[INTERNET OF THINGS]

Practical-6

-:AIM:-
Arduino Programming With Actuator.

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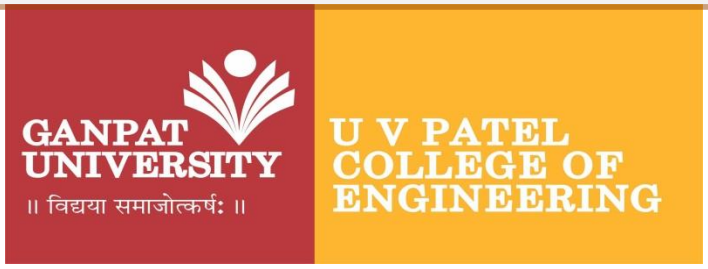
Enrollment No:17012011056



GANPAT UNIVERSITY

U. V. Patel College of Engineering

Computer Engineering Department

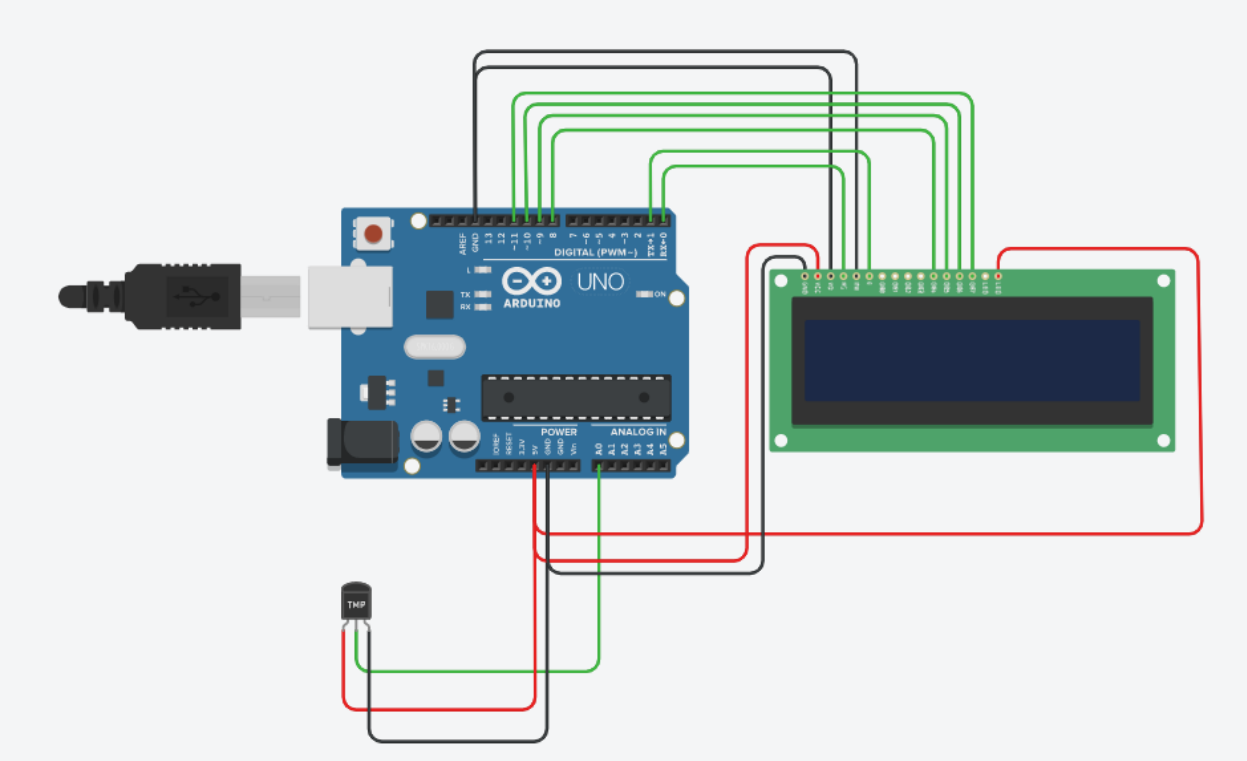
AIM:- Arduino programming with Actuator.

Experiments

1. **Display current temperature of room in 26X2 LCD Display.**

Components used : Arduino Uno R3, LCD 16 x 2, Temperature Sensor .

Circuit:

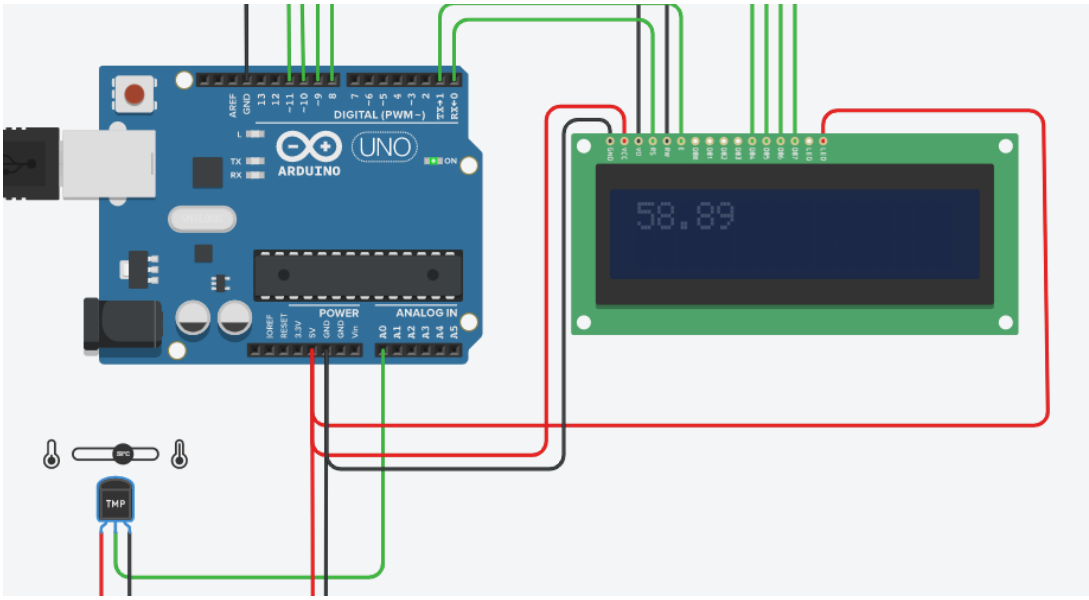


Code:

```
#include <LiquidCrystal.h>
int sensorPin = 0;
LiquidCrystal lcd(0, 1, 8, 9, 10, 11);

void setup(){
        lcd.begin(16,2);
}
```

```
void loop()
{
        int reading = analogRead(sensorPin);
        float voltage = reading * 5.0;
        voltage /= 1024.0;
        float temperatureC = (voltage - 0.5) * 100 ;
        lcd.print(temperatureC);
        lcd.setCursor(0, 0);
        delay(1000);
        lcd.clear();
}
```

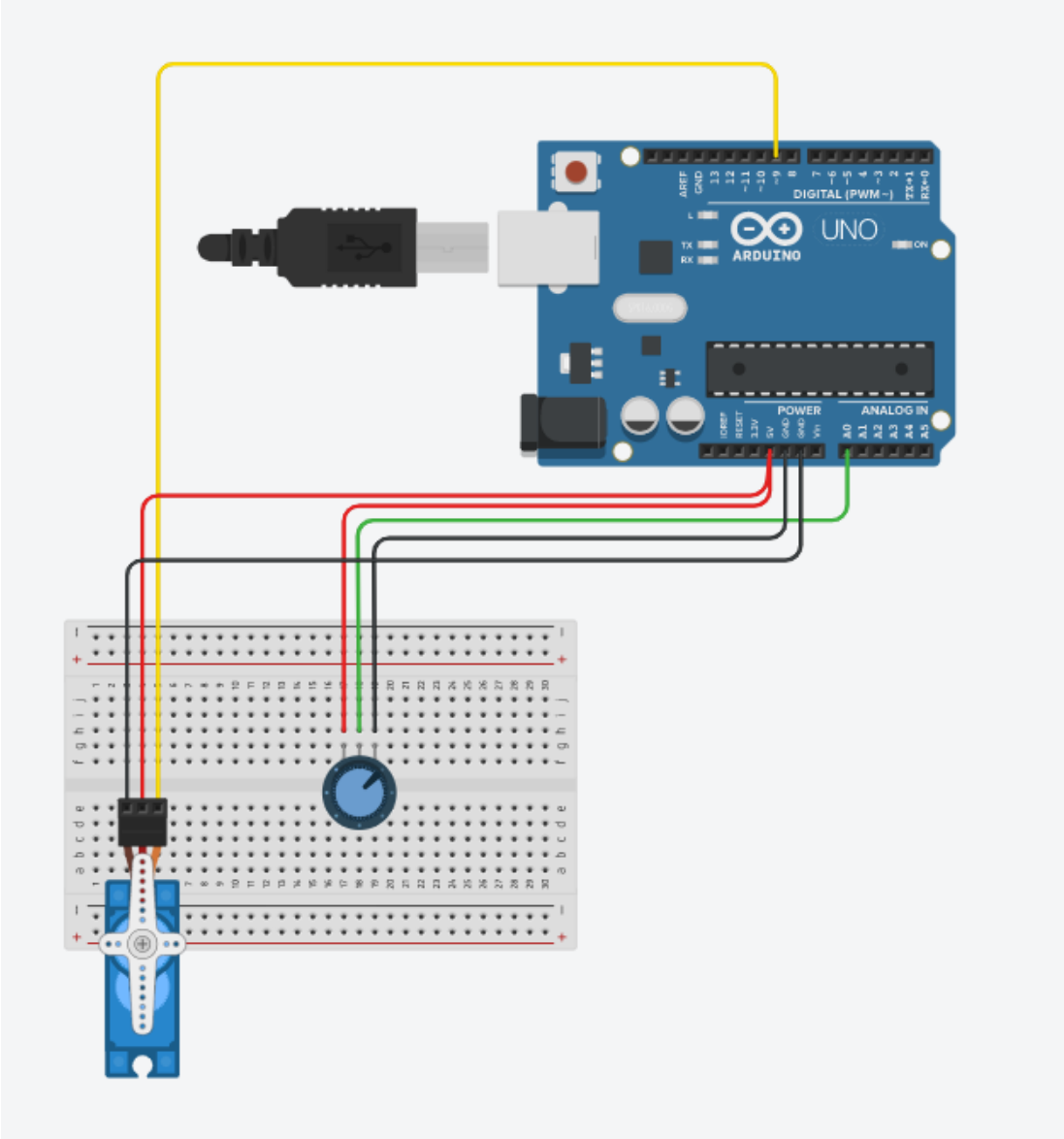
Output :



2. **Rotate the servo motor based on the value of potentiometer .**

Components used: Arduino Uno R3, 250 kOhm Potentiometer , micro Servo .

Circuit:

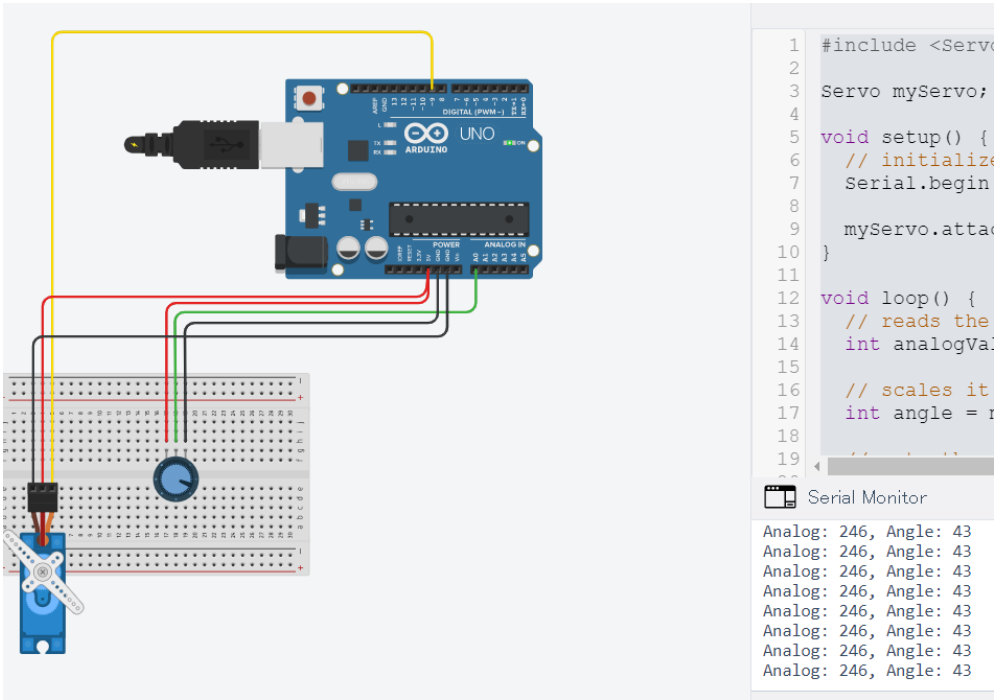


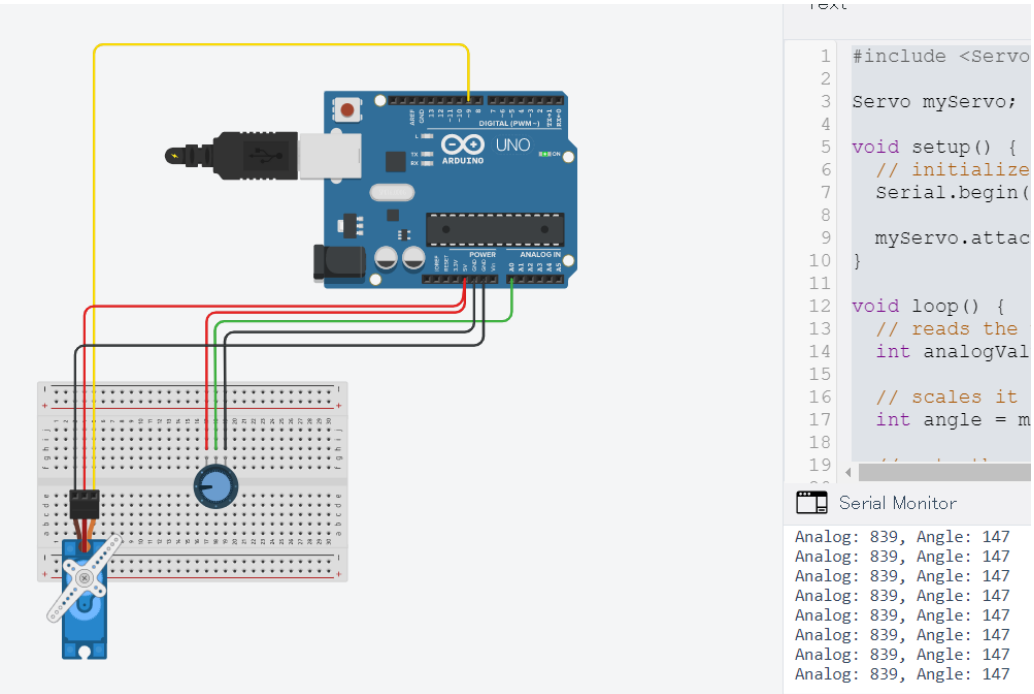
Code:

```
#include <Servo.h>

Servo myServo;

void setup() {

  Serial.begin(9600);
  myServo.attach(9);
}
```

```
void loop() {

  int analogValue = analogRead(A0);
  int angle = map(analogValue, 0, 1023, 0, 180);
  myServo.write(angle);
  Serial.print("Analog: ");
  Serial.print(analogValue);
  Serial.print(", Angle: ");
  Serial.println(angle);
  delay(100);
}
```

Output :

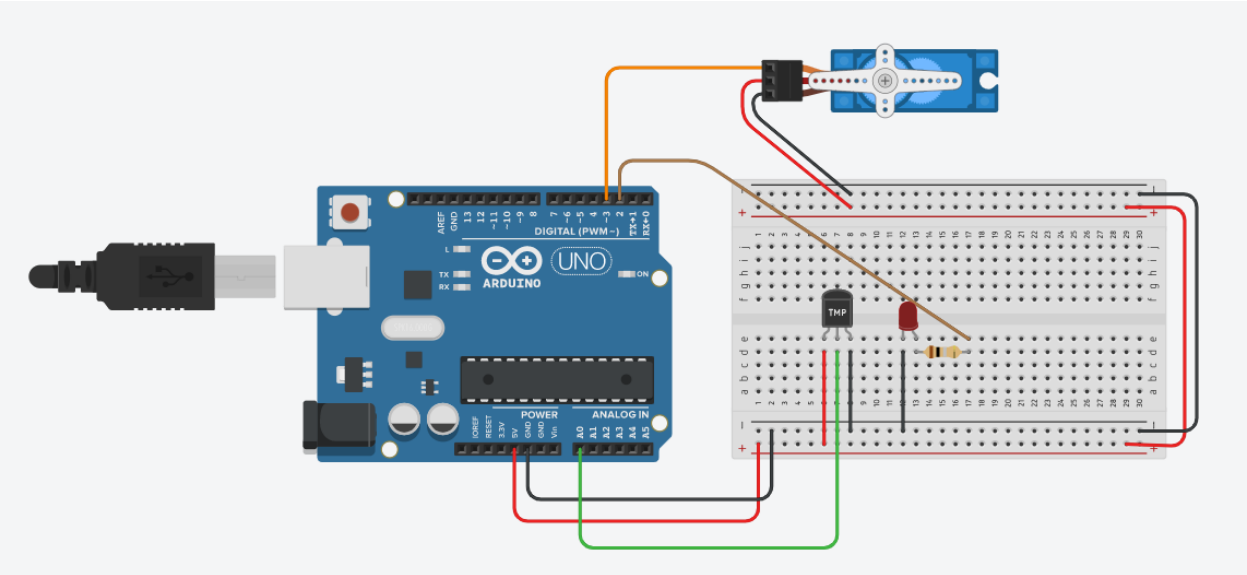




3. **Rotate the Servo motor based on the value on the value of current room temperature.**

Components used : Arduino Uno R3, RGB LED, Temperature Sensor, Resistor (1-Ohm) , Micro servo.

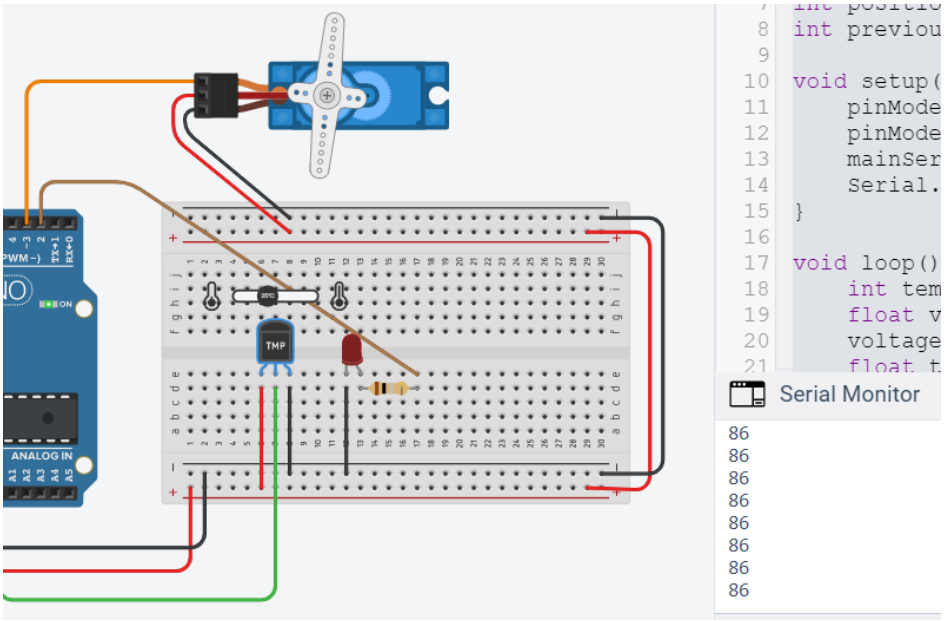
Circuit:



Code:

```
#include <Servo.h>
#define temperature A0
#define ledIndicator 2

Servo mainServo;
int position = 0;
int previousPosition;

void setup() {
	pinMode(temperature, INPUT);
	pinMode(ledIndicator, OUTPUT);
	mainServo.attach(3);
	Serial.begin(9600);
}

void loop() {
	int tempReading = analogRead(temperature);
	float voltage = tempReading * 5.0;
	voltage /= 1024.0;
	float tempC = (voltage - 0.5) * 100;
	int position = map(tempC, 0, 50, 0, 180);
	Serial.println(position);
	if(previousPosition != position){
		mainServo.write(position);
		digitalWrite(ledIndicator, HIGH);
		delay(1000);
   }
	digitalWrite(ledIndicator, LOW);
	previousPosition = position;
}
```

Output :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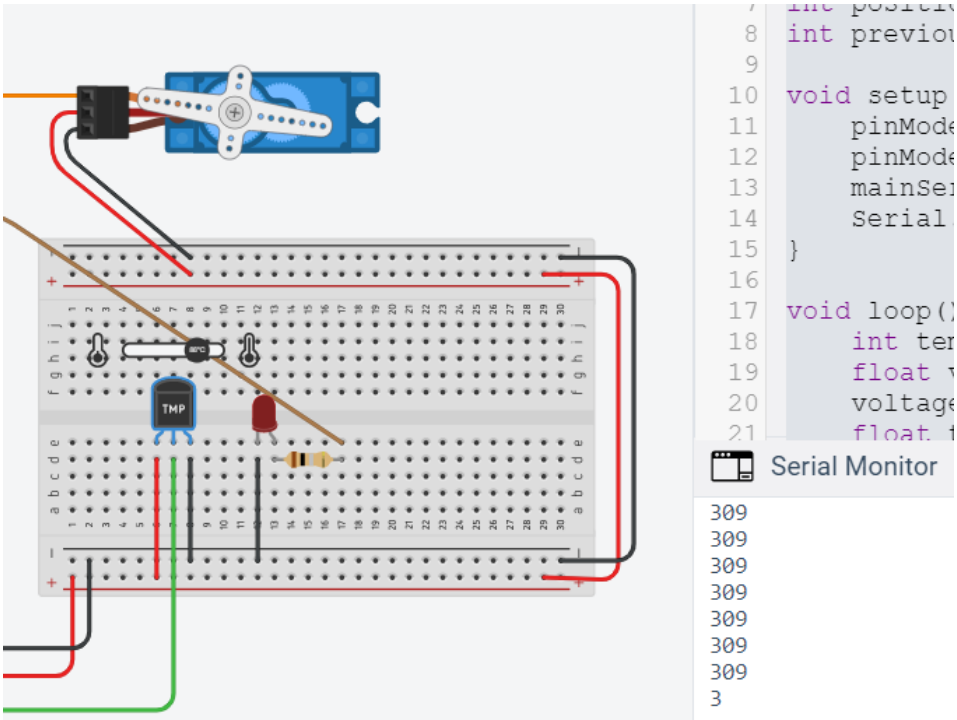
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