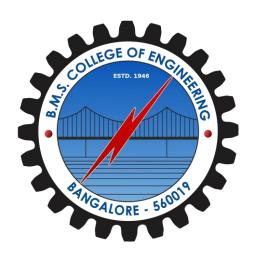
## **IOT LAB MANUAL-2020**



Name: Sakshi Srivastava

USN: 1BM18CS090

CONSOLIDATED LAB PROGRAMS

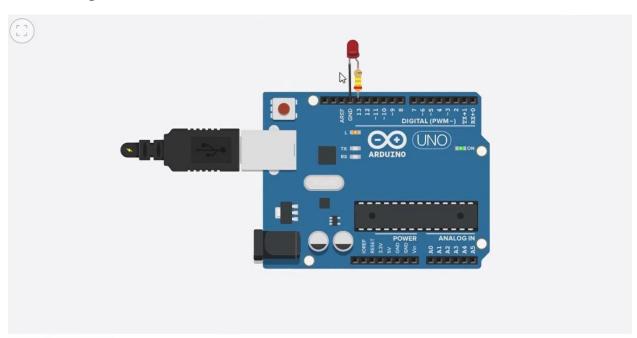
## 1BM18CS090

### PROGRAM TITLE: BLINKING LED

Aim: TO TURN ON THE LED FOR A SECOND AND TURN IT OFF REPEATEDLY

#### **Hardware Required:**

- Arduino Board
- LEDs



NAME: Sakshi Srivastava USN: 18M18CS090 Date 16/9/2020 Expt. No. 1		
Expt. No. 1 Page No. 1		
LED BLINKING.		
Aim: Two on the LED on for a second, then off for a second, repeatedly.		
Hardware Required:  Ardwino Board  LEDs.		
· LEDs.		
CODE:		
// Pini 13 has an LED connected on most Arduino boards.		
Void setup()		
// viritialise the digital più as an output. puiMode (13, OUTPUT):		
Void loop () { digital write (13, H167H); // turns the LED on.		
delay (1000): // wait for a second.  digital write (13, LOW): turns the LED off.  delay (1000): // wait for a second.		

### CODE:

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

### **Observation / Output:**

LED is blinking.

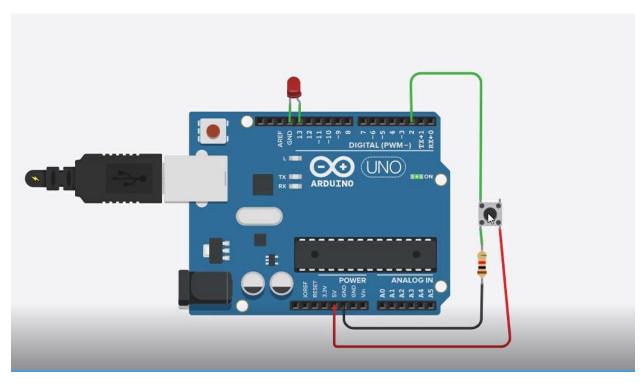
## 1BM18CS090

#### PROGRAM TITLE: LED USING PUSHBUTTON

Aim: DEMONSTRATE TO SHOW ON/OFF OF A LED USING PUSHBUTTON

#### **Hardware Required:**

- Arduino Board
- LED
- Pushbutton
- Resistor



q.	nt. No
	Program Title: LED Using Pushbutton
	Aim: Demonstrate to show ON/OFF of a LED using Pushbutton (Digital Output)
<i>&gt;</i>	Hardware Required:
	Adding Board Pushbutton, Resiston.
	Code:
	court unt kuttonlin=2; const unt ledlin = 13; unt buttonState = 0.
	Void Setup ()
	2
	primode ( kuttonkii, INPUT);
	void loop ()
	2
	buttonstate = digital Read (button hii); if (button state == HIGH)

	Page No5
6	
2 1. Statulaite ( 1. 10 s man)	
digitalwrite (ledfin, HIGH);	
}	Walter III
else	
¿ digital Write (dedlini, 2010);	

#### CODE:

```
const int
buttonPin=2;

const int ledPin=13;
    int buttonState=0;
    void setup()
    {
        pinMode(ledPin,OUTPUT); // declare LED as output
        pinMode(buttonPin, INPUT); // declare pushbutton as input
    }

    void loop()
    {
        buttonState = digitalRead(buttonPin); // read input value
        if (buttonState== HIGH)
        {
                  digitalWrite(ledPin, HIGH);
        }
        else
        {
                  digitalWrite(ledPin, LOW);
        }
}
```

### **Observation / Output:**

On/Off Of A Led Using Pushbutton

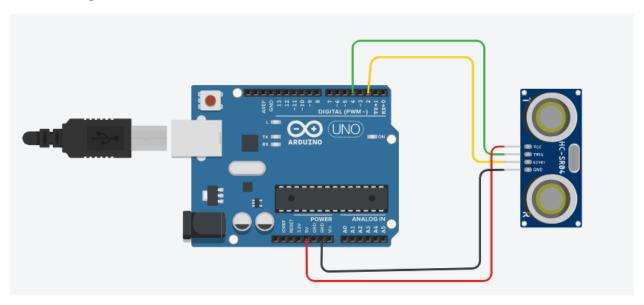
## 1BM18CS090

### PROGRAM TITLE: DISTANCE MEASURING

Aim: DESIGN A SYSTEM TO MEASURE THE DISTANCE BETWEEN OBJECTS

#### Hardware Required:

- Arduino Board
- Ultrasonic Sensor



```
Name: Sakshi Srivastava (18M18cs090)
                                                                  Date 7 10 2020
Expt. No. 9.
                                                             Page No. 13.
 Aim. Design a system to measure the distance between objects.
 HARDWARE REQUIRED:
2 Andrino - Board
, utrasonic sensor
  CODE :-
   mir triglin = 4;
   uit echopin = 2.
   rong duration, cun, wiches;
   void setup () {
   mi Mode (tighin, output);
mi Mode (tighin, output);
mi Mode (echorni, INPUT);
    Void Loop ()
    & digital Write (triglin, 100);
    delaythero seconds (5).

digital write ( trighin , 1916/14).

delaythero seconds (10);

digital write ( trighin , LOW).
```

No	Date 7 10 2
The state of the s	Page No. 14
miMode(ectrolini , INPUT).	
miMade (echolin, INPUT). duration = pulsatio (echolin, HIGH).	
cm = (duration/2)/29.1.	
wiches = (duration 12) / 74.	
unial. punt ("Distance: ");	
kuid- punt (inches).	
senie punt (cm);	
mai. print ("cu").	
berial junt ();	
delay (250);	A let la a la l
) 4	The same
	N. T. Carrier

# 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); pinMode(echoPin, INPUT); duration = pulseIn(echoPin, HIGH);

cm = (duration/2) / 29;

```
inches = (duration/2) / 74;
Serial.print("Distance: ");
Serial.print(inches);
Serial.print("inches, ");
Serial.print(cm);
Serial.print("cm");
Serial.println();
```

### OUTPUT/OBSERVATION:

The distance is being measured.

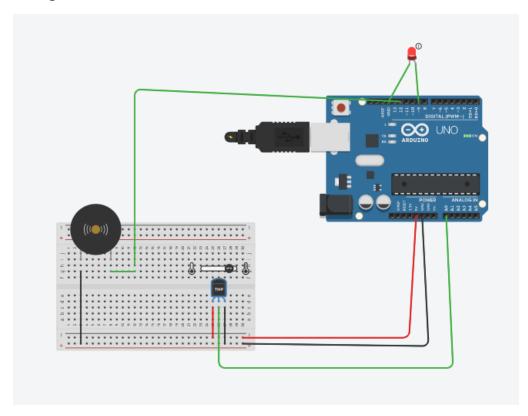
## 1BM18CS090

#### PROGRAM TITLE: FLAME SENSOR

Aim: DESIGN AN ALERT SYSTEM USING FLAME SENSOR

#### Hardware Required:

- Arduino Board
- LED
- Breadboard
- Temperature Sensor(LM35)
- Buzzer



```
Name: Makshi burastava (16M18CSO90).
                                            Date 7 10 200
Expt. No. 10 .
                                         Page No. 15
 Aim: Design an alert system using plane sensor.
 HARDWARE REQUIRED :-
· Ardunio Board
· LED.
· Breadboard
· Temperature Sensos (LM35)
· Buzzer
 CODE
 const int temperature Pini = 0;
 unt buzzer = 12;
 void letup()
? Serial begin (9600).
   princode (buzzer, OUTPUT);
  primode (9, OUTPUT):
 float gervoltage (vit pui)
   return ( analoghead ( pin) * 0.004882814).
```

#### CODE:

```
const 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);
                     void loop()
                      float voltage, degreesC;
                      voltage = getVoltage(temperaturePin);//gets temp in 5v
                      degreesC = (voltage-0.5)*100.0;//converts the temp to
                     celcius
                      digitalWrite(9,LOW);
                      if(degreesC < 37)
                        Serial.print(degreesC);
                      Serial.println(" IT IS SAFE!");
                      if(degreesC > 37)
                        Serial.print(degreesC);
                        Serial.println(" ALERTTTTTT!");
                        digitalWrite(buzzer, LOW);
                        digitalWrite(9,HIGH);
                        tone(12, 10000, 100);
                        delay(100);
                     }
```

### OUTPUT/OBSERVATION:

The temperature is being measured and accordingly the message is being displayed after sensing it.

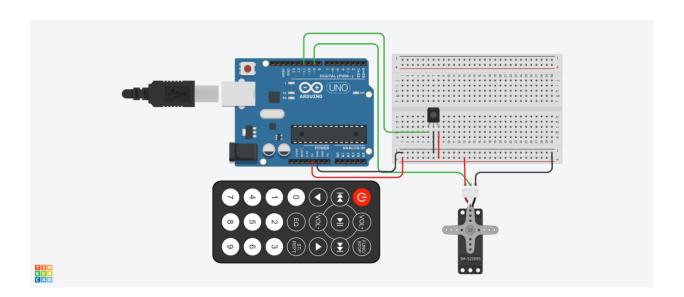
1BM18CS090

#### PROGRAM TITLE: IR REMOTE

**Aim:** DESIGN IR based SERVO MOTOR controller (Clockwise and counterclockwise Rotation of shaft)

### Hardware Required:

- IR remote
- IR sensor
- Micro Servo
- Breadboard
- Arduino UNO



	Date
14	Expt. No 14
Expt. No14 Page No2V	
Ain Derign Ik based SERVO Hoter controller. (Usokursé and Countir Workursé rotation of shaft)	void loop ()  2 if (linear decode (lacouts))
Hardware Requirel:-  Arduins Board	switch (results, value)
- Breadboard - Nicro Servo	care 0xFD80FF: myservo.alaer(a). Serval.println("8loor");
J Ik Sensor JR Kemote	lucak case. OXFD 609F;
Co de :-	Seval, printly (" crockword")
# uniclude (Selvo, h) # uniclude (Ilremote, h)	case OXFD2ODF:
TRACEY WICOU (RECY-PIN);	Seral, punta ("courter clockursi);
devode- renuts. results;	default:
Suro myuwo;	send puitter ( rosult value, HEX);
Void setup() } Sovial begin (9600); where chartestkin();	wicer, resume ();
3	3

#### 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/Observation:

Start
Counter Clockwise
Clockwise
Unrecognized code received:
0xFFFFFFFF

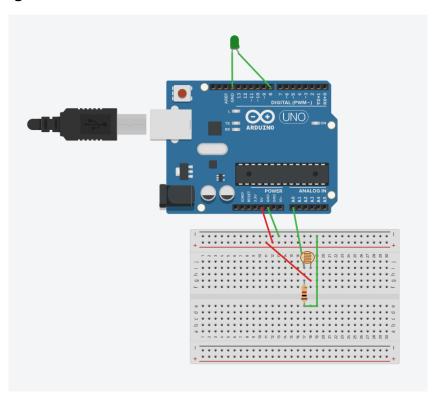
## 1BM18CS090

#### PROGRAM TITLE: LDR-NIGHT LIGHT SIMULATION

**Aim:** DEMONSTRATE AND SHOW ON/OFF OF A LED USING LDR-NIGHT LIGHT SIMULATION

### Hardware Required:

- Arduino Board
- LED
- Photoresistor
- Resistor
- Breadboard



lance: Sakshi Sriastava	Date 30/.9
xpt. No	Page No8.
ATU: Denomethate to show onlines	ol a LED mina
AIM: Demonstrate to show ON/OFF LDR-Night Light rimulation	
The Night tight on the	A STATE OF THE STA
Hardwall Required:	
LED	
Arduino Board .	
Photosesistos	
Resistor	
Breadboard	
CODE:	
const unt ledlin = 8;	
const wit Idelan = Ab;	
roid setup()	
[ Serial begin (9600);	
primode (ledfin, OUTPUT);	
pin Mode (Idelini, INPUT);	
}	
void loop()	
	D ')
serial, printin ( identatios);	sur /
Serial, println (Idritaties);	

```
Expt. No. 6 Page No. 9

if (Idutatus (=10)

digital Write (Idfin, HIGH);
Scalar quintlin ("LDR is DARK, LED is ON");

else

{
    digital Write (Idfin, toW);
    Schiel printlin ("----");
}
```

#### 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("----");
 }
OUTPUT/OBSERVATION:
```

LED is ON.

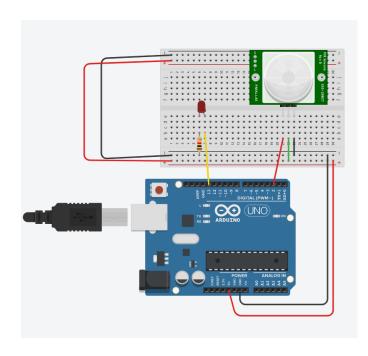
## 1BM18CS090

### PROGRAM TITLE: PIR SENSOR

Aim: DEMONSTRATE AND SHOW THE WORKING OF PIR SENSOR

#### Hardware Required:

- Arduino Board
- LED
- Photoresistor
- Resistor



Name: Lakshi Siivastava USN: 18M18 es 090	Date
Expt. No. 7	Page No. 10
ATM: Demonstrate to climb the working	of PIR
AIM: Demonstrate to show the working sensor.	7
Hardware Required:	
Arduino board	
LED	
Photoreseital	
Breadboard.	
Code:	
Come a	
uit sensosstate = 0;	
xorid vetup ()	
1 pinMode (2, INPUT);	
fur Mode (13, INPUT);	
Serial begin (9600).	
void loop ()	
E vensor State = digitallend (2);	
3 Schronstate == HIGH)	
Carist on the 7" toulet advicated 1"	).
if (sensorstate = HIGH).  digital Worte (13, HIGH);  Serial peintin ("Jensor activated!"	1
else	

2 40 1×10 × 1 10 10 10 10 10 10 10 10 10 10 10 10 1	
Sevial punter (13, 10w); Sevial punter ("sense deactivated	!");
delay (10);	

#### CODE:

```
int sensorState = 0;
void setup()
 pinMode(2, INPUT);
 pinMode(13, OUTPUT);
 Serial.begin(9600);
void loop()
{
// read the state of the sensor/digital input
 sensorState = digitalRead(2);
// check if sensor pin is HIGH. if it is, set the
// LED on.
 if (sensorState == HIGH)
  digitalWrite(13, HIGH);
  Serial.println("Sensor activated!");
 } else
  digitalWrite(13, LOW);
  Serial.println("Sensor Deactivated!");
 delay(10); // Delay a little bit to improve simulation performance
}
```

### OUTPUT/OBSERVATION:

Sensor is activated.

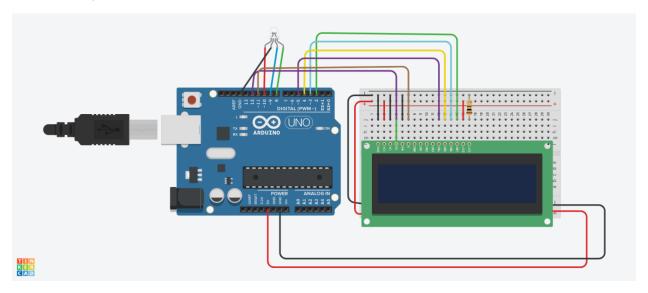
1BM18CS090

#### PROGRAM TITLE: RGB LED AND LCD

**Aim:** DESIGN A DISPLAY SYSTEM TO PRINT RED, BLUE AND GREEN COLORS (RGB LED and LCD)

### Hardware Required:

- Wires
- LCD
- LED
- Breadboard
- Arduino UNO



	Date
EXPL. No. 14 Page No. 22	xpt. No. 14. Page No. 2
Air: Derign TK based SERVO Hotor controller. (Hockwise and Counterclockwise rotation of shaft)	Void loop ()  2 if (inser. decode (laceuts))  ?  Juritch (results, value)
Hardware Required:-  → Ardwino Board  → Breadboard	case 0xFD80FF: myselve.abach(9):
- Mila Seno - Th Sensor - Th hemote	Senal printin ("Mort"); Jucak; care OXFD 609F;
t withdex Selvo.h	Sural quitte (360); Sural quitte ("Cockworse");
# unclude < Ihremote hy  wir REV_Pin = 11/	case OXF D20D ; mysewo. with (-360) Serial. punty ( counter Clockuri);
There wiew ( REW Pin); denode- results; results;	defaul: Scald, printly "Unrecognish code eccesived: 0.
Suro myuwo;	Servit puitter ( sosult value, HEX);
Script begin (9600); wicov. enable TKIN();	wicer, resume ();

#### CODE:

#### #include<LiquidCrystal.h>

```
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
//Parameters: (rs, enable, d4, d5, d6, d7)
int red_light_pin= 10;
int green_light_pin = 8;
int blue_light_pin = 9;
void setup() {
  pinMode(red_light_pin, OUTPUT);
  pinMode(green_light_pin, OUTPUT);
  pinMode(blue_light_pin, OUTPUT);
}
void loop() {
  lcd.setCursor(0,0);

  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(255, 255, 255); // White
 lcd.print("WHITE");
 delay(1000);
 lcd.clear();
void RGB color(int red light value, int
green_light_value, int blue_light_value)
 analogWrite(red_light_pin, red_light_value);
 analogWrite(green light pin,
green_light_value);
 analogWrite(blue_light_pin, blue_light_value);
}
```

#### **OBSERVATION/OUTPUT**

Displays the colour on the LCD.

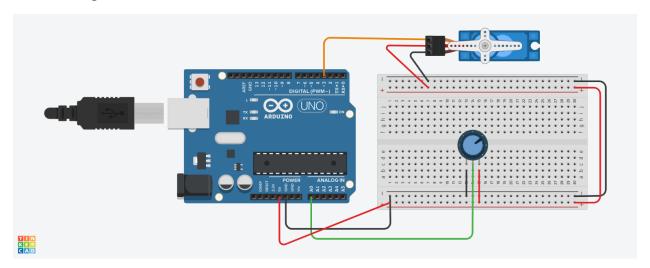
1BM18CS090

#### PROGRAM TITLE: SMART IRRIGATION

Aim: DESIGN A SMART IRRIGATION SYSTEM (Potentiometer, Servo Motor shaft)

#### Hardware Required:

- Wires
- Potentiometer
- Micro Servo
- Breadboard
- Arduino UNO



Sakole Seevastava 18 M18 (5090.	Date
Expt. No 15	Page No.
SMART IRRIGATION	yn Nov, 2020-
# unclude (souro.h)	
"Selvo mysewo:	
unt sensorPin = AO;	
mit sensorvalue = 0;	
Void setup() {	
onysers.attach (3;	
Sedial. be gui (9600).	
void loop() {	
	2
sensorvalue - analoghead (sensort. Berial. puittn (sensorvalue).	n);
el comos value (coo)	
ef (sensor value >500)	
for (pos = 0; pos 2 = 100; pos +1 = 1	
myserro, write per).	
delay (15);	
for ( pos = 180; pos >= 0; pes=1)	
for ( pos = 180: pos >= 0: pes=1)  i myservo, write ( pos).  delay (15):	
delay (15);	
, delay (1000);	
Teachar's Sig	nature :

#### 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 3 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 \leq 180; pos \leq 1) { // goes from 0 degrees to 180 degrees
 // in steps of 1 degree
                               // tell servo to go to position in variable 'pos'
 myservo.write(pos);
                         // waits 15ms for the servo to reach the position
 delay(15);
for (pos = 180; pos \rightarrow = 0; pos \rightarrow = 1) { // goes from 180 degrees to 0 degrees
                              // tell servo to go to position in variable 'pos'
 myservo.write(pos);
                         // waits 15ms for the servo to reach the position
 delay(15);
delay (1000);
```

#### Output/Observation:

716 634

450

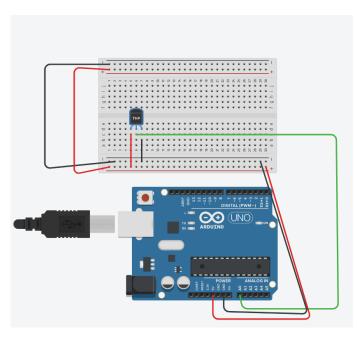
## 1BM18CS090

### PROGRAM TITLE: TEMPERATURE SENSOR(LM35)

**Aim:** DEMONSTRATE AND MAKE YOUR OWN TEMPERATURE SENSOR BY ARDUINO AND LM35 SENSOR

#### Hardware Required:

- Arduino Board
- Breadboard
- LM35 Temperature Sensor



Name: SAKSHI SRIVASTAVA	Date 30 9 1
Expt. No 8	Page NoJ2
Aim: Demonstrate and make you	a own temperature
Kenroe by Arduno and LM35	sensol.
Hardware Reguned:	
- Arduino board	
> breadboard	
- 1435 Temperature Sensor	
AppC.	
CODE:	
Clear to a	
float temp: unt templin = 0;	
com temptin - 0,	
void Setup()	
2 Seril begni (9600):	
1	
vorid loop()	
I temp = analoghead (templui);	
temp = temp x 0.48828125;	
serial puritin ("TEMFERATURE = ")	,
Servit. puritin ( time).	
Serial punt m ( temp): Serial punt m ("+ c + ).	
Senal punitan ():	
delay (1000)	
)	
Torontonia (	COMMON TO STATE OF THE STATE OF

#### CODE:

```
float temp;
int tempPin = 0;
void setup()
{
       Serial.begin(9600);
}
void loop()
{
       temp = analogRead(tempPin);
       temp = temp * 0.48828125;
       Serial.println("TEMPERATURE = ");
       Serial.println(temp);
       Serial.println("*C");
       Serial.println();
       delay(1000);
}
```

#### OUTPUT/OBSERVATION:

Temperature is being measured.

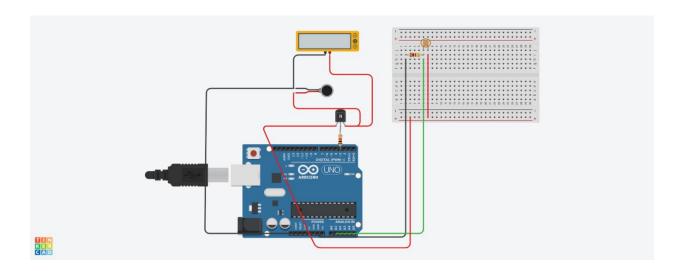
## 1BM18CS090

#### PROGRAM TITLE: VIBRATOR MOTOR

Aim: DESIGN AUTOMATED DAY INDICATOR SYSTEM(VIBRATOR MOTOR AND LDR)

#### Hardware Required:

- Photoresistor
- Resistor, LED
- Breadboard, Arduino UNO
- Multimeter
- npn resistor, Vibrator Motor



NAME: fakeli griastera USN: 1841315090	Date 14h Oct, 20
Expt. No	Page No. 19
Aim: Derign automated day inidica (Vibrator Motor and LPK)	tor system.
HARDWARE REGULES:-	
- Photosenitos	
-> Renitor	
- Arduno UNO.	
-> NPN resistor	
-, Hultimoter	
-> Breadboard	
-1 Vibrator Motor.	
COPE:	
unit motolfin = 3;	
unit remoder = A1:	
uit threshold = 400;	
voil setup()	
primode (notarini, output); serial. begni (9600);	
Serial begin (9600).	
1 7	

	Date
Expt. No	Page No. 40.
void loop ()	
{ int sensor Value - analog Read ( ) Ser al punter ( sensor Value);	renselm);
if semowalve > suco hold	
E digitalunie (motorbui, HIIAH);	
are I directivate ( antile : 100)	
1 digital write (motostini, cow).	

```
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);
}
```

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

If sensor value>threshold it displays HIGH else LOW.

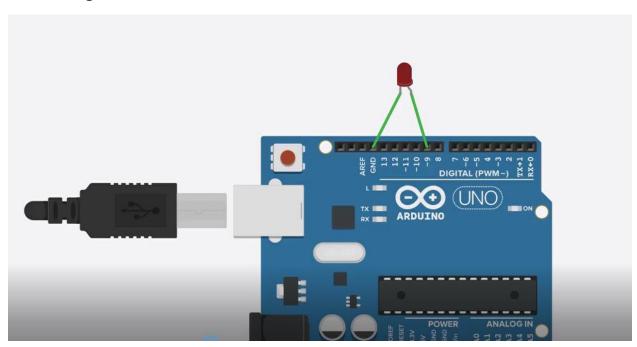
# 1BM18CS090

## PROGRAM TITLE: LED FADING

Aim: DEMONSTRATE TO SHOW LED FADING(ANALOG OUTPUT)

### Hardware Required:

- Arduino Board
- LED



```
Name: Sakshi Sivartava USN: IBMI8CS090
                                            Date 23/04/2022
                                          Page No. 6
Expt. No. 4
  Program Title: LED FADING
 Aim: Demonstrate to show LED Fading (Analog
 Hardware Required:
· Arduino board
· LED
  Code: -
  unt brightness = 0;
  } primode (9, OUTPUT):
   void (oop ()
  3 for (brightness = 0; brightness (= 255; brightness +=10)
      delay (50):
    for (brightness = 255; brightness >=0; brightness=10)
      analogueire (a, brightness);
       delay (50);
```

#### CODE:

```
int
brightness=0;
    void setup()
```

```
{ pinMode(9, OUTPUT);
}

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

### OUTPUT/OBSERVATION:

LED is fading.

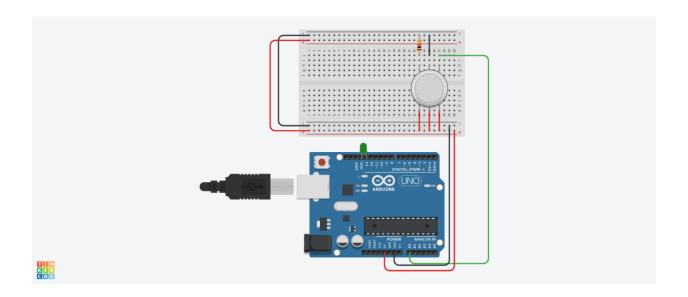
# 1BM18CS090

### PROGRAM TITLE: GAS SENSOR

Aim: DESIGN A SMART GAS LEAKAGE INDICATOR SYSTEM (GAS SENSOR AND LED)

### Hardware Required:

- Arduino Board
- LED
- Breadboard
- Gas Sensor
- Resistor



NAME: Vsakshi Univastova UCN: 18M18CDAO	Date Athod, 2
Expt. No. 11	Page No17
Avin: Design a smart gas leakage system ( has sensor and LED).	undicator
HARDWARE REQUIRED	
- Aldunio Boald - Bleedboald	
→ leas sensor → LED	
, Renitor	
Cott:	
wir LED = 13;	
unt LED=13; court unt gas = 0; unit Gargin = AO;	
voil setupl)	
Sewal, begin (9600)	
Void loop()	
	Gaspini).
Teacher's Signature	97

	Date
Expt. No	Page No18.:
3 digitalwhite (LED, HIGH);	
Sental puit I demos value).	
Serial. puntin ("- 3 MOKE DETECTED");	
delay (rensorvatue);	
4	
]	
else	
I digital White (LED, LOW);	
Sevent print (" Sunor Value :").	
Serval. printle (sensorvalue).	
7	
11 (1000)	
delay (1000);	
1	

```
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("Sensor
Value: ");
Serial.println(sensorValue);
 delay(1000);
```

#### OBSERVATION/OUTPUT:

The gas sensor checks whether there is a leakage or not. If yes, it displays SMOKE DETECTED otherwise it displays the sensor value.

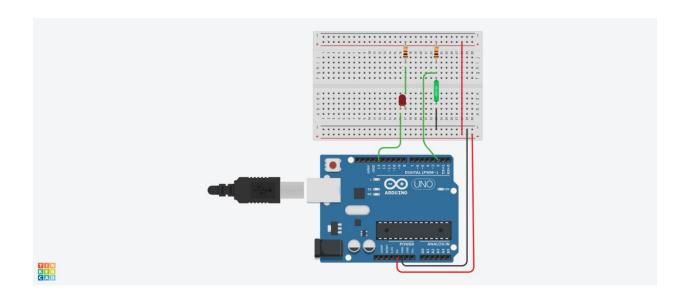
1BM18CS090

#### PROGRAM TITLE: TILT SENSOR

Aim: DESIGN A SMART PACKAGE HANDLING SYSTEM(TILT SENSOR AND LED)

### Hardware Required:

- Tilt Sensor
- Resistor
- LED
- Breadboard
- Arduino UNO



```
Expt. No......13
                                           Page No. 21
  Ami: Design a smart package handling system (TILT SENGOR AND LED).
 HARDWARE REQUIRED:
  Tur Servor
  Resistos
  LED.
  Breadboard
  Arduno UNO.
  CODE.
  unt tilt = 2;
  unit ded = 13;
  3 primode ( tilt INPUT);
    purimode ( Led, OUT PUT);
   unt reading;
   reading = digitalRead (tilt):
   digitaleviste ( ho, HIGH)
```

#### 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/Observation:

The LED light glows accordingly.

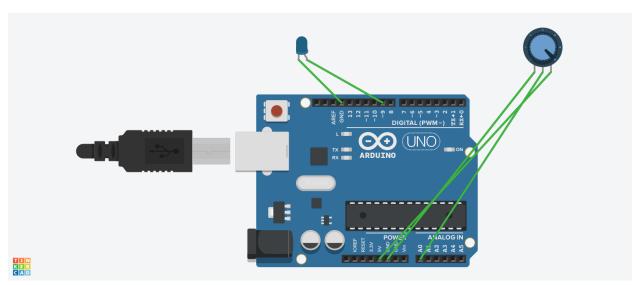
# 1BM18CS090

## PROGRAM TITLE: LED FADING (USING POTENTIOMETER)

Aim: DEMONSTRATE LED FADING USING POTENTIOMETER

### Hardware Required:

- Arduino Board
- LED
- Potentiometer



PROGRAM TETLE: LED FADING (USING Potentionates)		ME: Sakshi Srivastava USN: 18 ME CS090 Date 23/9/2		
Amin: To demonstrate LED fading using potentioneter  Hardware Required: Arduino Board.  LED. Potentiometer.  CODE:  wit LED-PIN = 9:  Void setup()  Serial begin (9600):  paintode (LED-PIN, OUTPUT):  void to:p()  int brightness: map (analog Read (AO):  unit brightness: map (analog Value, 0, 1023, 0, 255):  analog write (LED-PIN, brightness: ").  Serial punit ("Analog almi):  Serial punit ("Brightness: ").	EX	pt. No5Page No7		
Hardware Required:  Ardwino Board.  LEP.  Potentiometer.  CODE:  wit LED- PIN = 9;  Void setup()  Serial, begin (9600);  puintode (LED-PIN, OUTPUT);  void to.p ()  int analogyalue = analoghead (AO);  wint brightness= map (analogyalue, 0, 1023, 0, 255);  analogyalite (LED-PIN, brightness);  Serial, punit ("Analog: ");  Serial, punit ("Analog: ");  Serial, punit ("Brightness: ").		PROGRAM TETLE: LED FADING (USING Potentionictes)		
Arduino Board.  LED.  Potentiometer.  CODE:  wit LED- PIN = 9:  Void setupl)  Serial begin (9600):  pui Mode (LED-PIN, OUTPUT):  Voia losp ()  i vint analogvalue = analogRead (AD):  wint brightless = map (analogvalue, 0, 1023, 0, 255)-  analogwrite (LED-PIN, brightness):  Serial punt ("Analog: "):  Serial punt (analog alme):  Serial punit ("Brightness: "):		Amin: To demonstrate LED fading using potentionnetes.		
Arduino Board.  LED.  Potentiometer.  CODE:  wit LED- PIN = 9:  Void setupl)  Serial begin (9600):  pui Mode (LED-PIN, OUTPUT):  Voia losp ()  i vint analogvalue = analogRead (AD):  wint brightless = map (analogvalue, 0, 1023, 0, 255)-  analogwrite (LED-PIN, brightness):  Serial punt ("Analog: "):  Serial punt (analog alme):  Serial punit ("Brightness: "):		Hardware Required:		
· LED. · Potentiometer.  CODE:  wit LED- PIN = 9;  Void setup()  Serial begin (9600);  puiMode (LED-PIN, OUTPUT);  void to:p()  i wit analogyalue = analogRead (AD);  wit brightness = map (analogyalue, 0, 1023, 0, 255);  analogwrite (LED-PIN, brightness);  ferial print ("Analog: "");  Serial print (analogyalue);  Serial print ("Brightness: ");		Arduino Board.		
CODE:  wit LED-PIN = 9;  Void setup()  ? Serial begin (9600);  pui Mode (LED-PIN, OUTPUT);  }  void losp ()  ? wit analogvalue = analogRead (AO);  wit brightness = map (analogvalue, 0, 1023, 0, 255);  analogwhite (LED-PIN, brightness;  Serial punit ("Analog: ");  Serial punit (analogvalue);  Serial punit ("Brightness: ").	•			
void setup()  ? Serial begin (9600);  puiMode (LED-PIN, OUTPUT);  }  void losp ()  ? unit analogyalue = analogRead (AO);  unit brightness = map (analogyalue, 0, 1023, 0, 255);  analogwrite (LED_PIN, brightness);  Serial punit ("Analog: ");  Serial punit (analog value);  Serial punit ("Brightness: ").	•	Potentiometer.		
void setup()  ? Serial begin (9600);  puiMode (LED-PIN, OUTPUT);  }  void losp ()  ? unit analogyalue = analogRead (AO);  unit brightness = map (analogyalue, 0, 1023, 0, 255);  analogwrite (LED_PIN, brightness);  Serial punit ("Analog: ");  Serial punit (analog value);  Serial punit ("Brightness: ").				
void setup()  ? Serial begin (9600);  puiMode (LED-PIN, OUTPUT);  }  void losp ()  ? unit analogyalue = analogRead (AO);  unit brightness = map (analogyalue, 0, 1023, 0, 255);  analogwrite (LED_PIN, brightness);  Serial punit ("Analog: ");  Serial punit (analog value);  Serial punit ("Brightness: ").				
Void setup()  3 Serial begin (9600);  pui Mode (LED_PIN, OUTPUT);  3 void losp ()  2 unit analogyalue = analogRead (AD);  unit brightness = map (analogyalue, 0, 1023, 0, 255).  analogwhite (LED_PIN, brightness);  Serial punit ("Analog.");  Serial punit (analogyalue);  Serial punit ("Brightness:").		CODE:		
Void setup()  3 Serial begin (9600);  pui Mode (LED_PIN, OUTPUT);  3 void losp ()  2 unit analogyalue = analogRead (AD);  unit brightness = map (analogyalue, 0, 1023, 0, 255).  analogwhite (LED_PIN, brightness);  Serial punit ("Analog.");  Serial punit (analogyalue);  Serial punit ("Brightness:").				
Serial. begni (9600);  pni Mode (LED-PIN, OUTPUT);  void losp ()  init analogyalue = analogRead (AO);  unit brightness = map (analogyalue, 0, 1023, 0, 255);  analogwhite (LED_PIN, brightness);  serials punit ("Analog: ");  Serial. punit (analogyalue);  Serial. punit ("Brightness: ");		unt LED- PIN = 9;		
void losp ()  ? unit analogvalue = analogRead (AD); unit brightness = map (analogvalue, 0, 1023, 0, 255); analogwrite (LED_PIN, brightness); Serial punit ("Analog alue); Serial punit (analog alue); Serial punit (", Brightness: ");				
void losp ()  ? unit analogvalue = analogRead (AD); unit brightness = map (analogvalue, 0, 1023, 0, 255); analogwrite (LED_PIN, brightness); Serial punit ("Analog alue); Serial punit (analog alue); Serial punit (", Brightness: ");		3 Serial begui (9600);		
void losp ()  ? unit analogvalue = analogRead (AD); unit brightness = map (analogvalue, 0, 1023, 0, 255); analogwrite (LED_PIN, brightness); Serial punit ("Analog alue); Serial punit (analog alue); Serial punit (", Brightness: ");		puiMode (LED-PIN, OUTPUT);		
init analogvalue = analogRead (AD);  unit brightness = map (analogvalue, 0, 1023, 0, 255);  analogwrite (LED_PIN, brightness);  Serial punit ("Analog alue);  Serial punit (analog alue);  Serial punit (", Brightness: ");		3		
init analogvalue = analogread (AD);  unit brightness = map (analogvalue, 0, 1023, 0, 255);  analogwrite (LED_PIN, brightness);  Serials punit ("Analog alue);  Serial. punit (analog alue);  Serial. punit (", Brightness: ");		void losp ()		
Serial punit ("Analog: "); Serial punit (analog alne); Serial punit (", Brightness: ").		{ unit analogvalue = analogRead (AO);		
Serial punit ("Analog: "); Serial punit (analog alne); Serial punit (", Brightness: ").		unt brightness = map (analog value, 0, 1023, 0, 255).		
Serial punt ("Analog: "); Serial punt (analog alne); Serial punit (", Brightness: ").		analogurite (LED_PIN, brightnew).		
Serial. punit (analog Value); Serial. punit (", Brightness: ").		Serial punit ("Analog: (");		
Serial. punt (", Brightness: ").		Serial, print (analog Jalue);		
to it - winter ( being them).		Serial. punit (", Brightness: ").		
delay (100).		to it winter ( being them).		
3. 4		delay (100).		
		3. 4		

```
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/OBSERVATION:**

LED is fading.

# 1BM18CS090

## PROGRAM TITLE: TRAFFIC CONTROLLER

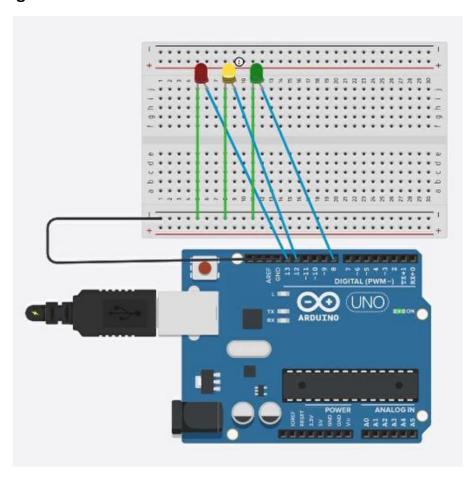
Aim: TRAFFIC SIGNAL STIMULATOR

#### **Hardware Required:**

• Arduino Board

LEDs

Breadboard



```
NAME: Sakshi Shivastava USN: 1BM18CS090
                                                 Date 14 9 2020
Expt. No. 2
                                               Page No....2
                     TRAFFIC CONTROLLER.
  Aim: Traffic Signal Stimulator.
  Hardware Regused:
   · Arduino Board
· LEDS
   · Bread board.
  CODE:
   Void setupi)
   pui Mode (13, OUTPUT);
pui Mode (12, OUTPUT);
  ¿ primode (8, OUTPUT);
   void sed ()
  ¿ digital Write (13, HIGH);
   digital Write (12, cow);
   digital write (8, LOW).
   void yellow ()
   2 digital Write (13, LOW)
    digital write (12, H14H);
digital write (8, LOW);
```

```
Void green ()

{

digitalwrite (13, Low);

digitalwrite (12, Low);

digitalwrite (8, told);

void loop()

{

red ();

delay (3000);

yellow ();

delay (1500);

green ();

delay (3000);

yellow ();

delay (1500);

green ();

delay (1500);
```

```
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);
}
```

### **Observation / Output:**

LEDs are blinking.