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Roll Number: 45	**Lab Assignment Number: 4**	
Title of Lab Assignment: Programs based on interfacing LEDs, Servo Motor, Potentiometer with arduino.		
DOP: 30-01-2024	**DOS: 06-02-2024**	
CO Mapped: **CO3, CO4**	**PO Mapped:** **PO1, PO2, PO5, PO7, PSO1**	**Signature:**

Practical No. 4

Aim: Programs based on interfacing LEDs, Servo Motor, Potentiometer with arduino.

Theory:

Servo Motor:

A servomotor is a linear actuator or rotary actuator that allows for precise control of linear or angular position, acceleration, and velocity. It consists of a motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servo motors.

Servo motor applications are also commonly seen in remote-controlled toy cars for controlling the direction of motion, and it is also very widely used as the motor which moves the tray of a CD or DVD player. Besides these, there are hundreds of servo motor applications we see in our daily life.

Potentiometer:

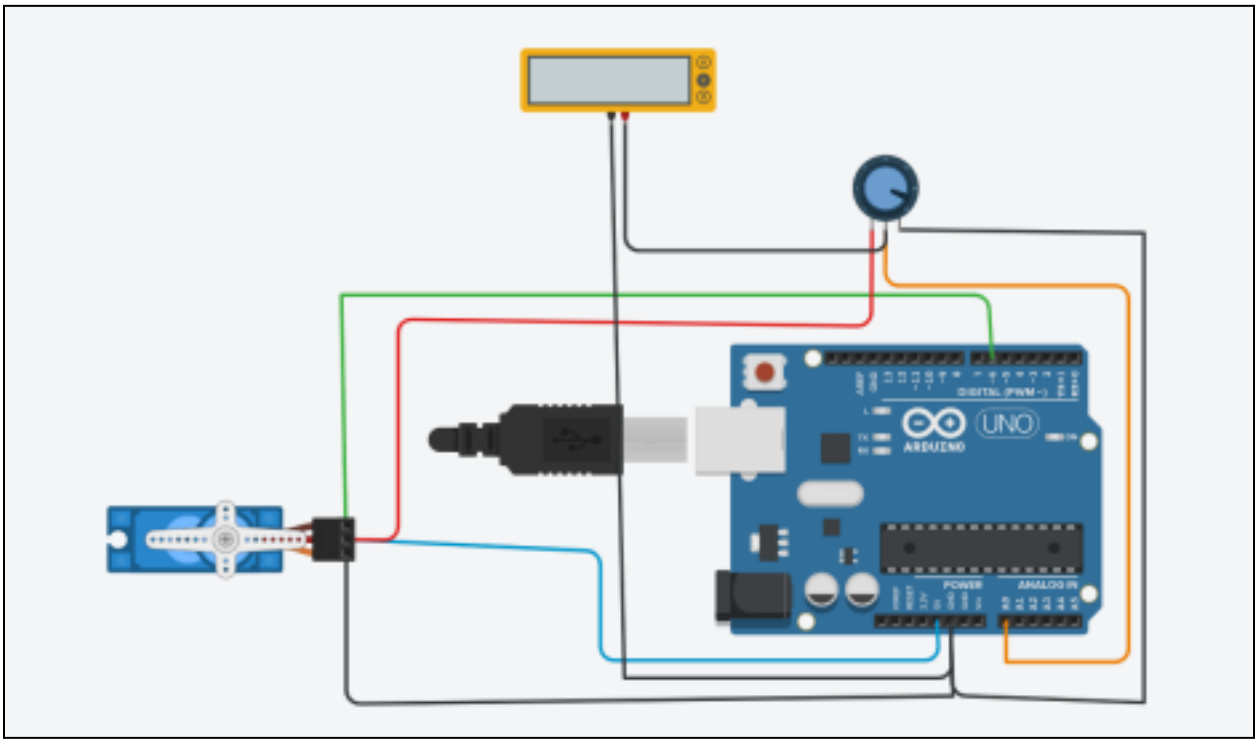
A potentiometer is a manually adjustable variable resistor with 3 terminals. Two terminals are connected to both ends of a resistive element, and the third terminal connects to a sliding contact, called a wiper, moving over the resistive element. The position of the wiper determines the output voltage of the potentiometer. The potentiometer essentially functions as a variable voltage divider.

The resistive

element can be seen as two resistors in series(potentiometer resistance), where the wiper position determines the resistance ratio of the first resistor to the second resistor. In order to use the potentiometer as a rheostat or variable resistor, it should have only two terminals with one end and the wiper.

A potentiometer is also commonly known as a potmeter or pot. The most common The form of the potmeter is the single turn rotary potmeter. This type of pot is often used in audio volume control (logarithmic taper) as well as many other applications. Different materials are used to construct potentiometers, including carbon composition, cermet, wirewound, conductive plastic or metal film.

Circuit Diagram:

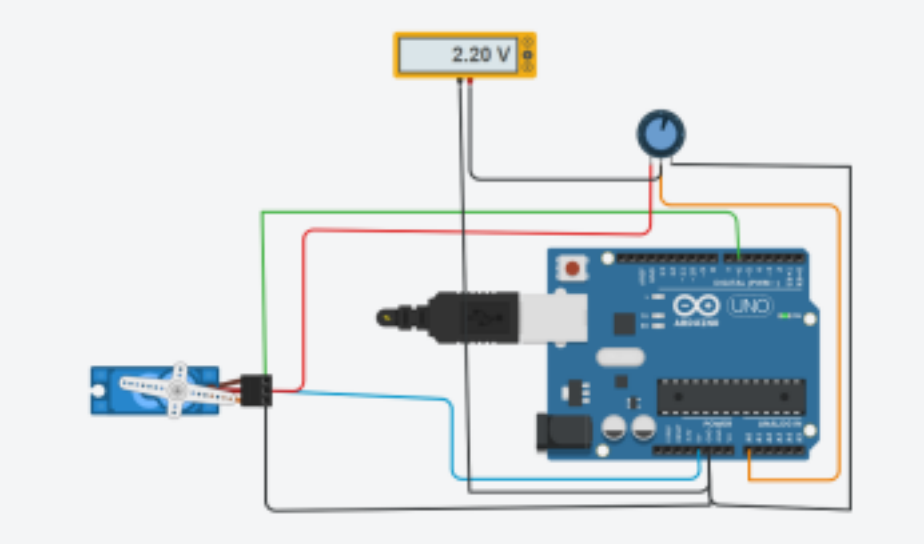


Code:

```
#include<Servo.h>
Servo myservo;
const int p = A0;
void setup() {
   pinMode(p,INPUT);
   myservo.attach(6);
   Serial.begin(9600);
}
void loop() {
   int pValue = analogRead(p);
   delay(100);
   myservo.write(pValue);
   delay(500);
   Serial.println("Value:" + pValue);
```

```
    /*for(int ang = 0; ang < 180; ang++) {
        myservo.write(ang);
        delay(10);
    }
    for(int ang = 180; ang > 0; ang--) {
        myservo.write(ang);
        delay(10);
    }*/
}
```

Output:



Conclusion: Successfully Learned and implemented Servo motor in Arduino.