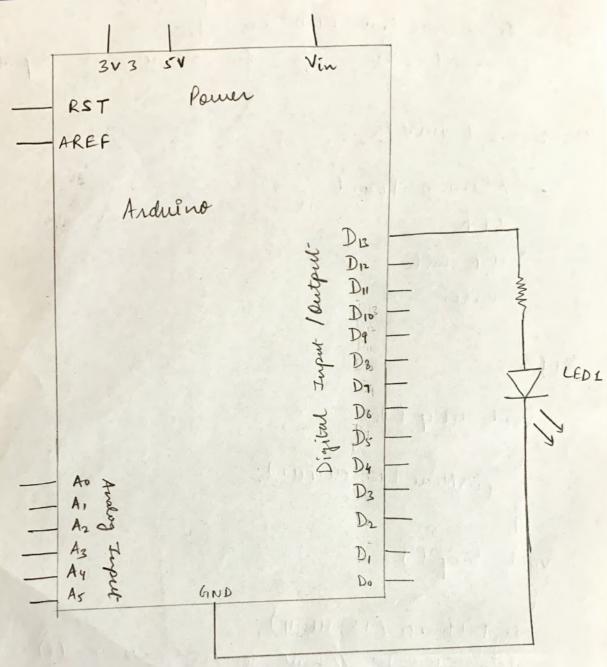
Name - Divyakriti Masaun USN - 1BM18CS029 LED BLINKING Date - 16/9/20 Aim: Jum on the LED on for a second, luen off for a second, repeatedly. Mandware Required: - Arduino Board -> LED -> USB Cable -s hires CODE: void setup () pris Mode (13, OUTPUT); void loop () digital Write (13, MIGN); delay (1000); // Wait for 1000 millisecond(s) digital Write (13, LOW); delay (1000); // wait for 1000 millisecond (8) page: 1

Divyakutt Masaum IBM18CS029

Circuit Diagram



Page: 2

Program - 2 Name - Divyakriti Masaun USN- 1BM18 CS029 TRAFFIC CONTROLLER Aim: Traffic signal stimulator Mardware used: - Arduino Board - LEDS -> bread boord CODE: void setup() pinhode (13, OUTPUT); pin Mode (12, OUTPUT); pisMode (8, OUTPUT); void red() digital Write (13, MIGH); digital Write (12, LOW); digital write (8, Low);

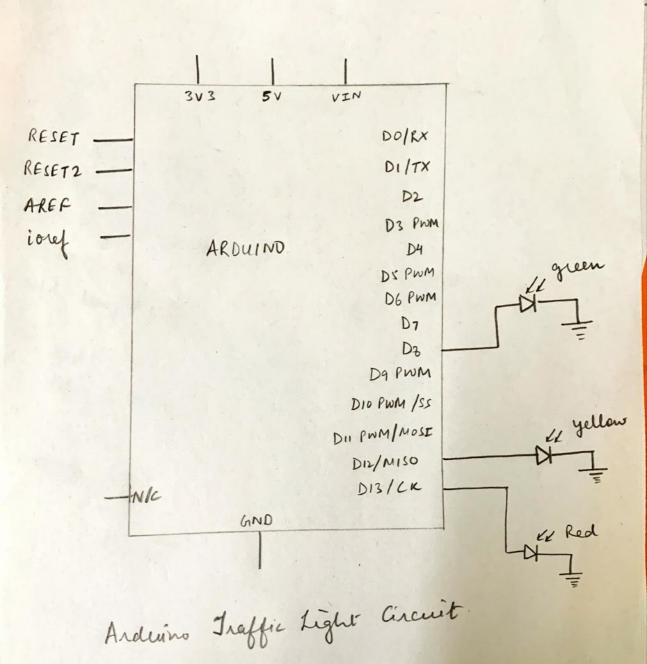
page - 1

Jest the set !

```
void yellow ()
  digital Write (13, LOW);
    digital Write (12, MIGH);
     digital Write (8, LOW);
void green ()
  digital Write (13, 100);
digital Write (12, 100);
   digital Write (8, MIGN);
                              marked (13 Marked)
void loop ()
     red();
     delay (300);
     yellow (),
     delay (1500);
    green ();
     delay (2000);
     yellow (),
     delay (1500);
```

Circuit Diagram:

Divyakuiti Masaum IBM18CSO29



Page -3

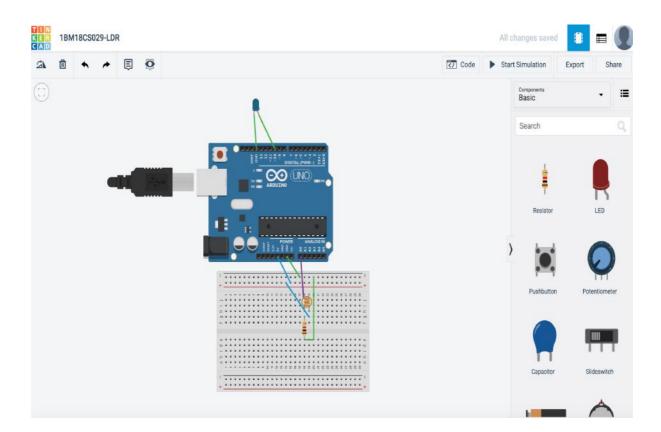
Program no: 6

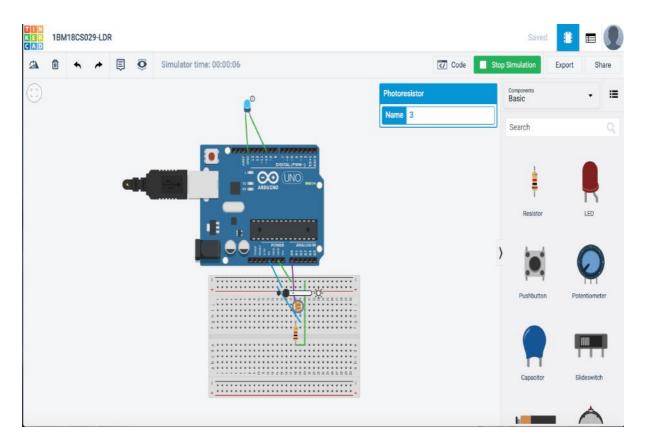
**Program Title: LDR** 

## Aim: The light Fades as the sunlight increases

## Hardware Required:

- Arduino Board
- LED
- Photoresistor





```
Program title:
                                             Divyakriti Masaum
    LDR (Light Dependent Resiston)
                                               1BM18 c5029
Code:
   const int led Pin = 10;
  const int lele Pin = Ao;
  void setup ()
     Serial. Legin (9600);
    printocle (ledPin, OUTPUT):
     pin Lode (Ide Pin, INPUT);
 void loop ()
      int lds Status = analoghead (lds Pin);
      ig (ldstatus $ < = 200)
       digitalwite (ledfin, nigh);
       Serial . print (" Its DARK, Turn on the LED: ");
       Secial . printle ( Ide Status);
     else
        digital write (ledfin, Low);
         Serial - print (" Stá BRIGHT, Tum of the LED".");
Serial . printle ( ld. State )
         Serial . printly ( lds Status);
```

# OUTPUT/OBSERVATION:

The light fades as the sunlight increases.

Program no: 7

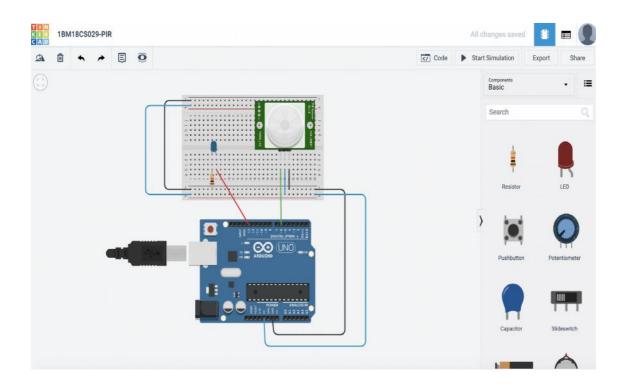
**Program Title: PIR** 

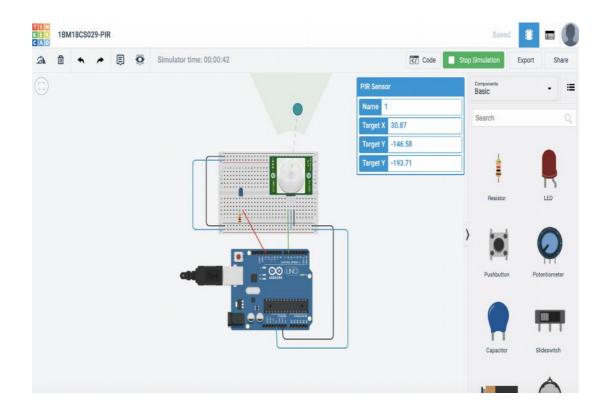
## Aim: The lights turns on if there is any motion in the range

## **Hardware Required:**

- Arduino Board
- LED
- PIR sensor
- Resistor

## Circuit Diagram:





```
Program Little: PIR
                                        Divyakriti Masau
                                            1BM1805029
Code:
        int led = 13;
        int sensor = 6;
       int state = Low;
       int val = 0;
       void setup ()
       I pinnode (led, output);
          pintrode (semon, INPUT);
          Serial - begin (9600);
      void loop()
       val = digital Read (senson);
       if (val = = NIGN)
             digital Write (led, MIGN);
             delay (10);
if ( wate = = 10 w)
                Serial. puntln (" Motion detected:");
                State = MIGH;
      else
         digital write (led, LOW);
```

#### **OUTPUT / OBSERVATION:**

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

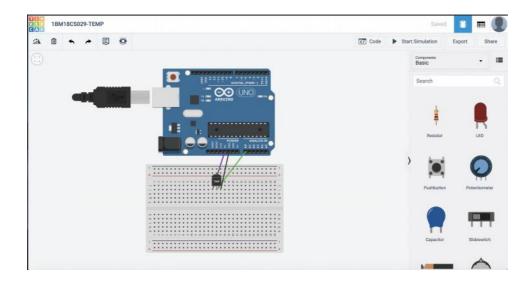
#### Program no: 8

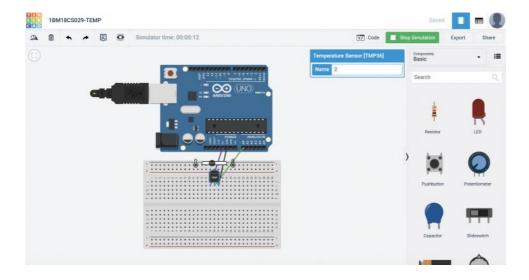
**Program Title: Temperature sensor** 

Aim: Converts degree in Celsius to Fahrenheit

#### Hardware Required:

- Arduino Board
- Temperature sensor(TM36)





```
Program title: TEMP
                                   Divyakriti Mesaum
                                      IBMIS CSOZ9
Code:
  int outputpin = 0;
   void setup()
     Serial . begin (9600);
void loop ()
 int ranvoltage = analoghead (output pin);
   float milivolts = (nanvoltage/1240.0) + 5000;
  float celcius = milivalts/10;
  Serial . print ( celcius);
  Serial · print ("celcius");
  Serial. print ((alcius #9) /5 + 32);
 Serial . print (" \n in fahrenheit");
 delay (1000);
```

#### OUTPUT / OBSERVATIONS:

Converts degree in Celsius to Fahrenheit .

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

#### Hardware required:

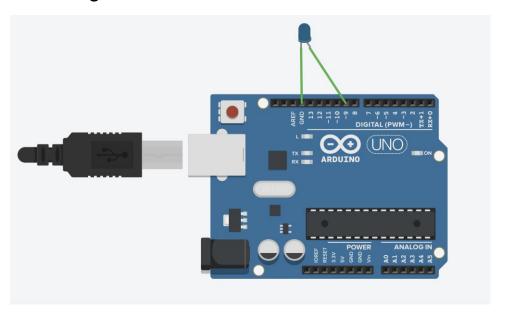
- LED
- Arduino Board
- Wires

```
Program no. - 4
                                  Divyakuti Masaun
Program title - LED fading Listrocter wing potentioneter
ATIM: Name LED fade and brighten up, without
         using potentioneter.
Hardware required:
-> Arduino Board
-> LED
-> mires
     int brigthness = 0;
     roid setup()
       pinhode (9, output);
     void loop!)
        for (brightness = 0; brightness <= 255; brightness + =10)
         analog Write (9, brightness);
delay (50);
                                          Philyatish
```

```
for (brightness = 255; brightness >=0; brightness -=10)

( analoghrite (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

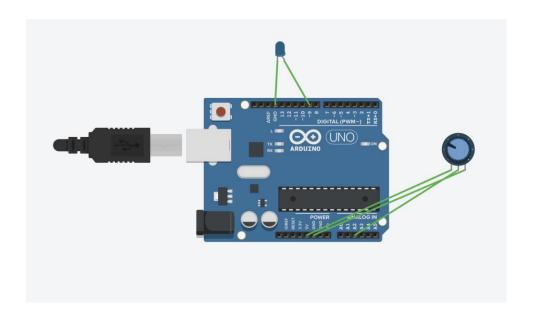
```
Divyakeiti Masaum
Program no. - 5
                                1BM18C5029
Program title: LED Fading using a Patentrometer
Aim: Make LED fade and brighten up, using
      a Potentioneter.
Handware required:
 -> Anduino board
-> LED
 -> mines
 -> Petentiometer
    void setup()
     Serial Serial . begin (9600);
      pin Mode (9, OUTPUT);
   void loop()
    int analog = analog Read (A2);
    int brightness = map (analog, 0, 1023, 0, 255);
```

```
Divyakidi Masaun
18M13CSD29

Serial. print ("In analog value");
Serial. print (analog);
Serial. print ("In brightness value");
Serial. print (brightness);

2 (pinyakiidi Masaun
18M13CSD29
```

## **Circuit Diagram:**



## Outcome:

We can observe that LED fades and brightens up accordingly.

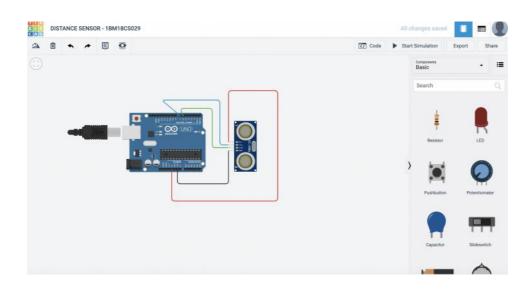
## **Program Title: Distance detector**

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

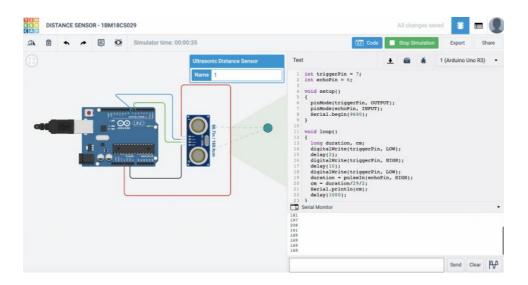
## **Hardware Required:**

- Arduino Board
- Ultrasonic distance sensor

## Circuit Diagram:



## Output/Working:



```
Divyakuti Masaun
Program title: DISTANCE SENSOR
                                             1BM18C5029
Code:
     int triggerlin = 7;
     int echoPin = 6;
     void setup()
         pinhode (triggerPin, OUTPUT);
         pinhode (echofin, MPUT);
          Serial. begin (9600);
     void loop ()
         long duration, cur;
         digital Write (triggerlin, cow);
          delay(2);
          digital Write (trigger Pin, MGM);
delay (10);
          digital Write ( triggalin, 2000);
          duration = pulse In (echoPin, MIGN);
          cm = duration/29/2;
          Serial . printle (can);
          delay (1000);
```

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

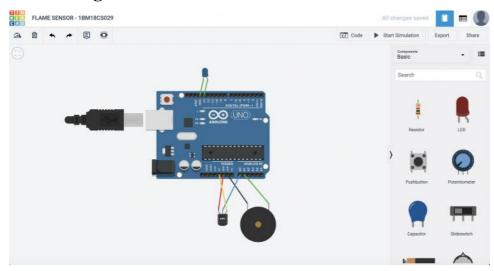
## **Program Title: Flame sensor**

Aim: Design an alert system using flame sensor.

## **Hardware Required:**

- Arduino Board
- Temperature sensor

# **Circuit Diagram:**



# Output/Working:



```
Divyakiti Masaum
  Program Title: FLAME SENSOR
                                              1BM18C5029
Dollar Code
   int tempin = 40;
   float temp = 0;
    int Buzz = Al;
   void setup()
     Serial. begin (9600);
     pinmode (Buzz, output);
     pinhode (13, output);
  void loop ()
    temp= analoghead (tempin);
    temp = temp * 0.43323121;
    Serial - printler (temp);
    delay (1000);
   if (temp > 30)
      digital Write (Buzz, MIGH);
     digital Write (13, 1164);
      digital write (Buzz, LOW);
degital write (13, LOW);
```

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.

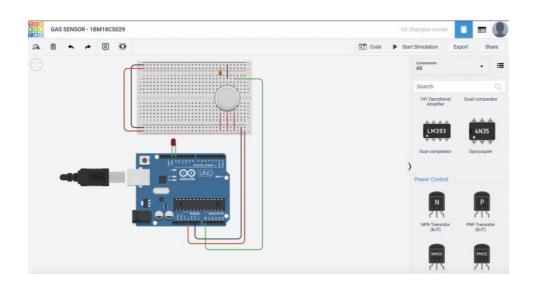
## **Program Title: Gas Sensor**

Aim: Design a smart gas leakage indicator system.

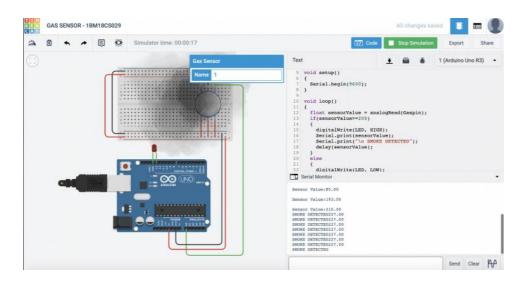
## **Hardware Required:**

- Arduino Board
- Gas sensor
- LED

## Circuit Diagram:



## Output/Working:



```
Divyahiti Masaun
Program title: GAS Senson
                                          1BM18C5029
Code :
      int LED = 13;
      const in- gas = 0;
      int Gaspin = 40;
     void setup()
         Serial begin (9600);
     void loop()
       Gaspin);
          ig (sensor Value >= 200)
          I digital write (LED, MIGH);
            Serial . printler ( cumon Value);
            Serial . puintle ("SNOKE DETECTED");
            delay (sensor Value);
          dipital Write (LED, LOW);
         Serial. puitle ( hensor Value );
level. puitle ( " sensor Value: ");
      delay (1000);
```

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

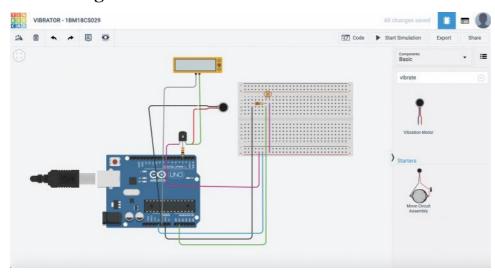
## **Program Title: Vibrator**

## Aim: Design an automated dat indicator system

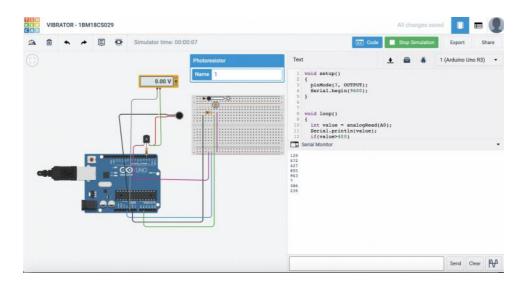
## Hardware Required:

- Arduino Board
- Vibration Motor
- LDR

## Circuit Diagram:



## Output/Working:



```
Program title - VIERATOR

Code:

Void Letup()

pinNode (3, OUTPUT);

Serial begin (9600);

void loop()

fut value = analoghead (40);

Serial punith (value);

ej (value > 400)

digital Write (2, MIGM);

deley (1000);

delay (1000);
```

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

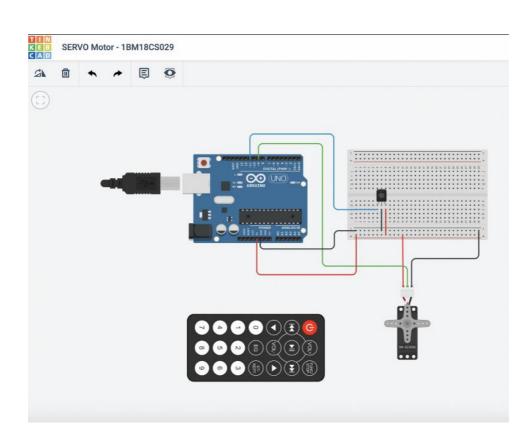
# **Program Title: SERVO Motor**

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

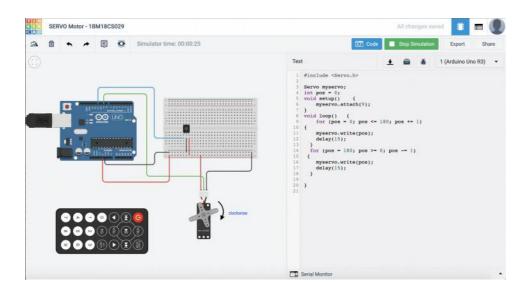
## Hardware Required:

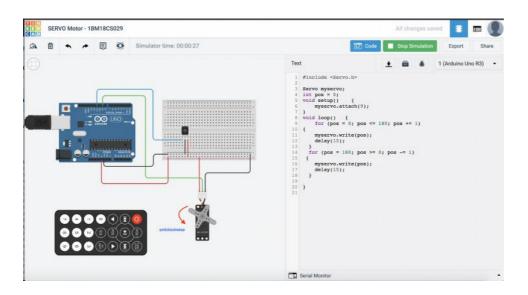
- Arduino Board
- SERVO Motor
- IR sensor
- IR remote

## Circuit Diagram:



## Output/Working:





```
Divyakriti Masaun
  Program title: Servo motor
                                             1BM18C5029
Ain: Design . IR based SERVO Motor Controller. Clockwise of
         Counterclockwise rotation of Magt.).
Code: # include < serro.h>
       Servo nyservo;
       int por = 0;
       void setup()
       nugerro-attach (1);
      veid loop()
       for (per = 0; per <= 110; par += 1)
         nyservo. write (pos);
         delay (15);
      for (per = 130; per > = 0; per - =1)
         mysewo. write (pos);
          delay (15);
```

Shaft rotates in Clockwise and Anticlockwise direction.

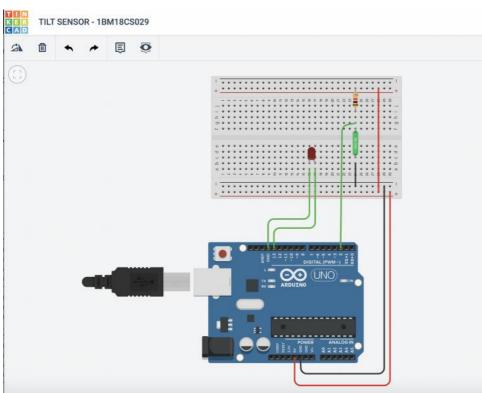
**Program Title:** Smart Package Handling System

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

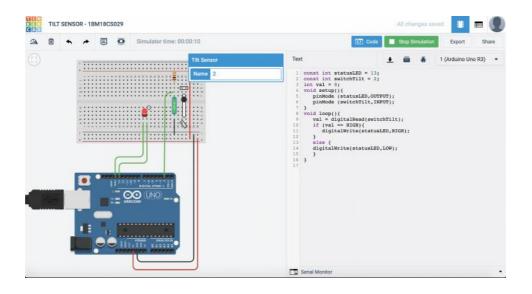
## **Hardware Required:**

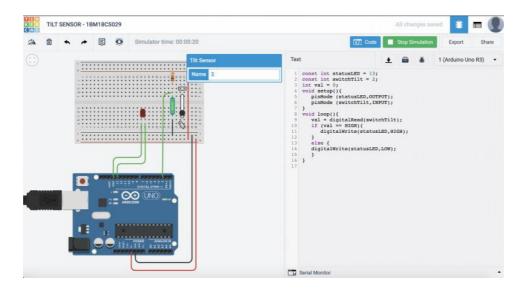
- Arduino Board
- TILT sensor
- LED
- resistor

## **Circuit Diagram:**



## Output/Working:





```
Program title - Smort Pochage Handing
Suptem (uning The security).

Code:

Court int status LED = 13;

court int switch Tilt = 2;

int val =0;

void status LED, output);

printede (switch Tilt, INPUT);

void loop ()

val = digital Read (switch Tilt);

if (val == HIAN)

digital Write (status LED, MAN);

else

digital Write (status LED, LON);

}
```

The LED light fades as the TILT sensor tilts.

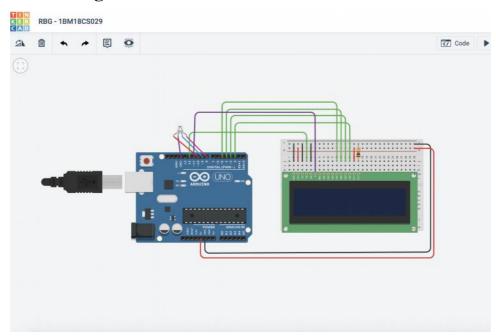
## **Program Title:** RGB LED AND LCD

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

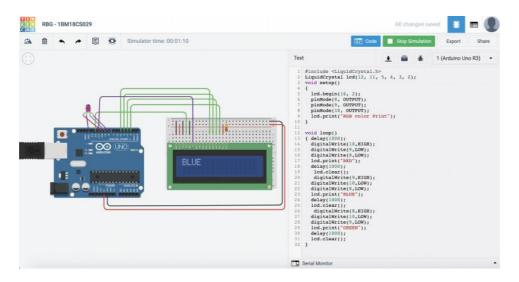
# Hardware Required:

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

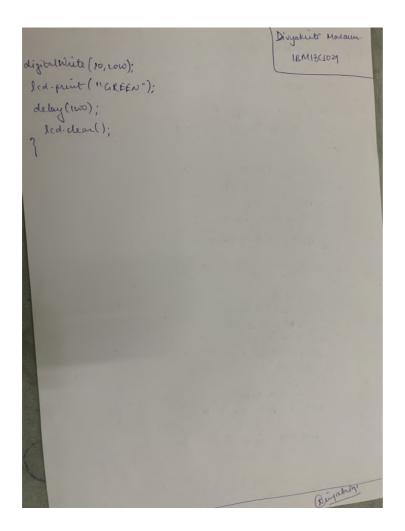
## **Circuit Diagram:**



#### Output/Working:



```
Divyakuti Masaum
 Program title: KGB LED and LCD
                                                                1BM18C5029
Arin: Design a display system to print the
          red, blue and green colors
 Code: # include < Liquid Crystal h>
            Liquidly tol (12, 11, 5, 4, 3, 2);
             void setupl)
                  led. Lyin (16,2);
                  pin mode (8, ou TRUT);
                  prisone (1, output);
                  pinhode (10, output);
                  led puit ("RGB colour puit");
                void Loop!)
                     delay(1000);
digitalWita(10, MGW);
                     digital White (8, Low);
                      led purt ("RED");
deby (1000);
Red. ellar();
oligitalWhite (9, 11141);
                         digitalwate (2, cow);
digitalwate (3, cow);
digitalwate (3, cow);
                              delay(1000);
                            Led den ();
digitaliste (9, 1164);
digitaliste (9, 2010);
                                                                     Ringatish
```



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

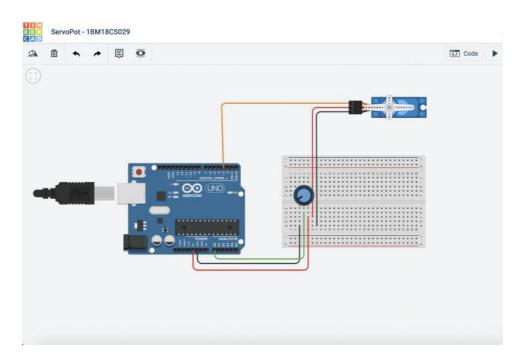
# **Program Title:** Smart Irrigation

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

## Hardware Required:

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

## Circuit Diagram:



```
Divyakuiti Maraum
Program Title: Serve Petentionneter
                                                       1BM18C5029
tion: Design a smoot inigation system (Petentionette, , servo Motor shaft)
 Code:
    # include < sens. 6)
      serve megarve; Il create serve of object to control a serve
      pert potpin = 0; Handog. pin used to connect the petentionaler
      int val; Il variable to read the value of from the analy pin
     void setupl)
       myarro. attach (9); Il attaches the serve on pin 9 to the serve object
     ol = analoghed (potpin); Il reals the value of potentismeter (volum b/w v and 1023)
         val = map (0 val, 0,1013,0,1800); 11 scale it to we it will
                                            the sens ( value 6/10 0 and 100)
     myseux. write (val); It sets the serve position according to the
                               realed value
     delay (15); Il waits for the servo to get there
```

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