Lab 4

COMP6043: Physical Computing

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Group: COMP1D-Y

Task1:

```
lab_4_code | Arduino 1.8.19
File  Edit  Sketch  Tools  Help

lab_4_code

// 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() {
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
myServo.write(angle);
// wait for the servo to get there
delay(15);
}

Done compiling.

Sketch uses 3400 bytes (10%) of program storage space. Maximum is 32256 bytes.
Global variables use 251 bytes (12%) of dynamic memory, leaving 1797 bytes for local variables. Maximum is 2048 bytes.

                                                                    Arduino Uno on COM4
```
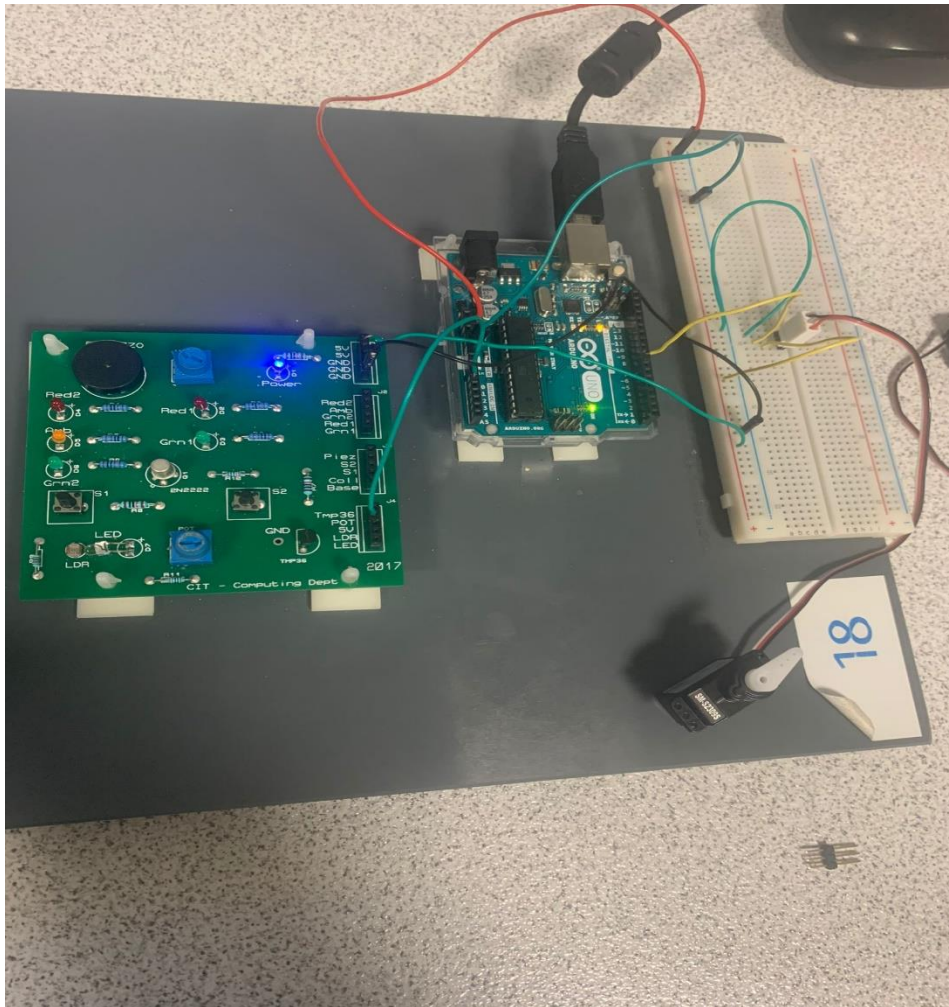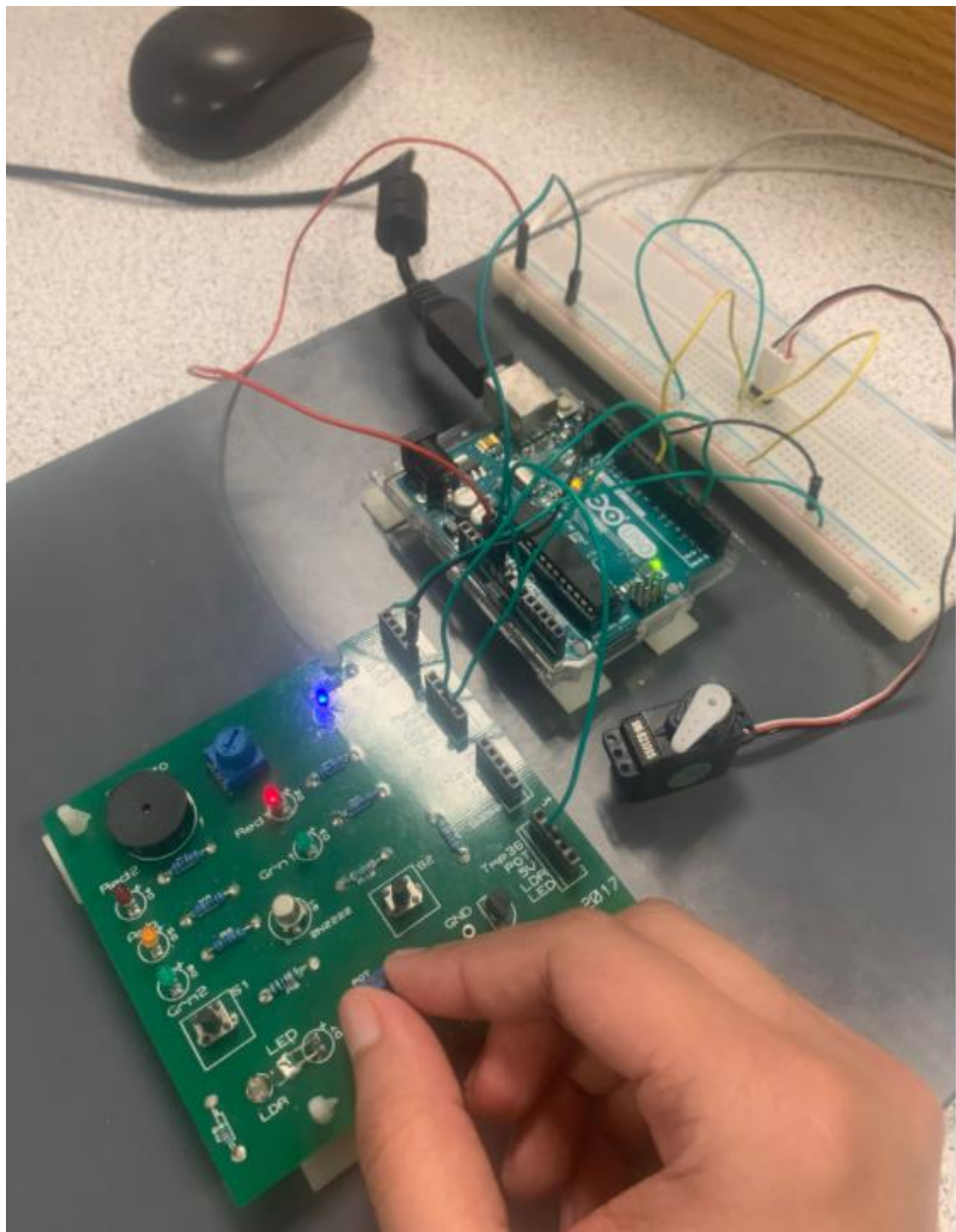
Task2:

```
// 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
int led=3;
int bright;

void setup() {
myServo.attach(9); // attaches the servo on pin 9 to the servo object
Serial.begin(9600); // open a serial connection to your computer
pinMode(led, OUTPUT);
}
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
bright = map(potVal, 0, 1023, 0, 255);
analogWrite(3, bright);
// print out the angle for the servo motor
Serial.print(", angle: ");
Serial.println(angle);
// set the servo position
myServo.write(angle);
// wait for the servo to get there
delay(15);
}
```

Task3:

```arduino
// 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
int led=3;
int led2=5;

int bright;


void setup() {
myServo.attach(9); // attaches the servo on pin 9 to the servo object
Serial.begin(9600); // open a serial connection to your computer
pinMode(led, OUTPUT);
pinMode(led2, OUTPUT);

}
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);
bright = map(potVal, 0, 1023, 0, 255);
analogWrite(3, bright);
if (angle < 10  || angle > 170){
  digitalWrite(led2, HIGH);
}
else {
  digitalWrite(led2, LOW);
}

// print out the angle for the servo motor
Serial.print(", angle: ");
Serial.print(angle);
// set the servo position
myServo.write(angle);
// wait for the servo to get there
delay(15);
}
```
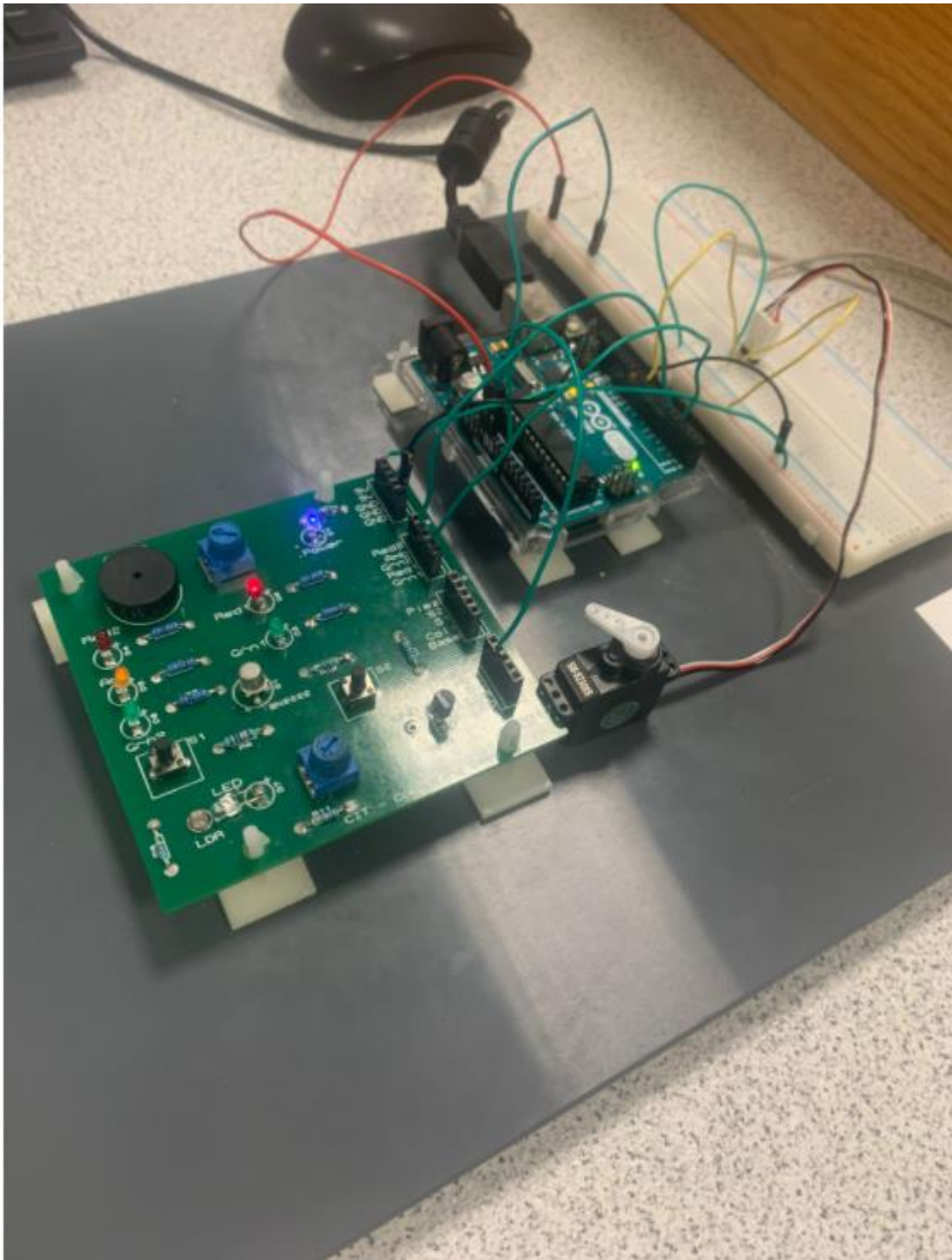
Task4:

```arduino
// 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
int led=3;
int led2=5;
int button=4;
int bright;
int buttonState;

void setup() {
myServo.attach(9); // attaches the servo on pin 9 to the servo object
Serial.begin(9600); // open a serial connection to your computer
pinMode(led, OUTPUT);
pinMode(led2, OUTPUT);
pinMode(button, OUTPUT);
}
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);
bright = map(potVal, 0, 1023, 0, 255);
analogWrite(3, bright);
if (angle < 10  || angle > 170){
  digitalWrite(led2, HIGH);
}
else {
  digitalWrite(led2, LOW);
}

// print out the angle for the servo motor
Serial.print(", angle: ");
Serial.print(angle);
// set the servo position
if (buttonState == HIGH){
}
myServo.write(angle);
// wait for the servo to get there
delay(15);
}
```