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|  | Rose-Hulman  Institute of Technology |

Memo

To: Dr. Carlotta Berry

From: Ander A Solorzano \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Ruffin White \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class: ECE425 – Mobile Robotics

Date:

Title: Lab05 – Wall Follower, PD Control

**PURPOSE**

The purpose of this lab is to use a type of locomotion called **homing** or **docking** with hybrid control to move the CEENBoT toward a light **beacon**. With a Beacon placed within our robot’s environment, our robot will search for and target the beacon

**PROCEDURES AND STRATEGY**

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**QUESTIONS**

1. What does the hybrid control architecture for your design look like? What was on the planning layer? Middle layer? Reactive layer?
2. What was your general strategy for planning the path back to the wall from the beacon?
3. How reliable was the photoresistor at detecting different objects at various shapes, sizes and distances. Compare and contrast sensor data.
4. How significant was the difference in photoresistor voltages for the left and right sides. How did you use this difference to extract directional information to move the robot toward the beacon?
5. How significant was the difference in sensor data based upon distance from the source? How did you use this difference to extract distance information to move the robot toward the beacon?
6. How did the architecture respond to differences in robot start position or beacon location?
7. How did the robot’s hybrid controller respond to dynamic changes in the environment (i.e. other robots and people) and compare this to purely deliberative control.
8. Were there any challenges in implementing the homing routine?
9. What could you do to improve the robot homing?
10. How did docking the robot modify the control architecture or algorithm?

**CONCLUSION**

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