CSCE 439/839: Robotics
Final Project Overview

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Started: Fri, Oct 30, 2015
Proposal Draft Due: Fri, Nov 13, 2015
Proposal Due: Tues, Nov 24, 2015
Presentation and Demos: Weds and Fri, Dec 9 and 11, 2015
Project Report Due: Fri, Dec 11, 2015

1 Overview

For the final project your group will decide what project you would like to do to extend the capabilities of your fanboat. The requirements for the project is that it has both a hardware (e.g. adding sensors, grippers, actuators, etc.) and an algorithmic component. You are welcome to team up with other groups to do a competition between groups, but each group must still have a hardware and algorithmic component.

Some possible ideas as we brain-stormed in class are (make sure to include hardware and algorithmic components):

- Water Polo (with or without water)
- Hungry Hippo (collect balls)
- Maze Race
- SLAM (visual or laser?)
- Waypoint Navigation
- Water Rescue (find, collect, rescue!)
- Battleship (launch balls into other boats or targets)

But, of course, there are many other options as well.

2 Proposal (15 pts.)

The proposal should be no more than 3 pages and should describe your proposed project. It should give an overview of:

- Motivation (required in draft)
- Hardware additions (required in draft)
- Algorithmic approach (required in draft)
- Cost and components needed (be specific)
- Timeline

Note that there is a draft due soon. This is so I can give you quick feedback on your idea. I've noted the sections above that are required in the draft. If you plan to do a competition, please also include a section describing the competition setup and any additional requirements (this can be done jointly with the other group(s)).

3 Video, Presentation, and Demo (40 pts.)

For this project you will create a short video and do a presentation. The video should be an approximately 60 second brief overview that focuses on the results (I will post these online). The presentation should be 20 minutes and discuss the details on the modifications you made to the fanboat, the algorithms you implemented, characterization of the system, and results. The presentations will take place the last week of class and you should also plan to demonstrate your project during the presentation. Depending on if groups decide to do a competition, we will hold the competition during one of the class periods, so plan accordingly.

4 Project Report (45 pts.)

The project report will vary based on what you decide to do with each project, but you should format it similarly to the lab reports you have done. It should describe your hardware addition, algorithm, experimental results characterizing individual components, and a detailed characterization of the overall system. In addition, it should be well written and have an introduction, conclusion, and logical flow between sections. If you have any questions regarding the expectations for the final project, please contact the instructor.