Lesson Notes

Class Preparation

- Study.

Admin

- References: 1-side, 8.5x11", hand-written notes.
- Test will be administered via Canvas.
- Questions will be taken from textbook, lesson slides/notes, code examples.
- Look over lesson objectives.
- Assume questions are directed toward ROS, Linux,

Lesson Outline

1. WPR 2 Study Guide

Chapter 8

- What are the different types of sensors available for mobile robots?
- What are mechanisms to view sensor data?
- How to set up remote and robot computers (MASTER_URI).
- What are the different types of depth cameras and how do they acquire information?
- What is a Point Cloud?
- What are the principles of laser distance sensor (LDS) measurement?
- LDS use cases.

Chapter 9

- Different types of embedded boards.
- Characteristics of the OpenCR board.
- Rosserial protocol and theory of operation.

Chapter 10

- What is ssh? How is it used?
- What is tf? How is it used?
- What is Gazebo? Rviz?

Chapter 11

- What is pose?
- Explain SLAM.
- What is a Kalman Filter?
- What is a Particle Filter?
- Explain path planning and navigation?
- What is a costmap?
- What is an occupancy grid?

Chapter 12 (Gerkey text)

- Using OpenCV, describe a technique to follow a line.
- Why is HSV used rather than RGB in many CV applications?