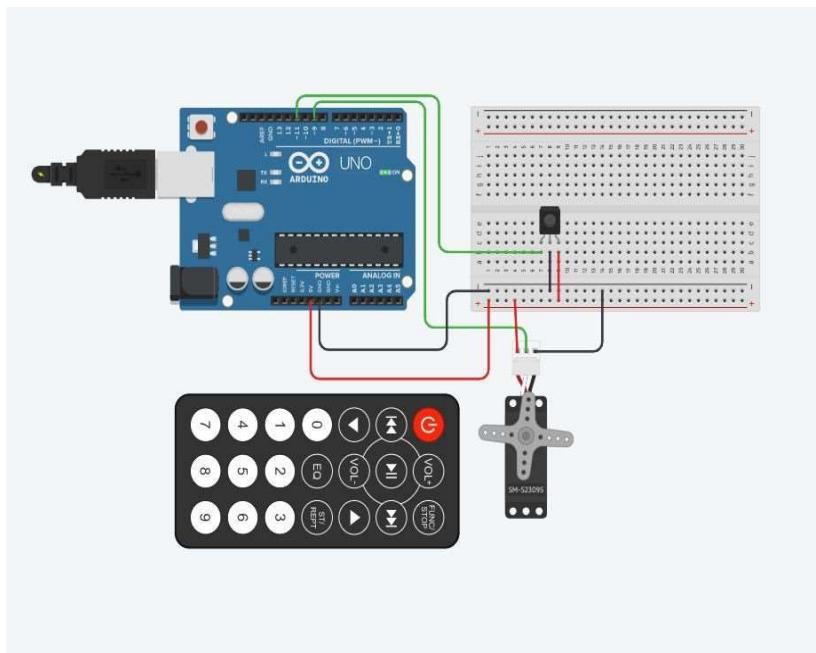
AIM

Design IR based SERVO Motor controller. (Clockwise and CounterClockwise rotation of shaft).

HARDWARES REQUIRED

- Arduino Board,
- Breadboard Small,
- IR Sensor,
- IR Remote,
- Micro Servo

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Page No.
Name: Shreya Ladha USN: 16MIECS103	
<p><u>PROGRAM No.:</u> 12</p> <p><u>PROGRAM TITLE:</u> TILT SENSOR</p> <p><u>AIM:</u> Design a smart Package handling system (Tilt sensor and LED).</p> <p><u>Hardware Required.</u></p> <ul style="list-style-type: none"> • Arduino Board • BreadBoard • LEDs • Tilt Sensor • Resistor. <p><u>Code:</u></p> <pre>int tilt = 2; int led = 13; void setup() { pinMode(tilt, INPUT); pinMode(led, OUTPUT); } void loop() { int reading; reading = digitalRead(tilt); if (reading) digitalWrite(led, HIGH); else digitalWrite(led, LOW); }</pre> <p>Teacher's Signature : </p>	
Expt. No.	Page No.
Name: Shreya Ladha USN: 16MIECS103	
<p>else</p> <pre>digitalWrite(led, HIGH);</pre> <p>(1) Teacher's Signature : </p>	

CODE

```
#include <Servo.h>

#include <IRremote.h>

int RECV_PIN = 11;
IRrecv irrecv(RECV_PIN);
decode_results results;
```

```
Servo myservo;

void setup(){
    Serial.begin(9600);
    irrecv.enableIRIn();
}

void loop(){
    if (irrecv.decode(&results))
    {
        switch (results.value)
        {
            case 0xFD00FF:
                myservo.attach(9);
                Serial.println("Start");
                break;
            case 0xFD609F:
                myservo.write(360);
                Serial.println("Clockwise");
                break;
            case 0xFD20DF:
                myservo.write(-360);
                Serial.println("Counter Clockwise");
                break;
            default:

```

```
    Serial.print("Unrecognized code received: 0x");
    Serial.println(results.value, HEX);
    break;
}

irrecv.resume();

}
}
```

OUTPUT

Designed a Smart Package handling system using Tilt Sensor and LED.



The screenshot shows the Arduino Serial Monitor window. The title bar says "Serial Monitor". The main area displays the following text:

```
Starting..
Clockwise..
Clockwise..
Counter Clockwise..
Counter Clockwise..
Unrecognized code received: 0xFD48B7
```

Name – Shreya Laddha

Program No. – 14

Program Title – RGB Led and LCD

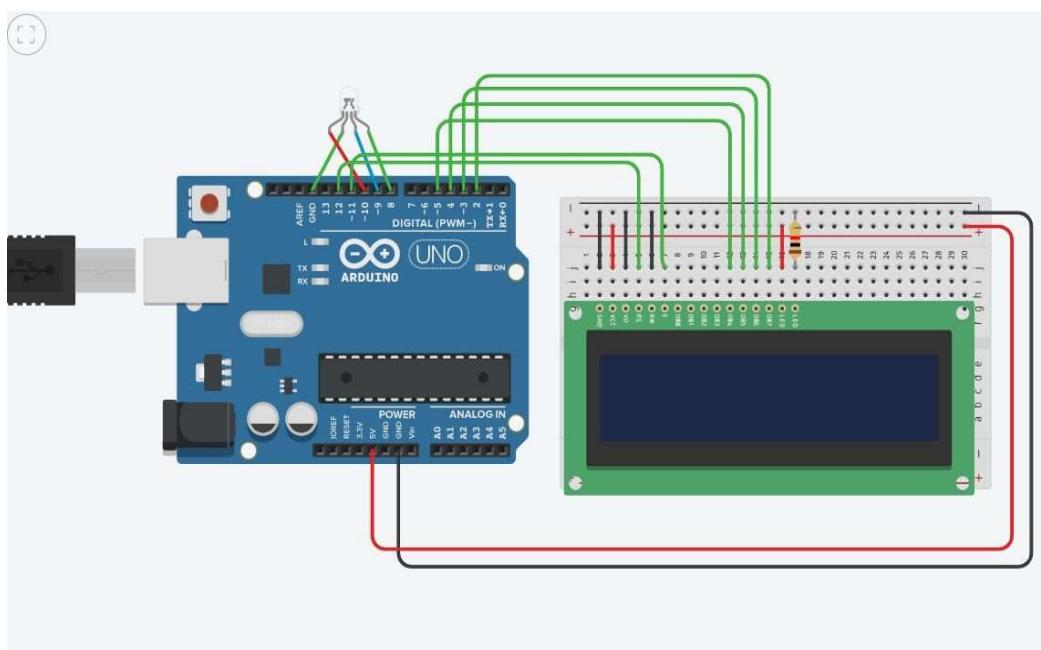
AIM

Design a display system to print the RED,BLUE and Green colors (RGB Led and LCD).

HARDWARES REQUIRED

- Arduino Board
- Breadboard Small
- LCD 16x2
- RGB LED
- Resistor

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	
<p><u>PROGRAM NO : 14</u> <u>PROGRAM TITLE : RGB LED AND LCD</u></p> <p><u>AIM:</u> Design a display system to print the RED, BLUE and green colors (RGB led and LCD).</p> <p><u>Hardware Required</u></p> <ul style="list-style-type: none"> • Arduino Board • BreadBoard Small • LCD 16x2 • RGB LED • Resistor <p><u>CODE:</u></p> <pre>#include <LiquidCrystal.h> LiquidCrystal lcd(12,11,5,4,3,2); int red=10; int green=8; int blue=9; void setup() { pinMode(10,OUTPUT); pinMode(9,OUTPUT); pinMode(8,OUTPUT); } void loop() { lcd.setCursor(0,0); }</pre> <p>Teacher's Signature: <u>Shreyas Ladde</u></p>	<p>Name: Shreyas Ladde USN: 1BM11865103</p>

Expt. No.	Date
Page No.	
<pre>lcd.print("RGB Color Print!"); delay(1000); lcd.clear(); RGB_color(255,0,0); lcd.print("RED"); delay(1000); lcd.clear(); RGB_color(0,255,0); lcd.print("GREEN"); delay(1000); lcd.clear(); RGB_color(0,0,255); lcd.print("BLUE"); delay(1000); lcd.clear(); void RGB_color(int red_value, green_value, int blue_value) { analogWrite(red,red_value); analogWrite(green,green_value); analogWrite(blue,blue_value); }</pre>	<p>Name: Shreyas Ladde USN: 1BM11865103</p>

CODE

```
#include <LiquidCrystal.h>
LiquidCrystal lcd(12,11,5,4,3,2);
```

```
int red=10;
int green=8;
int blue=9;
void setup()
{
```

```
pinMode(10, OUTPUT);
pinMode(9, OUTPUT);
pinMode(8, OUTPUT);
}
```

```
void loop()
{
    lcd.setCursor(0,0);
    lcd.print("RGB Color Print!");
    delay(1000);
    lcd.clear();
    RGB_color(255,0,0);//red
    lcd.print("RED");
    delay(1000);
    lcd.clear();
```

```
    RGB_color(0,255,0);//Green
    lcd.print("GREEN");
    delay(1000);
    lcd.clear();
```

```
    RGB_color(0,0,255);//Blue
    lcd.print("BLUE");
    delay(1000);
    lcd.clear();
```

```

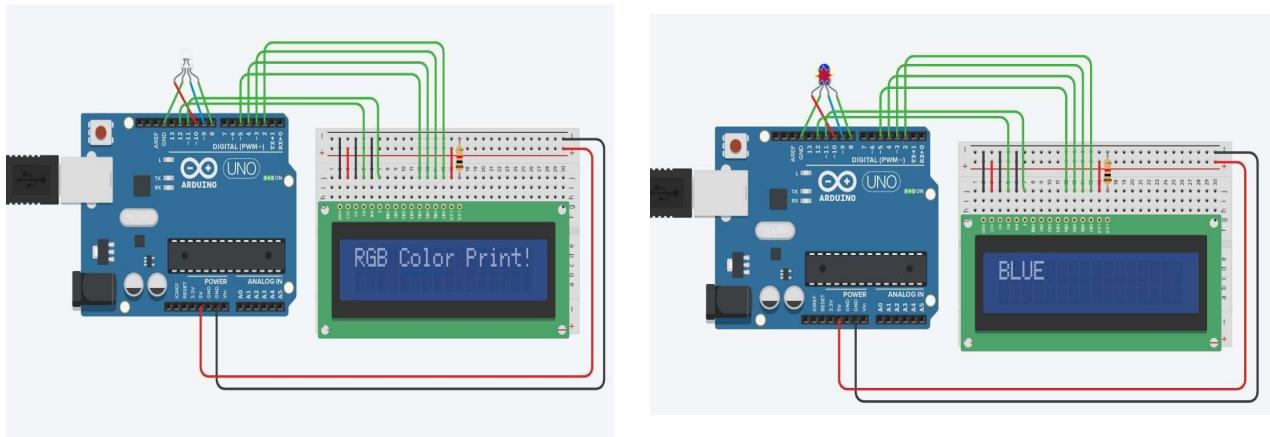
RGB_color(0,0,0);//White
lcd.print("WHITE");
delay(1000);
lcd.clear();
}

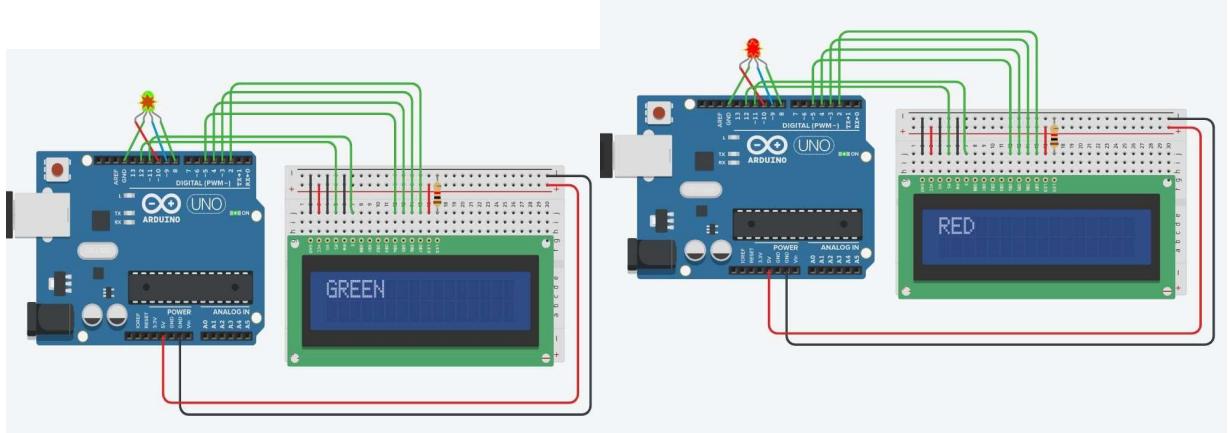
void RGB_color(int red_value, int green_value, int blue_value)
{
analogWrite(red,red_value);
analogWrite(green,green_value);
analogWrite(blue,blue_value);
}

```

OUTPUT

Designed a display system to print the RED,BLUE and Green colors (RGB Led and LCD).





Name – Shreya Laddha

Program No. – 16

Program Title – **Smart irrigation system**

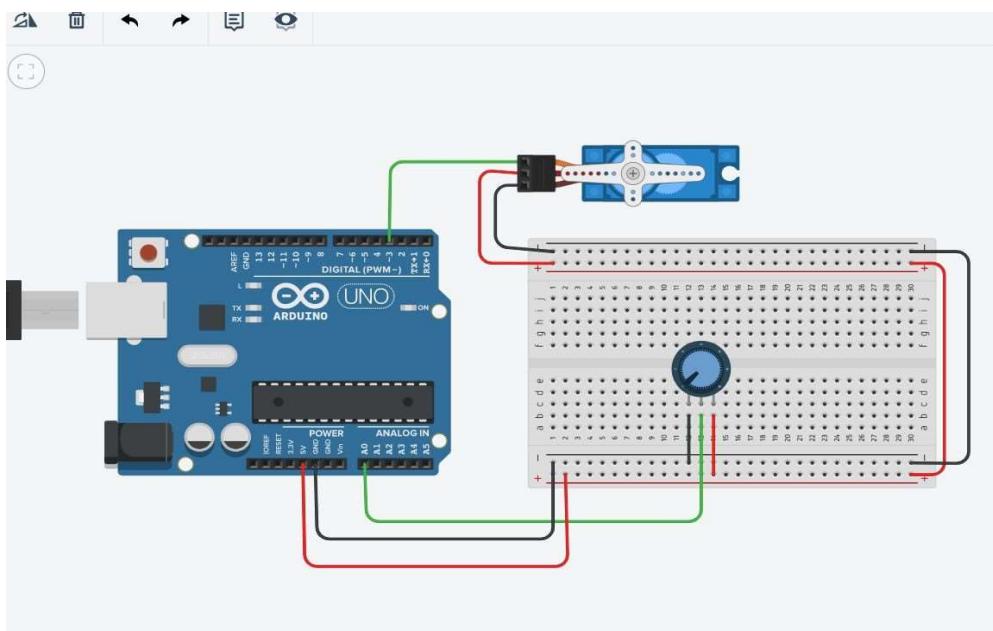
AIM

Design a smart irrigation system (Potentiometer, Servo motor shaft).

HARDWARES REQUIRED

- Arduino Board
- Breadboard Small
- Potentiometer
- Servo motor shaft

CIRCUIT DIAGRAM



WRITE-UP

Expt. No.	Date
Page No.	
PROGRAM NO: #15 PROGRAM TITLE: Smart irrigation system	
AIM: Design a smart irrigation system (Potentiometer, servo motor shaft)	
Hardware Required: <ul style="list-style-type: none"> • Arduino • Breadboard • Potentiometer • Servo motor shaft 	
GRUNT DIAGRAM CODE: <pre>#include <Servo.h> Servo myservo; int pos = 0; int sensorPin = A0; int sensorValue = 0; void setup() { myservo.attach(3); Serial.begin(9600); } void loop() { sensorValue = analogRead(sensorPin); Serial.println(sensorValue); }</pre>	
Teacher's Signature: <i>[Signature]</i>	

Expt. No.	Date
Page No.	
Name: Shreya Ladha USN: 2BMECS103	
<pre>if (sensorValue > 500) { for (pos = 0 ; pos <= 180 ; pos += 1) { myservo.write(pos); delay(15); } for (pos = 180 ; pos >= 0 ; pos -= 1) { myservo.write(pos); delay(15); } delay(1000); }</pre>	
Teacher's Signature: <i>[Signature]</i>	

CODE

```
#include <Servo.h>
```

```
Servo myservo; // create servo object to control a servo
```

```
// twelve servo objects can be created on most boards
```

```
int pos = 0; // variable to store the servo position
```

```
int sensorPin = A0; // select the input pin for the potentiometer
```

```
int sensorValue = 0; // variable to store the value coming from the sensor
```

```
void setup() {
```

```
myservo.attach(3); // attaches the servo on pin 9 to the servo object
```

```
Serial.begin(9600);
```

```
}

void loop() {
    // read the value from the sensor:
    sensorValue = analogRead(sensorPin);
    Serial.println (sensorValue);
    if(sensorValue>500)
    {
        for (pos = 0; pos <= 180; pos += 1) { // goes from 0 degrees to 180
            degrees
            // in steps of 1 degree
            myservo.write(pos);           // tell servo to go to position in variable 'pos'
            delay(15);                  // waits 15ms for the servo to reach the position
        }
        for (pos = 180; pos >= 0; pos -= 1) { // goes from 180 degrees to 0degrees
            myservo.write(pos);           // tell servo to go to position in variable 'pos'
            delay(15);                  // waits 15ms for the servo to reach the position
        }
    }
    delay (1000);
}
```

OUTPUT

Designed a smart irrigation system (Potentiometer, Servo motor shaft).

