

Reserving robot time

Just a reminder about the current rules for reserving robot time on the yahoo calendar (username: `irarpi2006`, password: see the hardcopy of this handout or look on webct for the password if you've forgotten it).

The current rules are:

- You can only reserve 2 hours in a 48 hour period.
- You can use any unreserved time.
- If you have been using the robot for more than 3 hours, you must yield to another group that comes in and wants to use unreserved time.

Again, I don't particularly care what the rules are myself — just as long as all the groups have fair access to the robot. If these rules aren't working out for some reason, let me know. Hopefully everyone will be a reasonable person about all this. Again, let me know if there are any problems.

Robot Charging

We may change the charging rules for the last few days of the final project. In the past, the batteries have been completely drained, and this is bad for the batteries. See the clipboard for the current rules.

In the last few days of the final project, I'll encourage you to plug the robot into the charger when you're not actively using it. This will preserve the charge in the batteries, and because these are lead-acid batteries, there is no problem with a "memory effect."

Demonstrations

You must demonstrate your final project on the robot. While having something that works in simulation is better than having nothing, it's not worth nearly as much as something working on a real robot.

In the demonstration, you will of course show the robot performing whatever task you have been working on. I would like to see your code running on more than one "input," i.e. on different obstacle configurations, different start/goal configurations, or whatever makes sense for your project. Ideally, I would be able to specify what is changed (rather than you having two preconfigured demos).

Plan on an hour for the demonstration, though it should not take that long once you are ready to go. You will need to reserve an hour on the yahoo calendar. (This hour does not count towards your reserved time limit.)

Here are times that I am available for final project demonstrations, along with instructions on how to reserve a demonstration time.

- Monday May 8, from 8am until 6pm — I have blocked off this time in the yahoo calendar in one hour "demo slots." Pick a time and edit the event to add your names. You do not need to notify me.
- Wednesday May 3, from 10-11am, 12pm-4pm — If you want to demonstrate during this time, go ahead and reserve a one hour time on the yahoo calendar and then *send me an email* to let me know that you've signed up.
- Thursday May 4 — I may have some time available before 2pm. Send me an email if you are interested in demonstrating during this time.
- Sunday May 7 — I may have some time available in the early afternoon. Send me an email by Friday night if you are interested in demonstrating during this time.

Code

Turn in a zip file or a tarball of your code. Source code only (no executable or object files.) Email it to `whuang@cs.rpi.edu` with subject "IRA final project code".

Written project report

Deadline & turn-in

The report (hardcopy) is due on Monday May 8, but you can turn it in until, let's say 6am on Tuesday May 9. I expect to come in that morning, (probably not at 6am, but who knows?) pick up the papers, and then leave to go grade them.

You can turn in your report in the following ways:

- to my office (MRC 331A) — either to me or by sliding it under the door
- to Kris — if he is around
- to the CS main office (only open during business hours, 9-5) — tell them to put it in my mailbox.
- if none of the above work, you can slide it under the door of MRC 331 from the hallway.

Length

Your written report may be a maximum of 10 pages (single sided, single spaced, with reasonable (> 1 inch) margins and not smaller than 10 point font for the body). This includes any figures, tables, references, etc. You can print double sided if you want, but that doesn't give you twice the allowable length. I would expect most written reports to be at least five pages. I encourage you to be concise, but make sure you cover everything that you need to.

Content

Your report should cover the following:

- Introduction and problem statement — pretend that you are writing this for an undergraduate who has already taken this course, i.e. a reader who is familiar with robotics but who doesn't know what you are doing for your project. This means that you don't need to explain, e.g., what a topological map is, but you do need to start from the beginning in terms of what you are doing.
- Describe the technical approach to solve the problem — what techniques you used, how you applied those techniques to your problem, any modifications to these standard techniques you had to make, and any pertinent implementation details.
Be detailed enough to be technically precise (e.g. exactly how did you do what you did), but not so detailed as to include the mundane (e.g., don't give me a line-by-line description of your code).
- Describe your results — explain how well it worked (give details), how you tested/evaluated your implementation, and provide some analysis/critique. Where appropriate, quantitative measures are good.
- Conclusions — how well did your approach work? how would you do things differently if you were to do this project again?
- References — cite appropriate sources you used in your project. (For example, some of you have located research papers in robotics conferences/journals that you are using. You do not need to cite my course notes.)

Suggestions

- Don't give me a blog, i.e., don't give me a step by step account of your project: "first we wrote some code to do this and then we compiled it and tested it on the robot and then we wrote some more code..."
- Feel free to describe things that you attempted but did not end up using in the final version of your code.