CSCE 439/839: Robotics
Final Project Overview

Instructor: Carrick Detweiler
carrick _at_ cse.unl.edu
University of Nebraska-Lincoln
Fall 2013

Started: Tues, Nov 4, 2013
Proposal Draft Due: Tues, Nov 12, 2013
Proposal Due: Tues, Nov 19, 2013
Pre-presentation: Tues, Dec 3, 2013
Presentation and Demos: Tues and Thurs, Dec 10 and 12, 2013
Project Report Due: Fri, Dec 13, 2013

1 Overview

For the final project your group will decide what project you would like to do to extend the capabilities of your hovercraft. 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.

2 Proposal and Pre-Presentation (20 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 very quick. 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)).

We will also have a pre-presentation of the project where you must give a status report of progress made so far. This will be a 5-10 minute presentation and demonstration given to the whole class. It should include an overview of your project and a presentation of your results so far. I expect that you will have a significant amount of your system implemented by this point.

3 Video Presentation and Demo (40 pts.)

For this project you will create two video presentations. The first should be an approximately 60 second brief overview that focuses on the results. The second should be a 7-10 minute video that gives an overview, with narration, of the project and should include details on the modifications you made to the hovercraft, the algorithms you implemented, characterization of the system, and results. I will post both of these videos online.

The last week of class we will show these videos and you will give a live demonstration of the system. 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 (40 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.