

CSCE 439/839: Robotics: Algorithms and Applications, Spring 2022

In-Class Lab 1

Friday, Jan 28

Instructions: Make sure to read the whole lab before starting. The checkoffs can be done step-by-step or all at the end.

By putting your name on this sheet, you agree to take care of your robot and other associated materials and return them at the end of the semester. If materials are not returned, you will receive an incomplete for the course.

Name of All Group Members:

Robot Number:

Problem 1. *Approximately how much time did the total assignment take? Which sub-problem took longest and how much time did it take? Are there any questions that need clarification?*

Problem 2. *Review the Balboa User Guide <https://www.pololu.com/docs/0J70>*

Problem 3. *Download the Balboa Arduino library as discussed in the user guide and program the standard balancer code onto the robot <https://github.com/pololu/balboa-32u4-arduino-library/tree/master/examples/Balancer>. Review this code and make sure you understand it. When first running this code, you should do so on the floor so that it doesn't drive off the desk.*

Problem 4. *Look at the `loop()` code and figure out how to make it drive around.*

Problem 5. *Modify the driving code to make it "write" CS once whenever one of the buttons of your choosing is pressed.*

Problem 6. *Modify the code on the Balboa so that it starts drawing CS when you send the string "CS" over the serial monitor. Have it also print out information over the serial monitor as it is drawing each individual character.*

Checkoff: Show the instructor each of the above functioning (you can do it all at once or incrementally). Is this controlled in a closed-loop or open-loop manner? Verbally describe your approach when you are getting your checkoff.