

~~Page~~

## LED BLINKING

Name - Divyakirti Masam

USN - IBM18CS029

Date - 16/9/20

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

### Hardware Required:

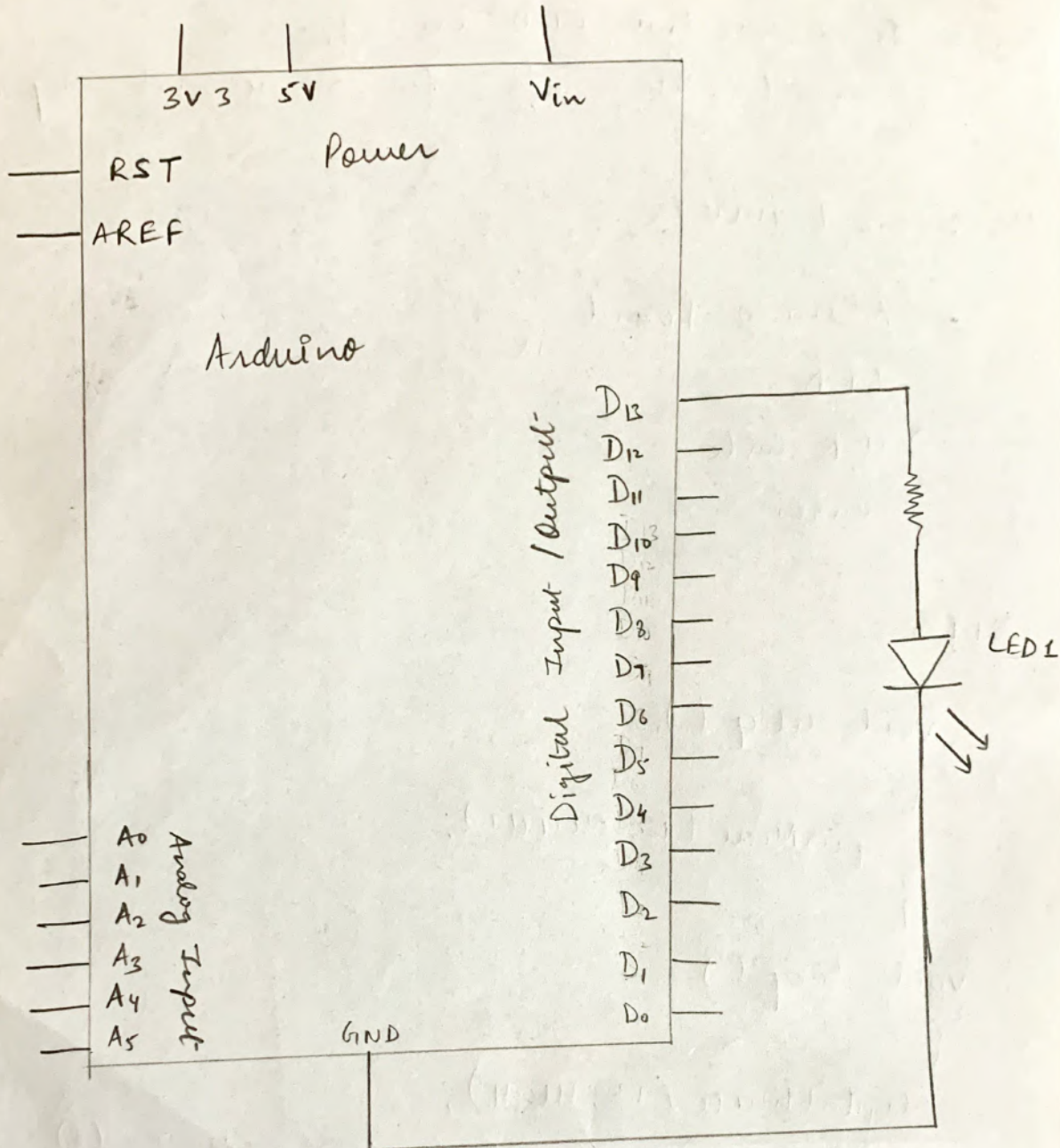
- Arduino Board
- LED
- USB Cable
- Wires

### CODE:

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

void loop()
{
    digitalWrite(13, HIGH);
    delay(1000); // wait for 1000 milliseconds
    digitalWrite(13, LOW);
    delay(1000); // wait for 1000 milliseconds
}
```

# Circuit Diagram :





TRAFFIC CONTROLLER~~Define~~Aim: Traffic signal stimulatorHardware used:

- Arduino Board
- LEDs
- Bread board

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);  
}
```

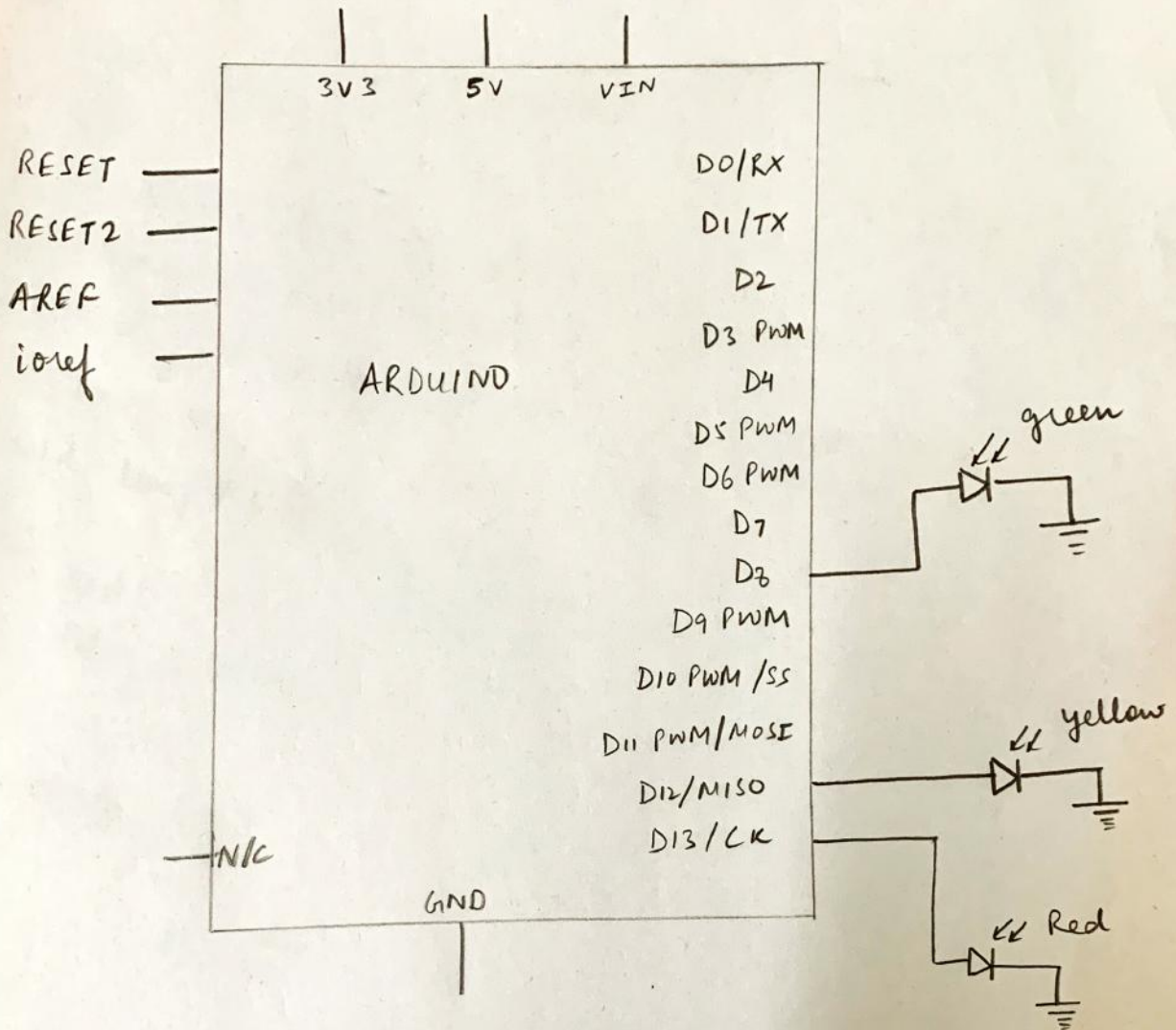
```
void green()
```

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

```
void loop()
```

```
{  
    red();  
    delay (3000);  
    yellow();  
    delay (1500);  
    green();  
    delay (3000);  
    yellow();  
    delay (1500);  
}
```

## Circuit Diagram:



Arduino Traffic Light Circuit



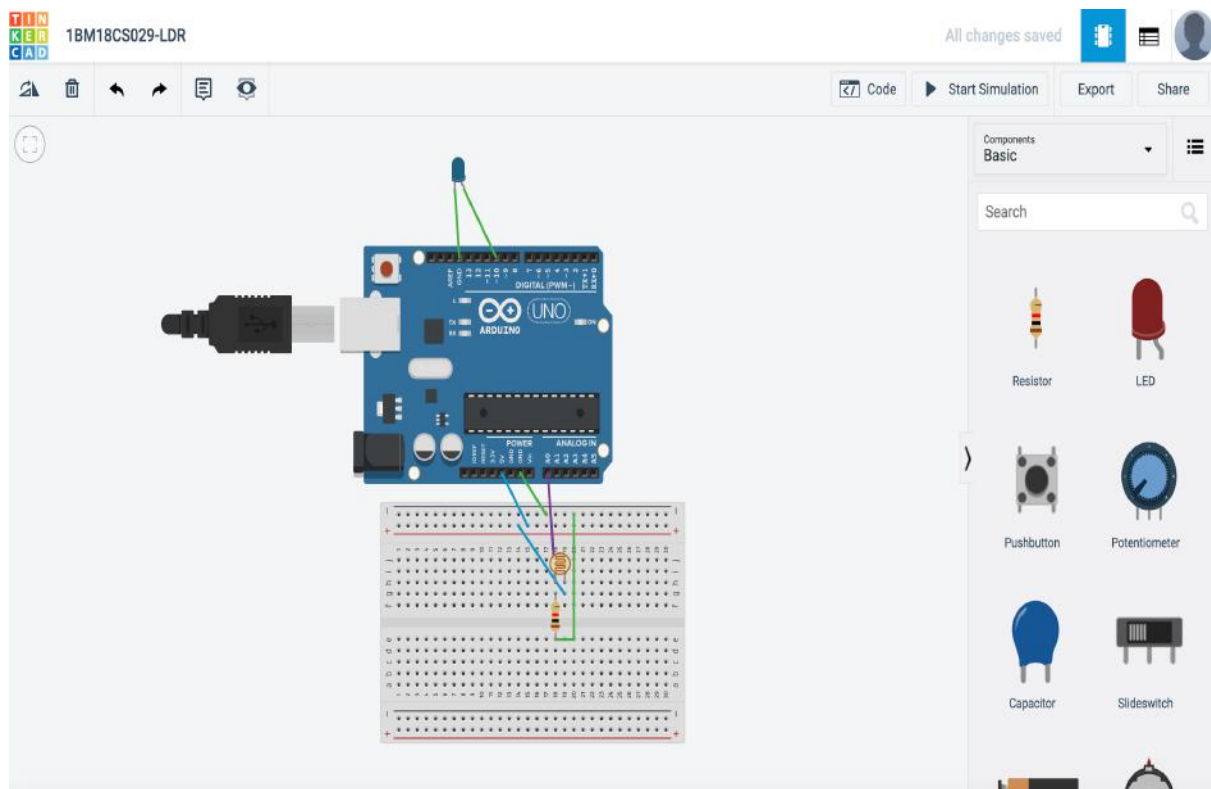
**Program no : 6**

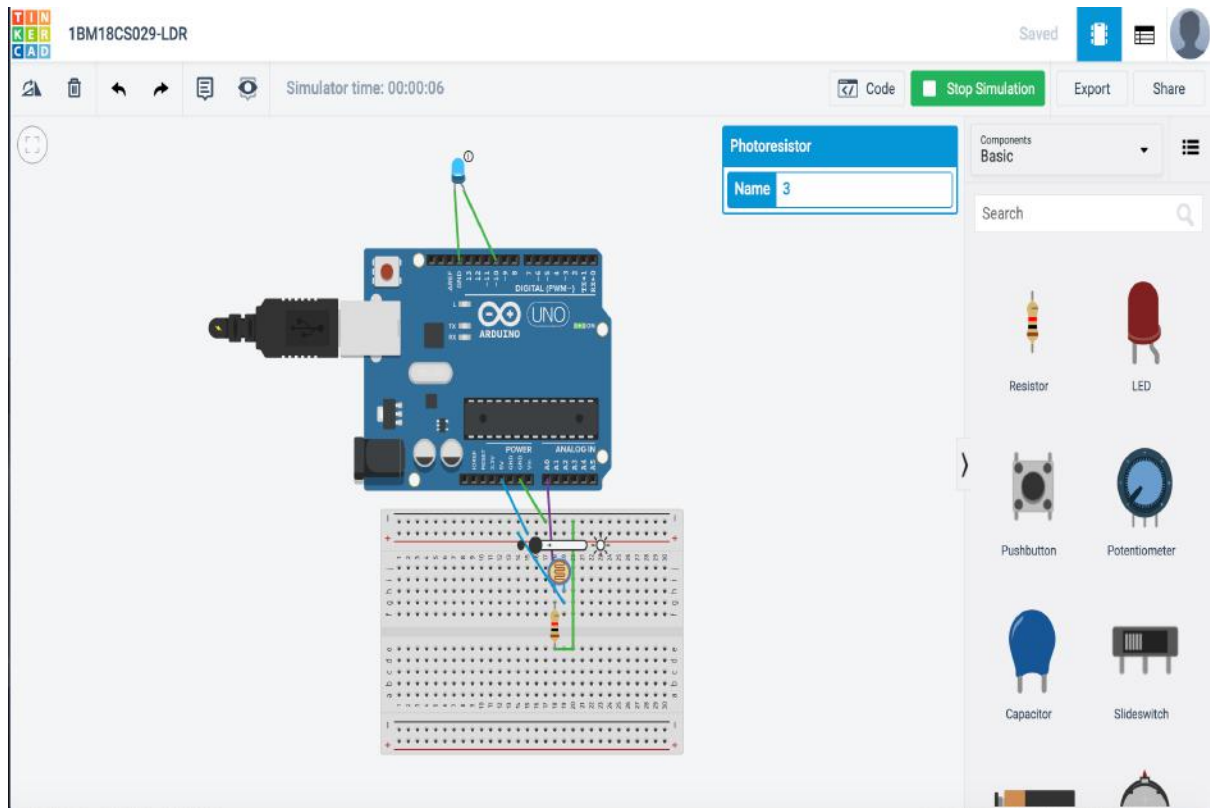
**Program Title : LDR**

**Aim : The light Fades as the sunlight increases**

**Hardware Required :**

- Arduino Board
- LED
- Photoresistor





Program Title :  
LDR (Light Dependent Resistor)

Code :

```

const int ledPin = 10;
const int ldrPin = A0;

void setup()
{
  Serial.begin(9600);
  pinMode(ledPin, OUTPUT);
  pinMode(ldrPin, INPUT);
}

void loop()
{
  int ldrStatus = analogRead(ldrPin);
  if (ldrStatus <= 200)
  {
    digitalWrite(ledPin, HIGH);
    Serial.print("It's DARK, Turn on the LED: ");
    Serial.println(ldrStatus);
  }
  else
  {
    digitalWrite(ledPin, LOW);
    Serial.print("It's BRIGHT, Turn off the LED: ");
    Serial.println(ldrStatus);
  }
}

```

Divyashree Masam  
1BM18CS029

OUTPUT/OBSERVATION :

The light fades as the sunlight increases.



**Program no : 7**

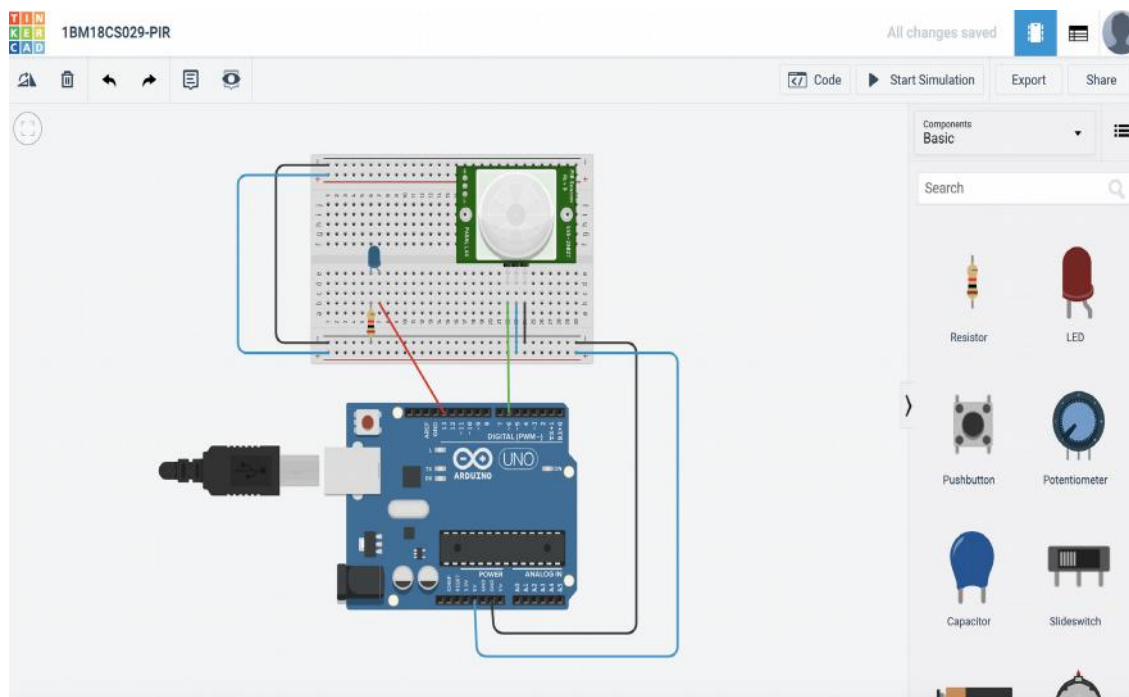
**Program Title : PIR**

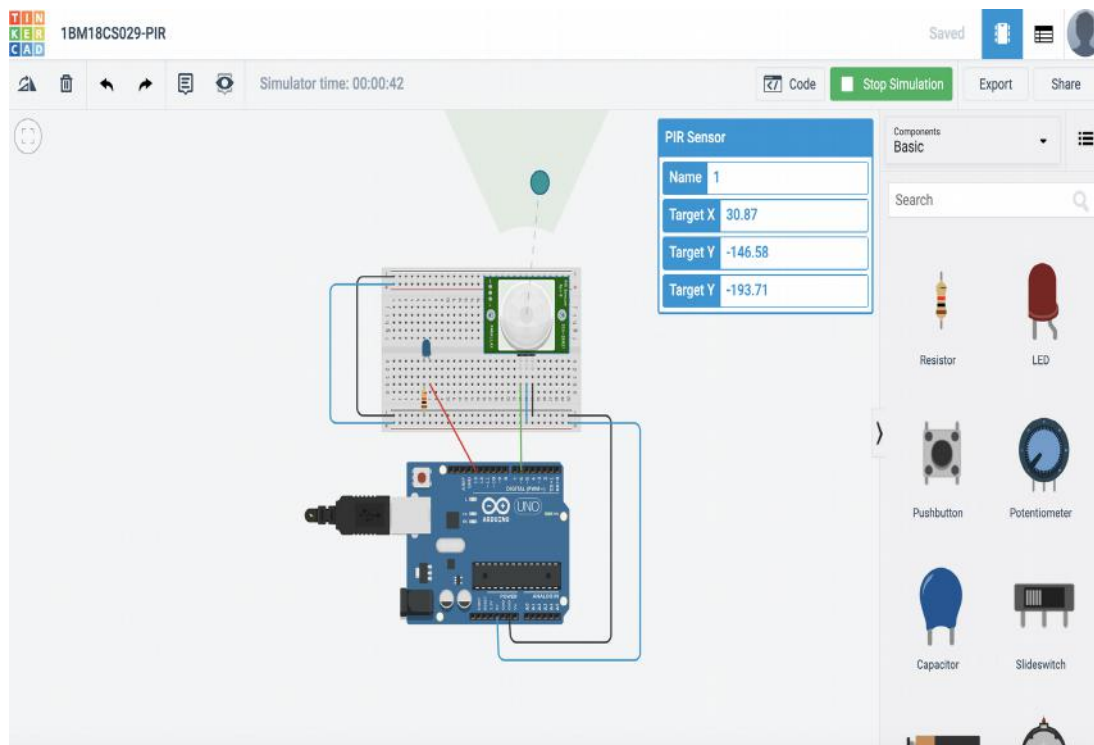
**Aim : The lights turns on if there is any motion in the range**

### **Hardware Required :**

- Arduino Board
- LED
- PIR sensor
- Resistor

**Circuit Diagram :**





Code :

Program Title : PIR  
~~PIR~~

Divyakirti Masam  
18M18CS029

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);
  }
}
```

## OUTPUT / OBSERVATION :

The lights automatically turn on if there is any motion detected in the range.

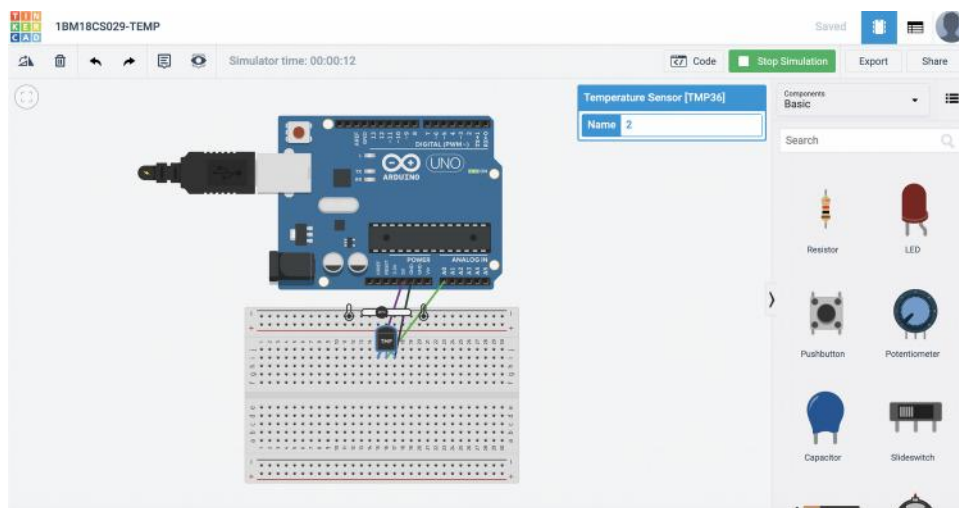
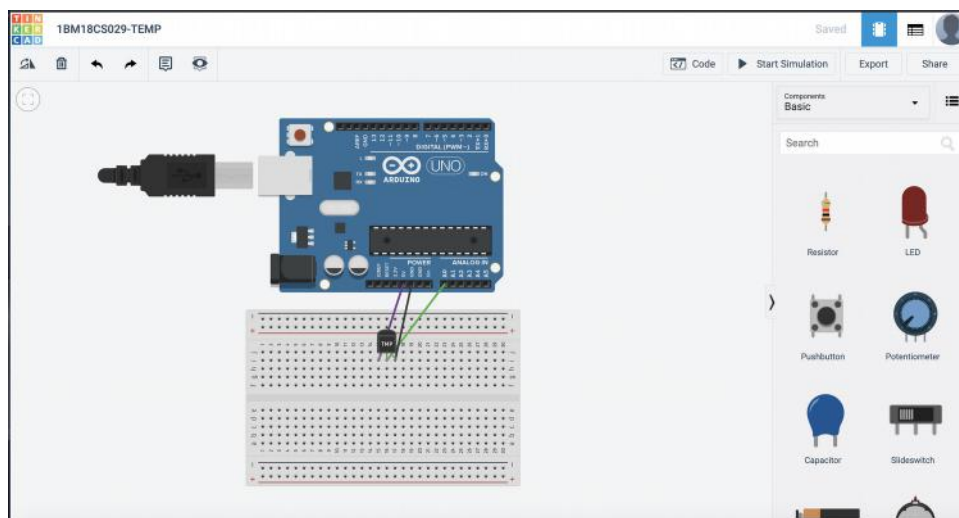
**Program no : 8**

**Program Title : Temperature sensor**

**Aim : Converts degree in Celsius to Fahrenheit**

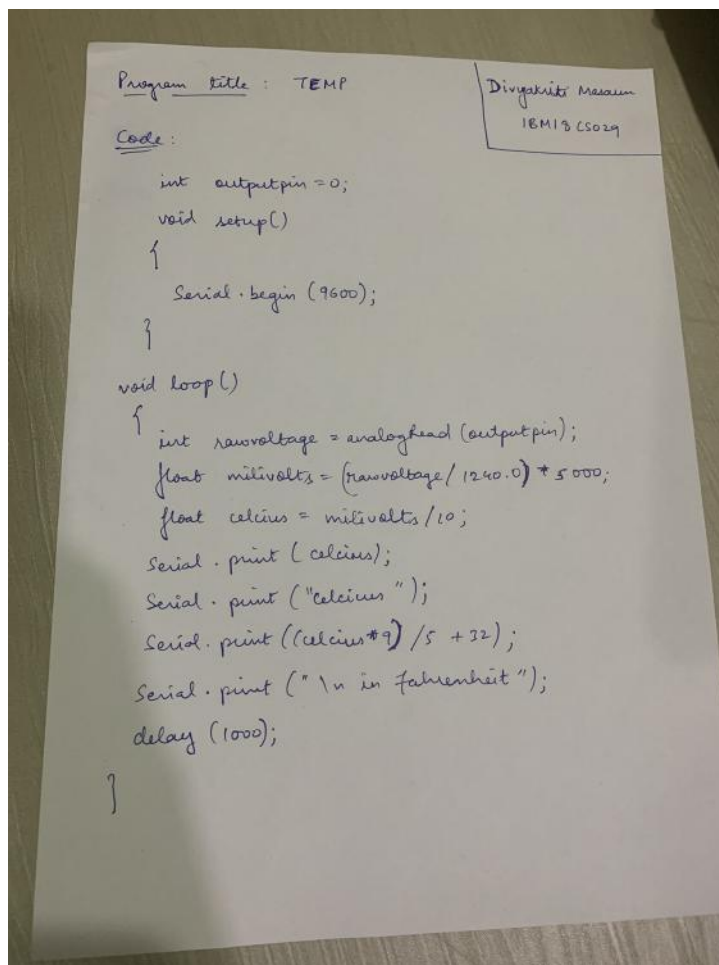
**Hardware Required :**

- Arduino Board
- Temperature sensor(TM36)





Code :



OUTPUT / OBSERVATIONS :

Converts degree in Celsius to Fahrenheit .

**Aim :** Make LED fade and brighten up without using a potentiometer.

**Hardware required :**

- LED
- Arduino Board
- Wires

**Code :**

Program no. - 4

Program title - LED fading  
~~without~~ without using potentiometer

Diyakuti Masam  
ISM/BCED 29

Aim: Make LED fade and brighten up, without using potentiometer.

Hardware required:

- Arduino Board
- LED
- wires

Code:

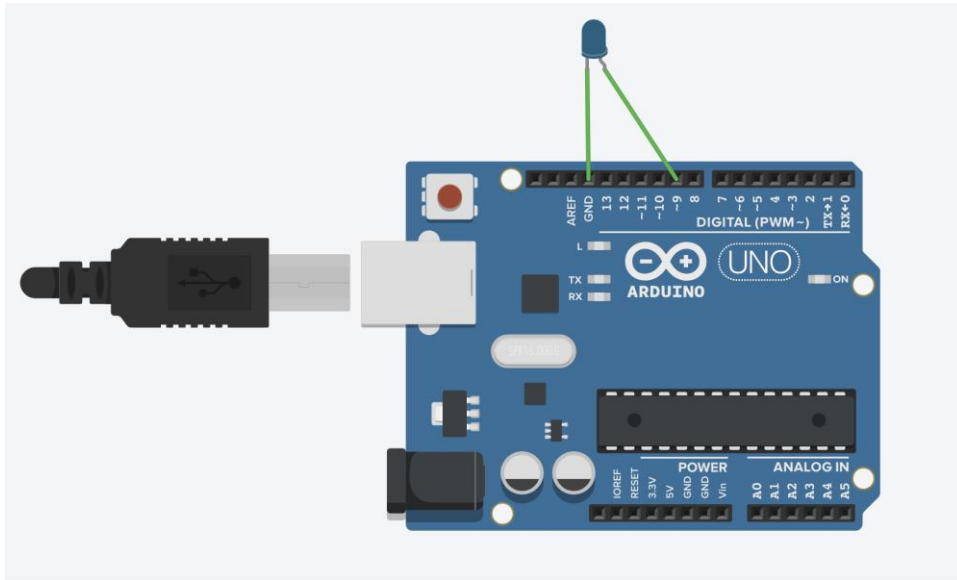
```
int brightness = 0;
void setup()
{
  pinMode(9, OUTPUT);
}
void loop()
{
  for (brightness = 0; brightness <= 255; brightness += 10)
  {
    analogWrite(9, brightness);
    delay(50);
  }
}
```

1

Diyakuti

```
for (brightness = 255 ; brightness >= 0 ; brightness -= 10)
{
    analogWrite (9, brightness);
    delay (50);
}
}
```

### Circuit Diagram :



### Outcome:

We can observe that LED fades and brightens up with the delay of 50 mili seconds.



**Aim :** Make LED fade and brighten up using a potentiometer.

**Hardware required :**

- LED
- Arduino Board
- Wires
- Potentiometer

**Code :**

Program no. - 5

Divyashree Masam  
18M19CS029

Program title : LED Fading using a Potentiometer

Aim : Make LED fade and brighten up, using a Potentiometer.

Hardware required :

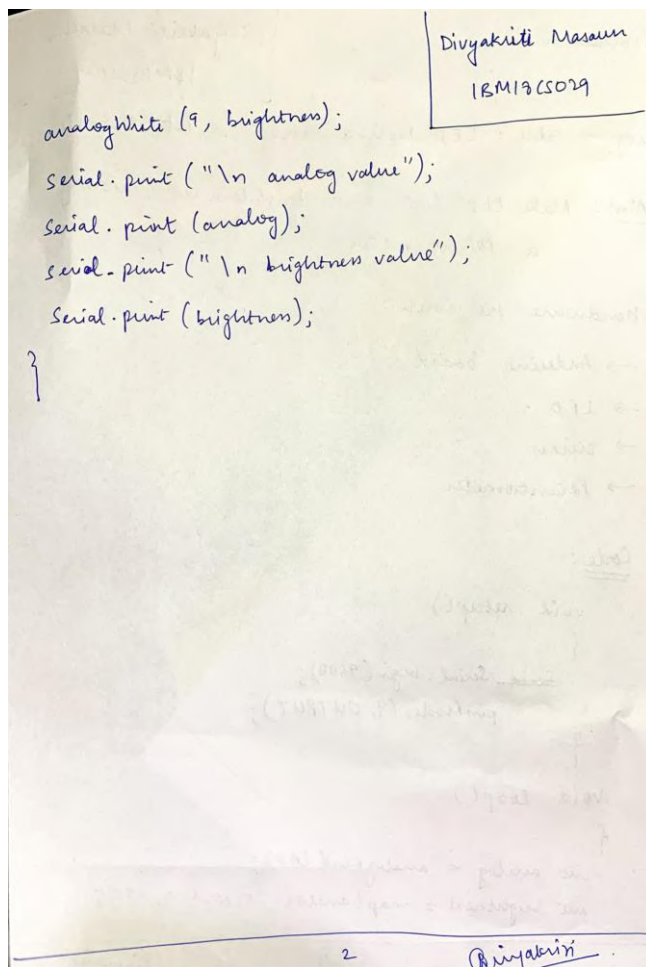
- Arduino board
- LED
- Wires
- Potentiometer

Code :

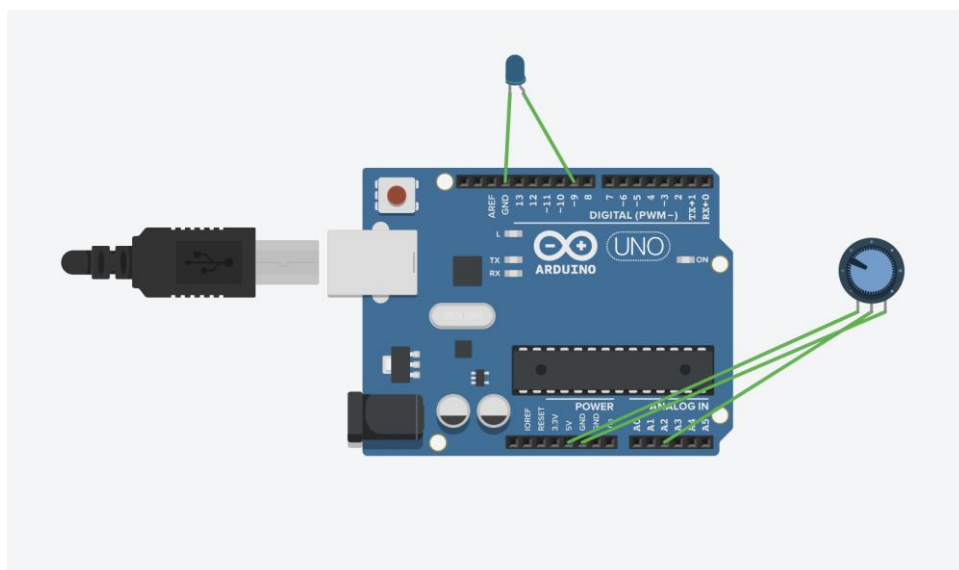
```
void setup()
{
  Serial Serial.begin(9600);
  pinMode(9, OUTPUT);
}

void loop()
{
  int analog = analogRead(A2);
  int brightness = map(analog, 0, 1023, 0, 255);
```

( Divyashree )



### Circuit Diagram :



**Outcome:**

We can observe that LED fades and brightens up accordingly.

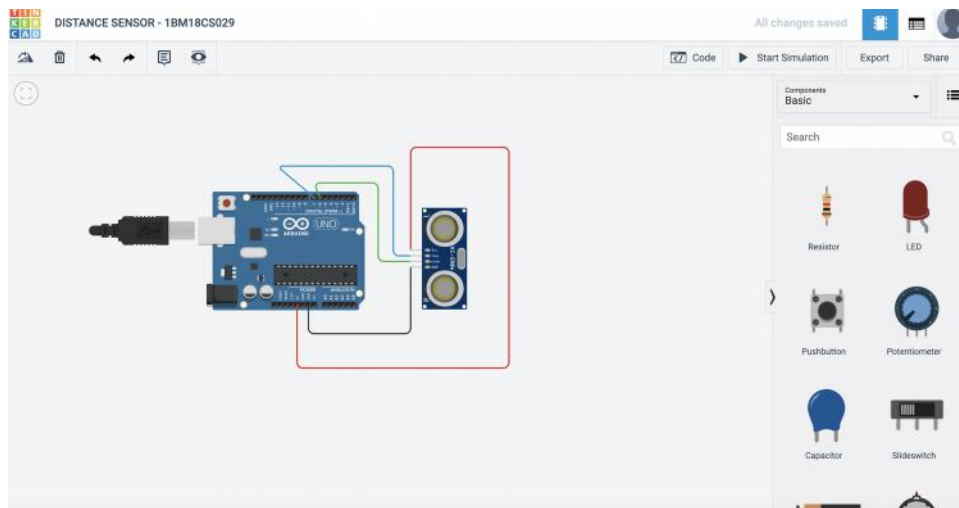
## **Program Title : Distance detector**

**Aim : Design a system to measure the distance between the objects.**

### **Hardware Required :**

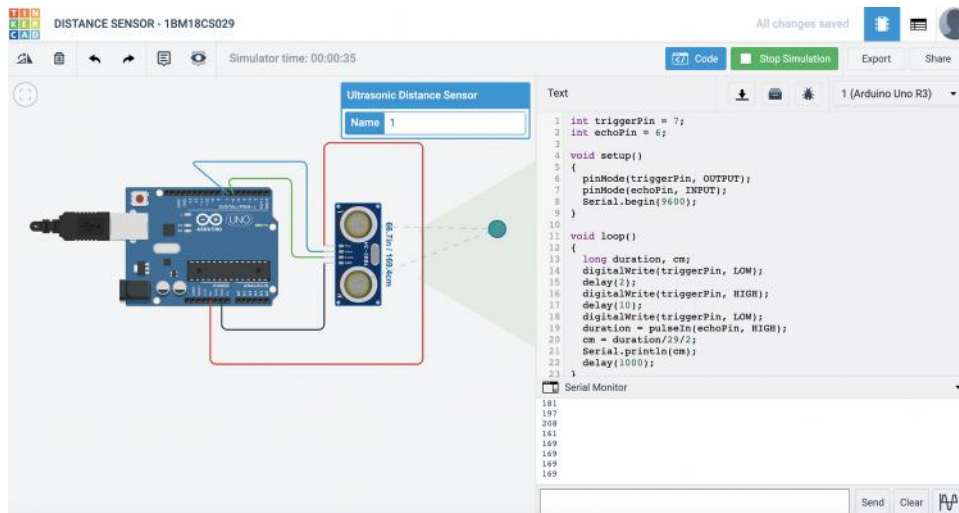
- Arduino Board
- Ultrasonic distance sensor

### **Circuit Diagram :**

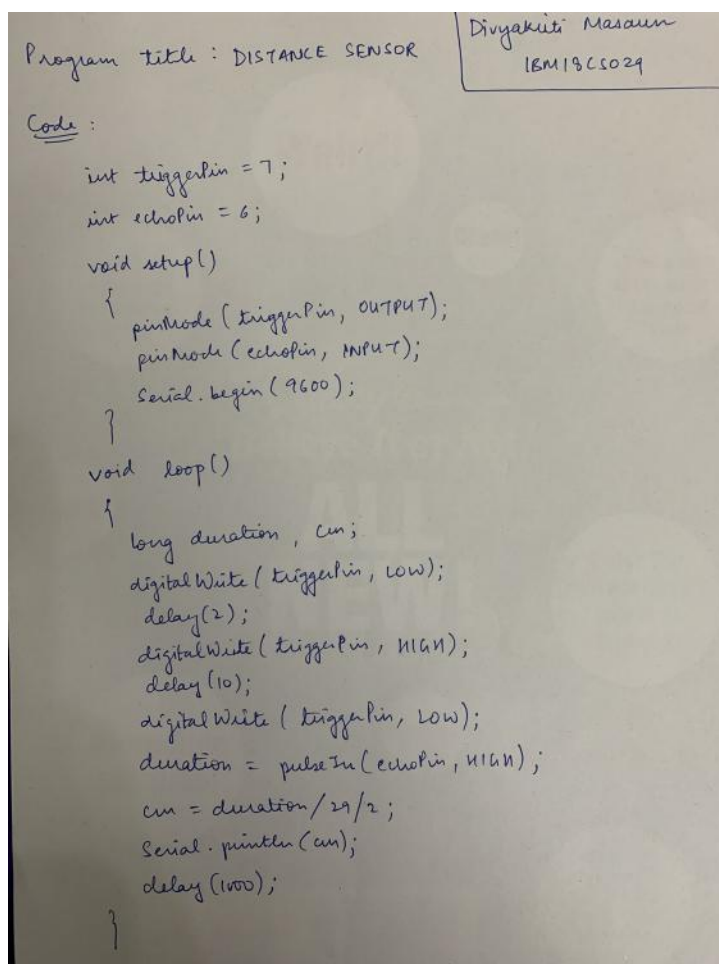


### **Output/Working :**





**Code:**



**Observation :**

It will tell the distance in cm. Distance changes as you move the object.

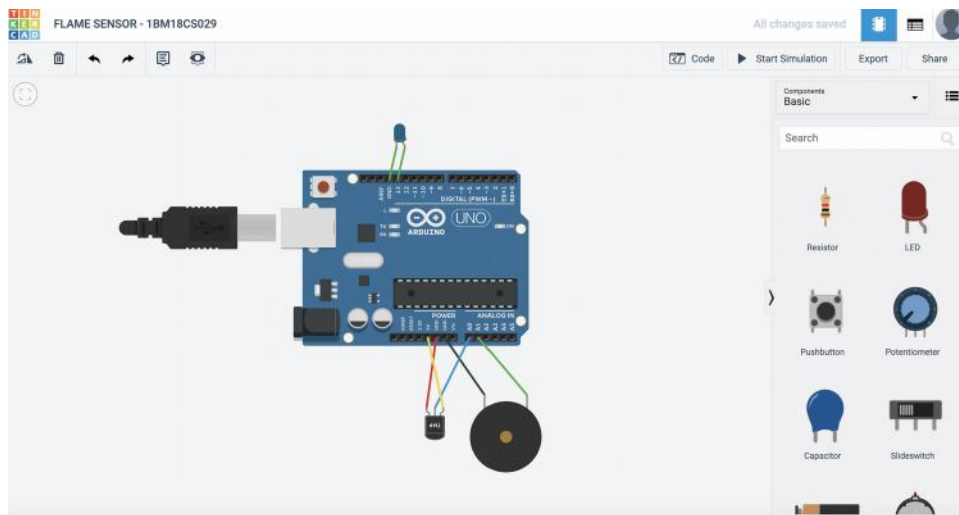
## Program Title : Flame sensor

**Aim : Design an alert system using flame sensor.**

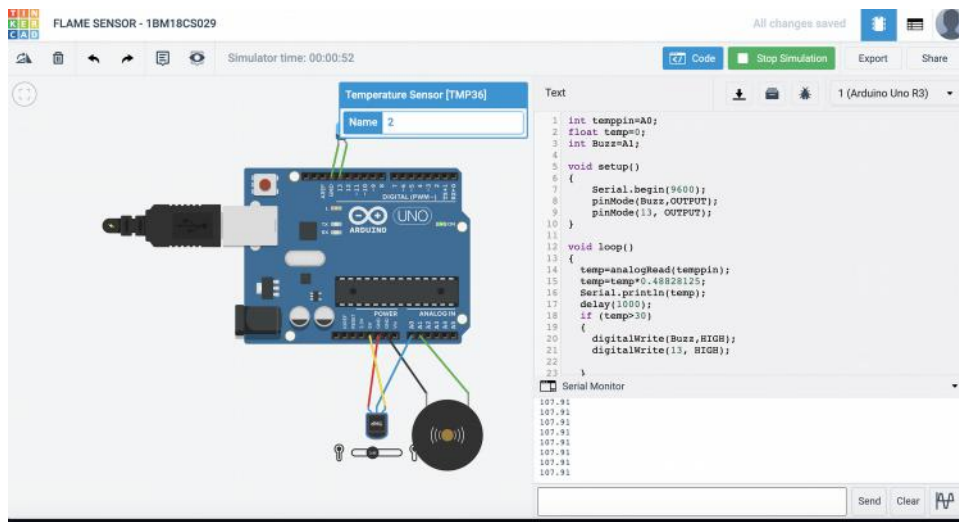
### Hardware Required :

- Arduino Board
- Temperature sensor

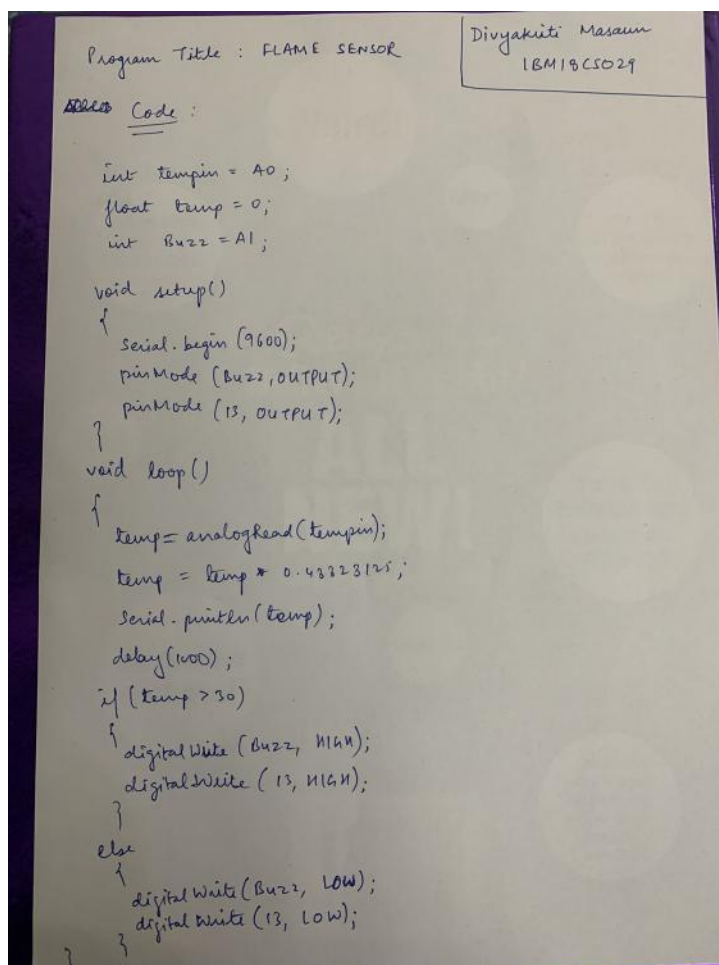
### Circuit Diagram :



**Output/Working :**



Code:





**Observation :**

If temperature exceeds the given value, temperature sensor triggers and buzz sound is produced and LED glows. If temperature is below the given value then there will be no buzz sound and LED wont glow.

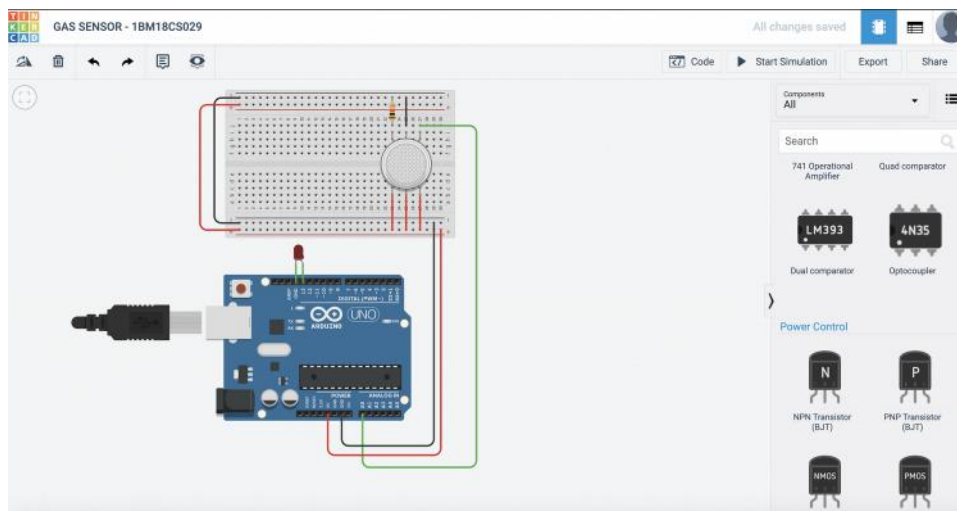
## Program Title : Gas Sensor

**Aim : Design a smart gas leakage indicator system.**

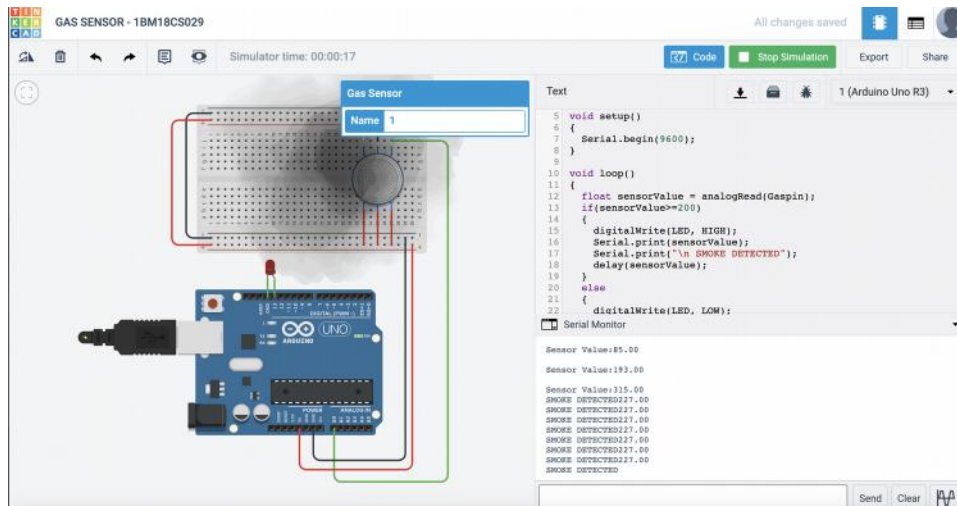
### Hardware Required :

- Arduino Board
- Gas sensor
- LED

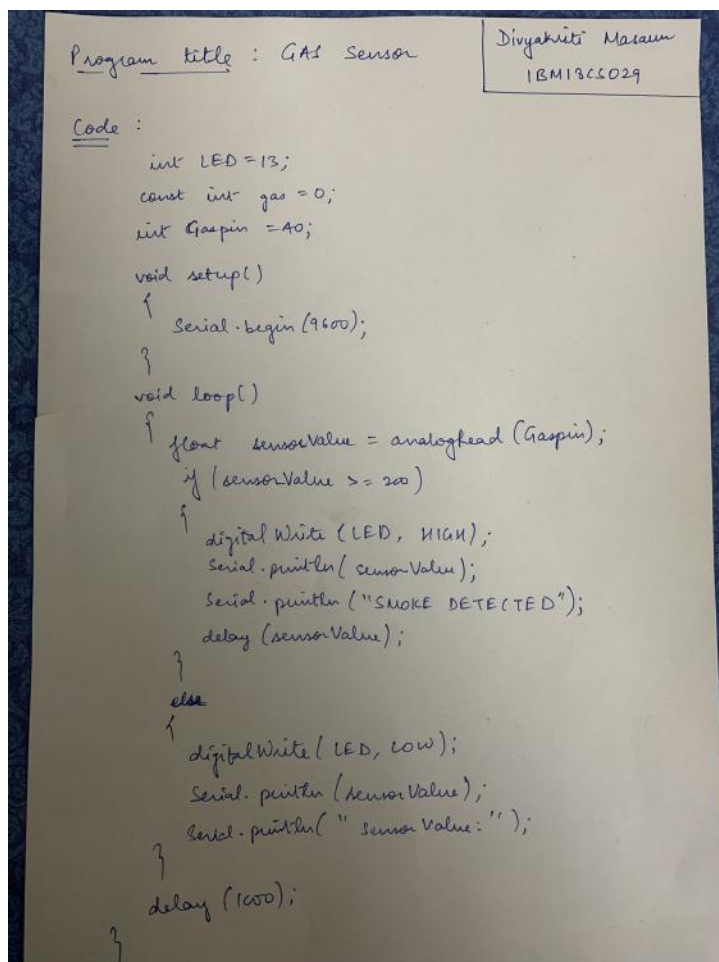
### Circuit Diagram :



### Output/Working :



## Code:



**Observation :**

When the gas sensor senses the smoke, LED glows otherwise LED will be in LOW state and wont glow.

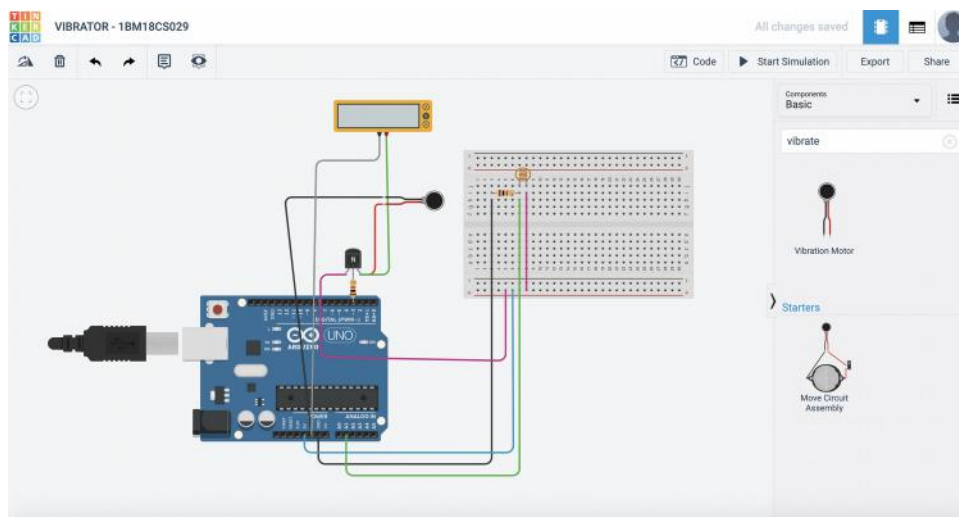
## Program Title : Vibrator

**Aim : Design an automated dat indicator system**

**Hardware Required :**

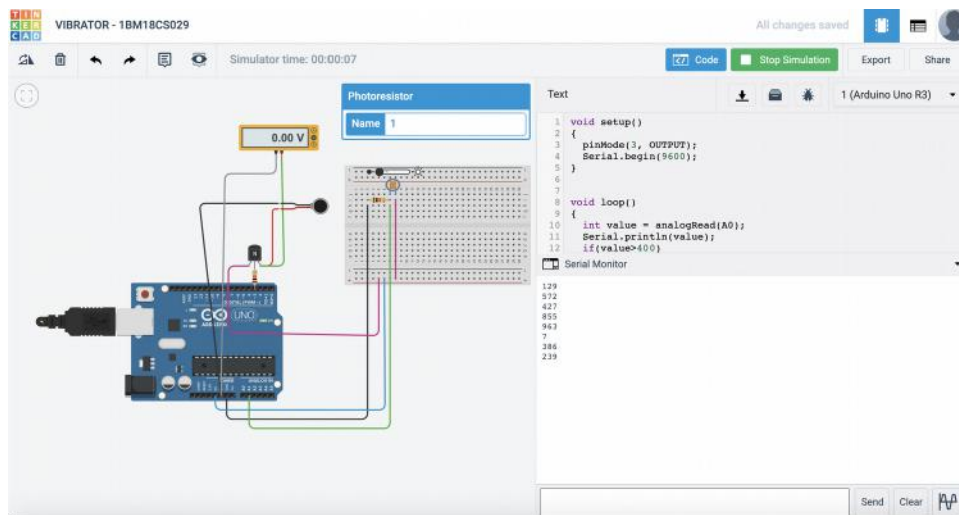
- Arduino Board
- Vibration Motor
- LDR

**Circuit Diagram :**

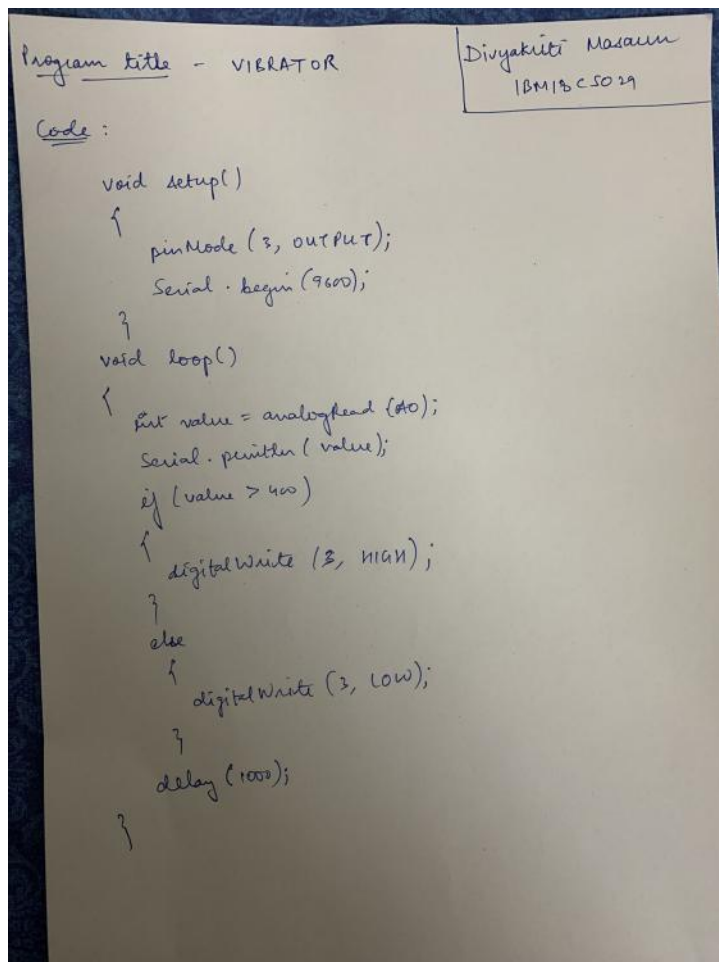


**Output/Working :**





## Code:



**Observation :**

If the temperature value increases 400, then the vibration motor vibrates. But if the temperature value is less than 400, then no change.

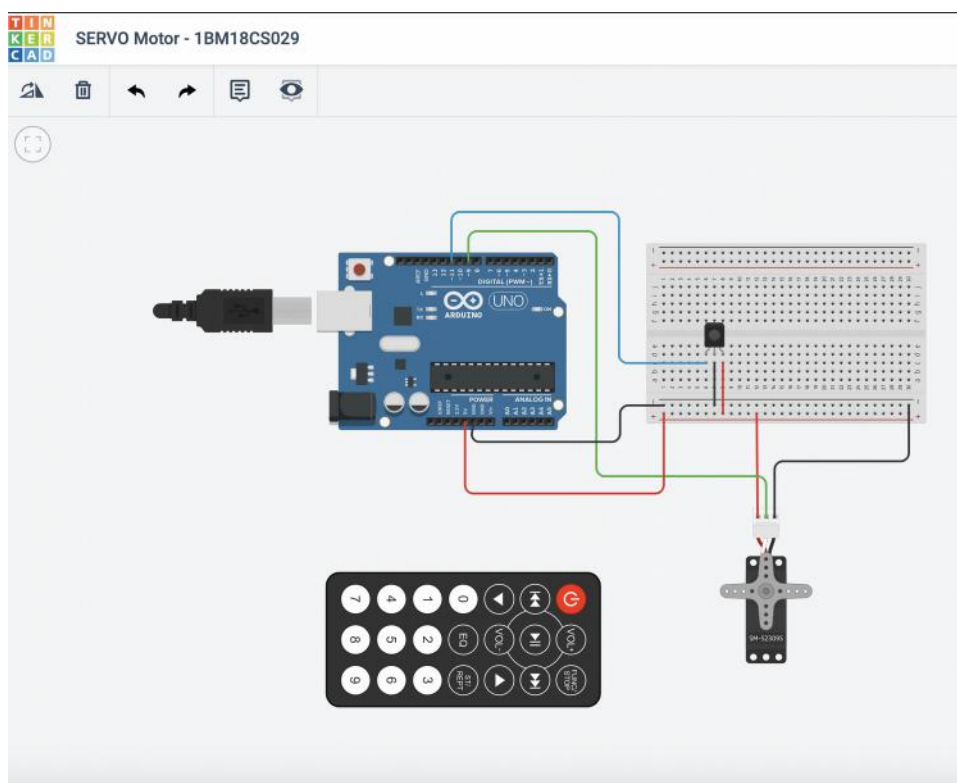
## Program Title : SERVO Motor

**Aim : Design IR based SERVO Motor controller. (Clockwise and AntiClockwise rotation of shaft)**

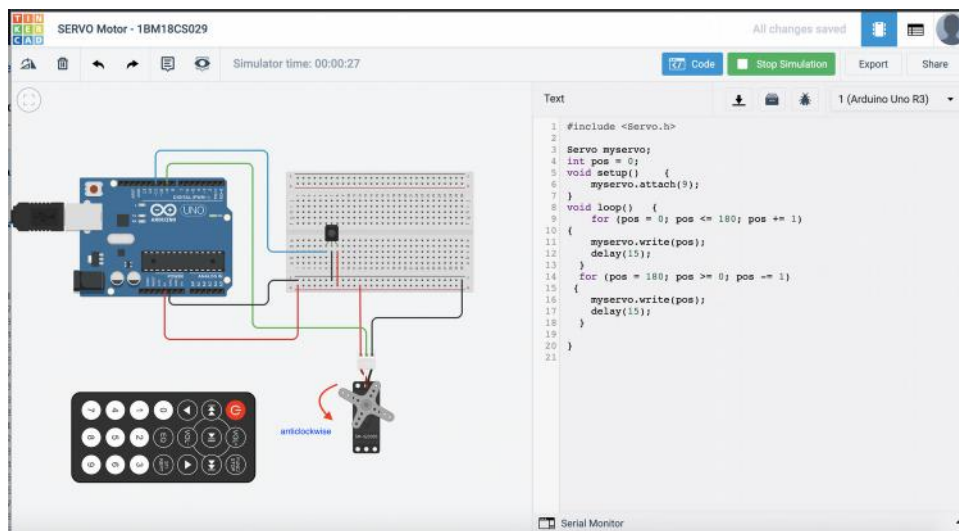
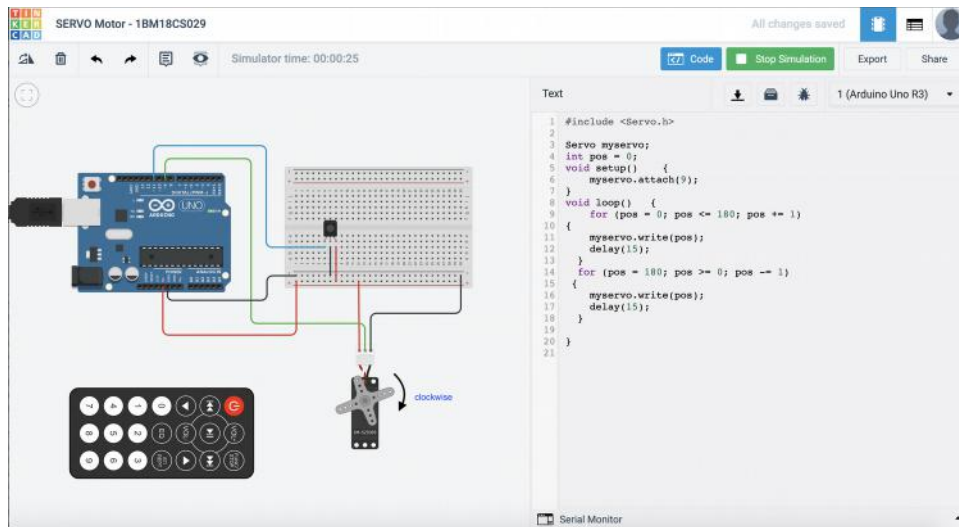
Hardware Required:

- Arduino Board
- SERVO Motor
- IR sensor
- IR remote

**Circuit Diagram :**



**Output/Working :**



Code:

Program title: Servo motor

Divyashree Nasaam  
IBM13CS029

Aim: Design a IR based SERVO Motor Controller. (Clockwise & Counterclockwise rotation of shaft).

Code:

```
#include <Servo.h>

Servo myservo;
int pos = 0;
void setup()
{
  myservo.attach(9);
}
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);
  }
}
```

### Observation :

Shaft rotates in Clockwise and Anticlockwise direction.

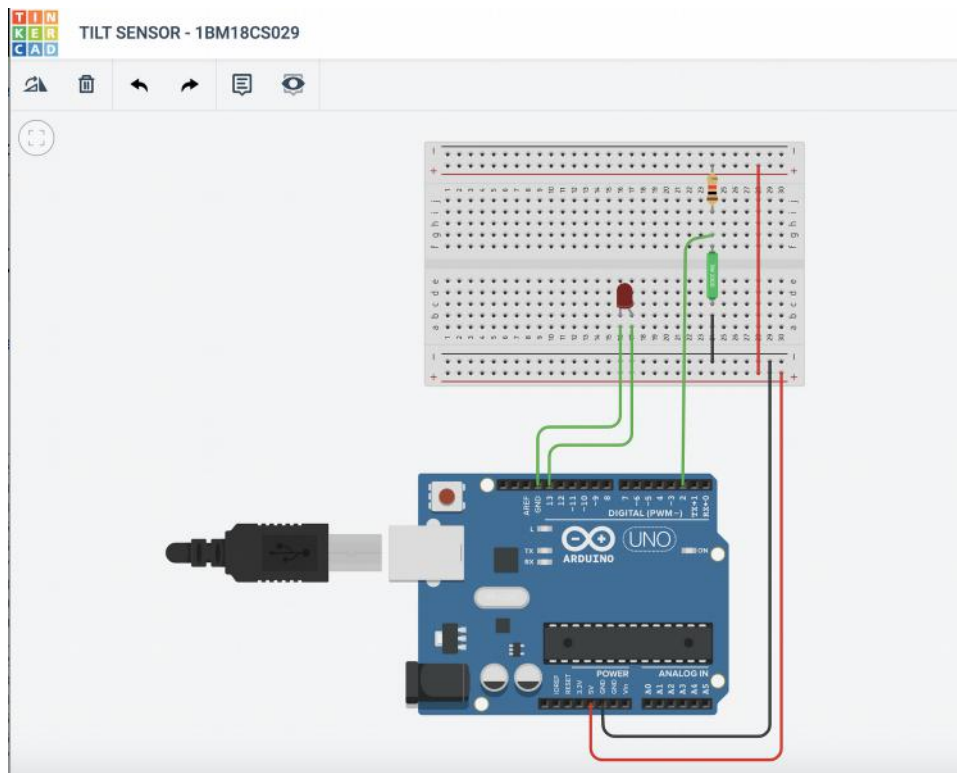
## **Program Title : Smart Package Handling System**

**Aim :** Design a smart package handling system (TILT sensor and LED)

### **Hardware Required:**

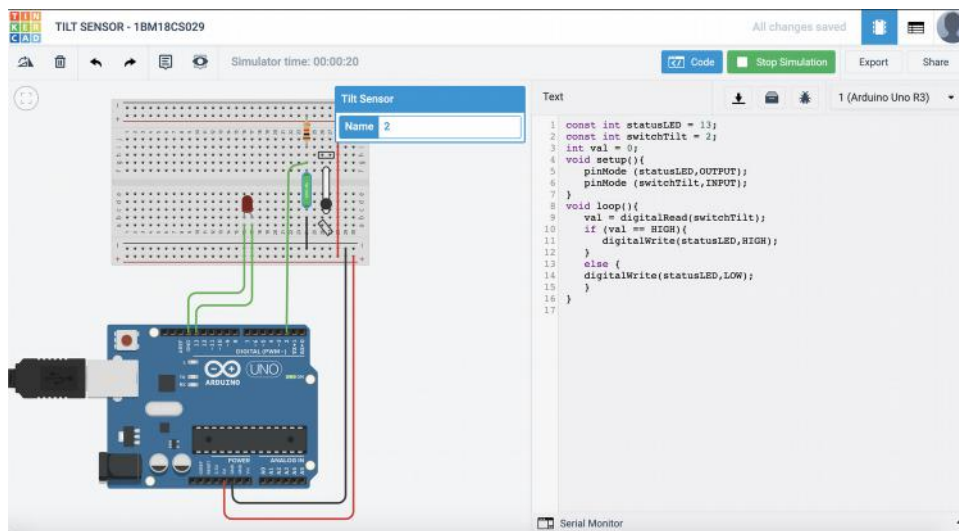
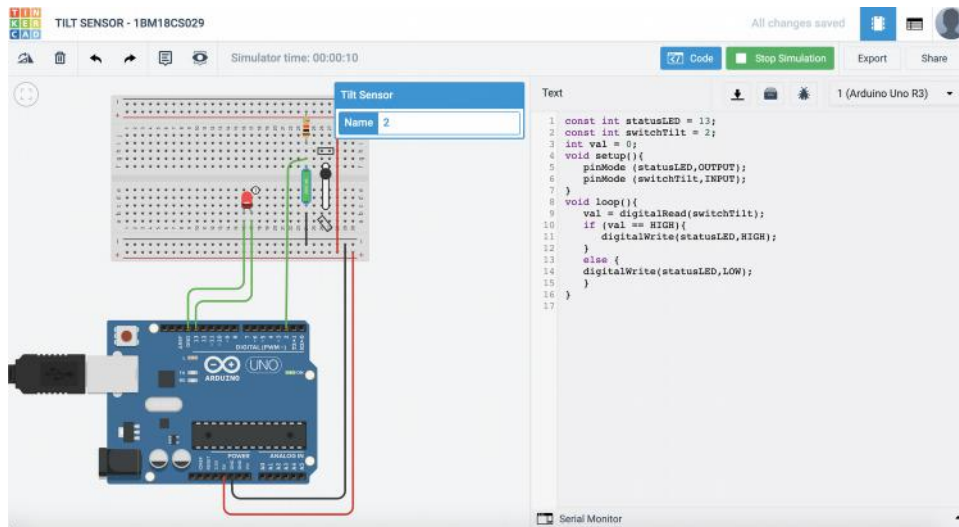
- Arduino Board
- TILT sensor
- LED
- resistor

### **Circuit Diagram :**



**Output/Working :**





Code:

Program title - Smart Package Handling  
System (using Tilt  
sensor).

Divyashree Masam  
18M1BCS029

Code :

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

### Observation :

The LED light fades as the TILT sensor tilts.

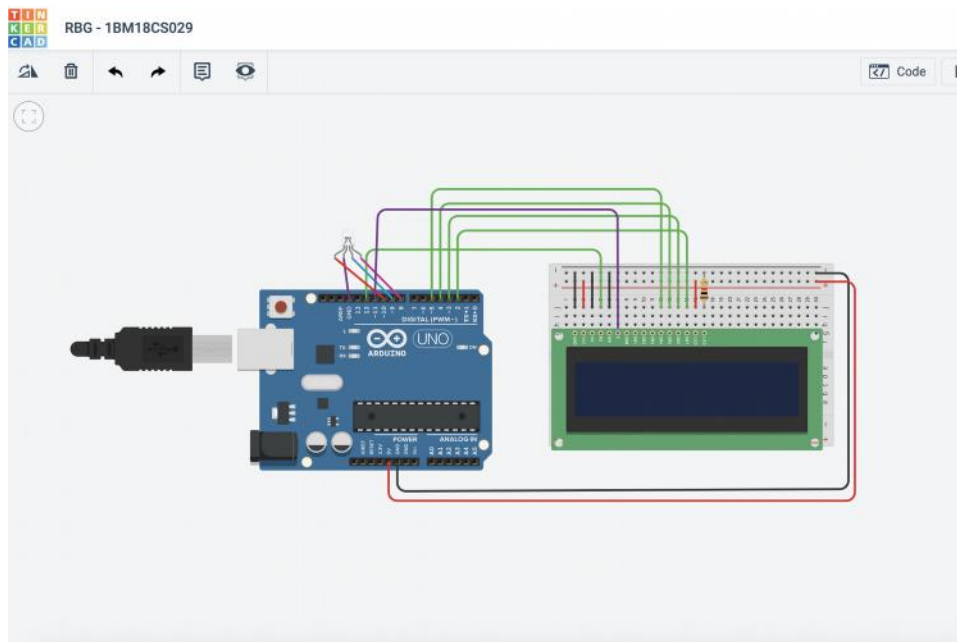
## Program Title : RGB LED AND LCD

**Aim :** Design a display system to print the red, blue and green colours.

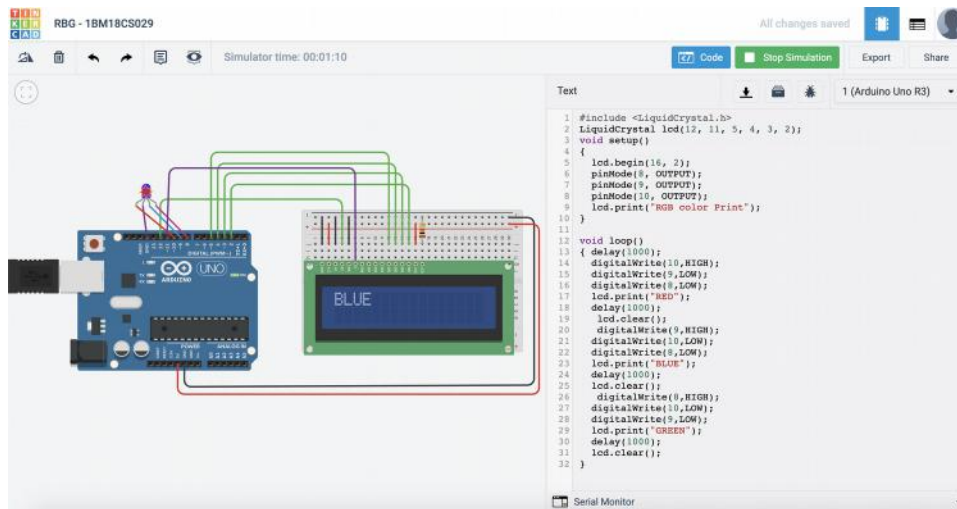
### Hardware Required:

- Arduino Board
- Bread board
- Wires
- Resistor
- LED Display
- LED RGB

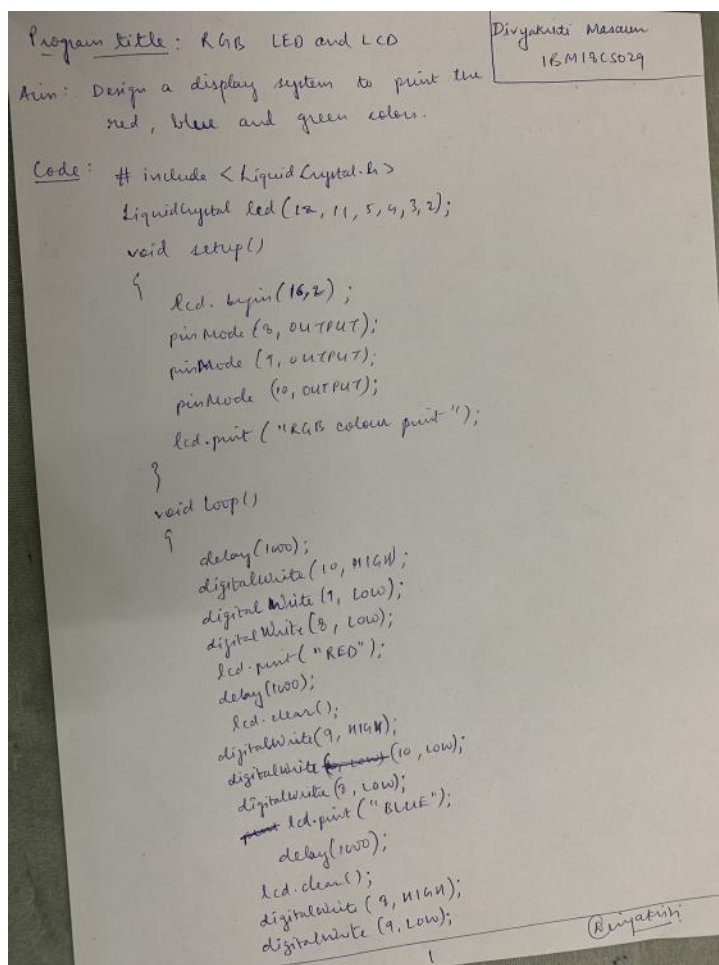
### Circuit Diagram :



## Output/Working :



## Code:



```
digitalWrite(10, LOW);  
lcd.print("GREEN");  
delay(1000);  
lcd.clear();  
}
```

Divyashree Hosam  
IBM17C5029

Divyashree

### Observation :

The red, blue and green colors are lit on LED and displayed on the screen.

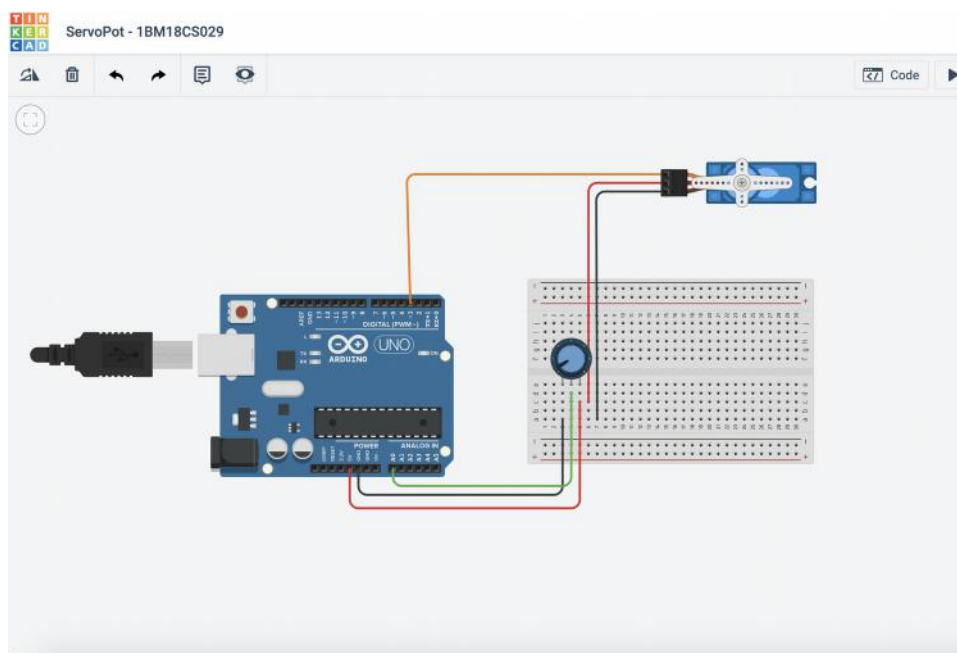
## Program Title : Smart Irrigation

**Aim :** Design a smart irrigation system ( using a Potentiometer , Servo motor shaft).

### Hardware Required:

- Arduino Board
- Bread board
- Wires
- Potentiometer
- Micro servo

### Circuit Diagram :



**Code:**



Program Title : Servo Potentiometer

Divyashree Masam  
18M13C5029

Aim : Design a smart irrigation system  
(Potentiometer, servo motor shaft).

Code :

```
#include <servo.h>

servo myservo; // create servo object to control a servo
int potpin = 0; // analog pin used to connect the potentiometer
int val; // variable to read the value from the analog pin

void setup()
{
  myservo.attach(9); // attaches the servo on pin 9 to the servo object
}

void loop()
{
  val = analogRead(potpin); // reads the value of potentiometer
                             // (value b/w 0 and 1023)
  val = map(val, 0, 1023, 0, 180); // scale it to use it with
                                   // the servo (value b/w 0 and 180)
  myservo.write(val); // sets the servo position according to the
                     // scaled value
  delay(15); // waits for the servo to get there
}
```

Divyashree

## Observation :

The shaft rotates in the clockwise as well as anticlockwise as the potentiometer is rotated.