**Task 2**

const int LED1 = 5;

int light;

// include the servo library

#include <Servo.h>

Servo myServo; // create a servo object

int const potPin = A0; // analog pin used to connect the potentiometer

int potVal; // variable to read the value from the analog pin

int angle; // variable to hold the angle for the servo motor

void setup() {

pinMode(LED1, OUTPUT);

myServo.attach(9); // attaches the servo on pin 9 to the servo object

Serial.begin(9600); // open a serial connection to your computer

}

void loop() {

potVal = analogRead(potPin); // read the value of the potentiometer

// print out the value to the serial monitor

Serial.print("potVal: ");

Serial.print(potVal);

// scale the numbers from the pot

angle = map(potVal, 0, 1023, 0, 179);

// print out the angle for the servo motor

Serial.print(", angle: ");

Serial.println(angle);

// set the servo position

// TASK 2

light = map(potVal, 0, 1023, 0, 255);

analogWrite(LED1, light);

myServo.write(angle);

// wait for the servo to get there

delay(25);

}

**Task 3**

const int LED1 = 5;

const int LED2 = 3;

int light;

// include the servo library

#include <Servo.h>

Servo myServo; // create a servo object

int const potPin = A0; // analog pin used to connect the potentiometer

int potVal; // variable to read the value from the analog pin

int angle; // variable to hold the angle for the servo motor

void setup() {

pinMode(LED1, OUTPUT);

pinMode(LED2, OUTPUT);

myServo.attach(9); // attaches the servo on pin 9 to the servo object

Serial.begin(9600); // open a serial connection to your computer

}

void loop() {

potVal = analogRead(potPin); // read the value of the potentiometer

// print out the value to the serial monitor

Serial.print("potVal: ");

Serial.print(potVal);

// scale the numbers from the pot

angle = map(potVal, 0, 1023, 0, 179);

// print out the angle for the servo motor

Serial.print(", angle: ");

Serial.println(angle);

// set the servo position

// TASK 2

light = map(potVal, 0, 1023, 0, 255);

analogWrite(LED1, light);

// TASK 3

// TASK 3

if (angle < 10 || angle > 170) {

digitalWrite(LED2, HIGH);

}

else {

digitalWrite(LED2, LOW);

}

myServo.write(angle);

// wait for the servo to get there

delay(25);

}

**Task 4**

const int LED1 = 5;

const int LED2 = 3;

int switchstate = 0;

int light;

// include the servo library

#include <Servo.h>

Servo myServo; // create a servo object

int const potPin = A0; // analog pin used to connect the potentiometer

int potVal; // variable to read the value from the analog pin

int angle; // variable to hold the angle for the servo motor

void setup() {

pinMode(LED1, OUTPUT);

pinMode(LED2, OUTPUT);

pinMode(2, INPUT);

myServo.attach(9); // attaches the servo on pin 9 to the servo object

Serial.begin(9600); // open a serial connection to your computer

}

void loop() {

// TASK 4

switchstate = digitalRead(2);

if (switchstate == HIGH) { // button is pressed

potVal = analogRead(potPin); // read the value of the potentiometer

// print out the value to the serial monitor

Serial.print("potVal: ");

Serial.print(potVal);

// scale the numbers from the pot

angle = map(potVal, 0, 1023, 0, 179);

// print out the angle for the servo motor

Serial.print(", angle: ");

Serial.println(angle);

// set the servo position

// TASK 2

light = map(potVal, 0, 1023, 0, 255);

analogWrite(LED1, light);

// TASK 3

if (angle < 10 || angle > 170) {

digitalWrite(LED2, HIGH);

}

else {

digitalWrite(LED2, LOW);

}

myServo.write(angle);

// wait for the servo to get there

delay(25);

}

}