**Name of Experiment :** Design and implement of Light Control with sensor .

**Components :**

1. Arduino Miro-controller .
2. Push Button
3. 220 ohm resistor
4. Bread board
5. LED bulb ( 4 piece )
6. Connecting Wires .

**Objective :**

Our Objective is to read a switch and print the state out to the Arduino Serial Monitor .

**Circuit Diagram :**

**Process :**

**Code :**

float a=0; // initialize the variable

void setup() {

Serial.begin(9600); // initialize serial communication at 9600 bits per second

pinMode(2,INPUT); // push button pin input

pinMode(4,OUTPUT); // push button pin output

}

void loop() {

a=digitalRead(2); // read the input pin

Serial.println(a); // print the state of the button on Arduino serial Monitor

Serial.println("....");

delay(500); // wait half a second

}

**Objective of Task 2 :**  Read an analog input pin , map the result and then use that data to dim or

Brighten the LED .

**Components :**

1. Arduino Miro-controller .
2. 220 ohm resistor
3. Bread board
4. LED bulb ( 1 piece )
5. Connecting Wires .
6. Potentiometer

Read an analog input pin, maps the result to a range from 0 to 255 . And use the result to set the pulsewidth modulation(PWM) of an output pin. Also print the result to the serial monitor .

**Circuit Diagram :**

Potentiometer connected to analog pin 0

Center pin of the potentiometer goes to the analog pin.

Side pins of the potentiometer go to +5v and ground

LED connected form digital pin 9 to ground

**Code :**

const int analogInPin =A0;

const int analogOutPin = 9;

int sensorValue =0 ;

int outputValue = 0;

void setup() {

Serial.begin(9600);

}

void loop() {

sensorValue = analogRead(analogInPin); // read the analog value

outputValue= map(sensorValue,0,1023,0,255); // map it to the range of the analog out

analogWrite(analogOutPin,outputValue); // change the anloge output value

Serial.print("sensor ");

Serial.print(sensorValue); //print the result to the serial monitor

Serial.print("\t output = ");

Serial.println(outputValue);

delay(50); // wait

}

**Objective of Task 3 :**  Fadee 4 LED’s on and off , one by one using an Arduino Board .

**Components :**

1. Arduino Miro-controller .
2. 220 ohm resistor ( 4 piece ) .
3. Bread board .
4. LED bulb ( 4 piece ).
5. Connecting Wires .
6. Push Button .

**Circuit Diagram :**

**Code :**

const int lowestPin = 8;

const int highestPin = 11;

void setup() {

//Serial.begin(9600);

for(int thisPin = lowestPin ; thisPin <= highestPin;thisPin++){

pinMode(thisPin,OUTPUT);

}

}

void loop() {

//iterate over the pin

for(int thisPin = lowestPin ; thisPin <= highestPin;thisPin++){

//fade the LED on thisPin from off to brightest

for(int brightness = 0; brightness<255;brightness++ ){

digitalWrite(thisPin,brightness);

delay(2);

}

// fade theled on thisPin from brithstest to off

for(int brightness = 255; brightness>=0 ; brightness-- ){

digitalWrite(thisPin,brightness);

delay(2);

}

// pause between LESDs;

delay(500);

}

}