

91.550, Human-Robot Interaction
Fall 2007, Prof. Yanco

Project Description

Out: Thursday, 1 November 2007

<u>Due:</u> Thursday, 8 November	Project discussions
Thursday, 15 November	Project proposal (due via e-mail)
Thursday, 6 December	Mid-project check
Thursday, 20 December	Presentation and project report

For this project, you will do the following:

1. Specify an application or task that you will design an interface for and the robot that you will be “using.” (You don’t have to actually code for a real robot, but you do need to design for a robot that is currently in production.)
2. Conduct research into what others have done for designing HRI for the application/task that you have chosen. A 2-4 page write up on the prior research will be part of your final report.
3. Design a method of interaction for a robot. You may combine ideas from prior research, design your own interaction from scratch, or some combination of the two. Your interaction need not be limited screen-based interaction. You should also consider what input devices/methods that you wish to use.
4. Code up your interface (to the degree possible – while it will not connect to an actual robot on the back end, video streams and sensors can be simulated).
5. Design user testing for your interface. To satisfy this portion of the project, you will write an IRB application for your testing.

Note that this project is meant to be a significant amount of work and is assigned over two months of class. You should be working on the project regularly throughout the project period.

There will be several steps in the project process, described below.

Project Discussions: To facilitate your project planning, each of you will meet with me individually towards the end of class on Thursday, 8 November. In this session, we’ll discuss your ideas for the project and I’ll help you to formulate your project plan.

Project Proposal: Your project proposal will be a 2-3 page description of your project and your approach. You should give a schedule for your progress, which should include

the mid-project checkpoint goals. The proposal must specify the task(s) your robot is being designed for and the real-world robot that you're envisioning your interface would connect to. The proposal is due on Thursday, 15 November. Since there is no class on this date, you will e-mail your proposal to me.

Mid-Project Check: Towards the end of class, I will meet with each of you to discuss the current state of your project on Thursday, 6 December. At this time, you will turn in a short description (1-3 pages) of the current state of development. At this meeting, you should show me the current state of your GUI implementation.

Presentation: Your 15 minute talk should give a brief description of what application/task you were designing for, your design and your testing plan. I would also recommend giving a brief overview of the related research that you had read and summarized for your final report.

Project Report: The project report will summarize your work, starting from your selected application/task and robot (1-2 pages). It should also cover a review of related research (2-4 pages). You should then discuss your interface design and implementation (3-5 pages). Finally, present your testing plans (1-2 pages, plus the attached IRB application).

Grading: Your grade for the project will be computed as follows:

- 20% for proposal
- 20% for mid-project check
- 30% for presentation
- 30% for project report