

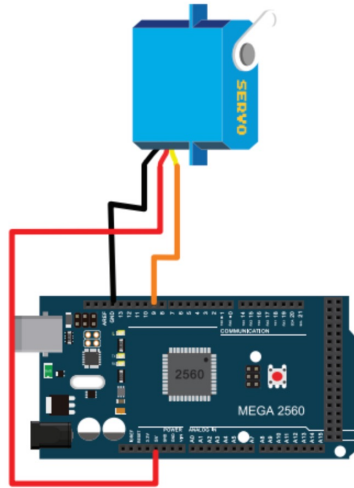
## CpE 4010 Lab 6

- Objective: To have the student experiment with an integrated potentiometer/9g servo motor/Serial Monitor display circuit wherein the potentiometer voltage represents our “sensed” input and the 9g Servo Motor position and Serial Monitor angle display our “actuated” outputs.
- Procedures will be highlighted in red boxes; some procedures require you to collect data for your report. Enter all required data in the appropriate field within the accompanying Datasheet. Also, be sure to enter your name at the top of the Datasheet

• Once you have completed all of the following procedures and filled in your Datasheet, upload your complete Datasheet to the “Lab 6” folder under “Assignments”

1) Browse to the following website and construct the “9g Servo Motor” circuit

[https://wiki.keyestudio.com/052043\\_Super\\_Learning\\_Kit\\_for\\_Arduino#Project 21: Servo Control](https://wiki.keyestudio.com/052043_Super_Learning_Kit_for_Arduino#Project_21:_Servo_Control)



- 2) Copy and paste the sample code into your IDE code window, then compile, upload, and run the program. Note: a comment in the source code states “convert number 0 to 9 to corresponding 0 – 180 degree angle...”. Therefore, you will need to open your Serial Monitor and send a number 0 to 9 to move the motor to the corresponding angle. We will be using “Method 1” and “Sample Code A” only.
- 3) **Send a number 0 to 9, take a screenshot of your Serial Monitor, and insert it into the associated section of your Datasheet.**

- 4) Modify your circuit by adding the potentiometer used in the previous lab. **Take a picture of the modified circuit and insert it into the associated section of your Datasheet.**
- 5) Modify your source code such that the position of the potentiometer determines the angle (0 to 180) of the servo motor arm. Also, on the Serial Monitor, print out the ADC output value of the potentiometer reading and the corresponding servo motor arm angle. **Take a screenshot of your Serial Monitor window showing various ADC output/servo arm angle values and insert it into the associated section of your Datasheet.**
- 6) **Take a screenshot of your IDE code window showing your modified source code and insert it into the associated section of your Datasheet.**
- 7) **Write a conclusion in the “Conclusions” section of the Datasheet explaining your observations and lessons learned.**