Final project topic proposal

In lieu of a final exam, we will have a final project. The final project topic is open-ended, but it must strongly relate to robotics, and it must involve a substantial programming effort. Here are a few ideas:

- Localize your Turtlebot on a 2D map of the maze with a particle filter.
- Automatically map a maze with a Turtlebot.
- Find an interesting ROS/Turtlebot tutorial online and extend it to do something of your choosing.
- Tune your maze-running performance from Project 4 to get the robot to run as close to its maximum speed as possible.
- Extend the color-seeking behavior from Project 1 to do something new and interesting.
- Make a numerical simulation of a Kalman Filter or an Extended Kalman Filter for a non-trivial problem (we haven’t covered these in class yet, but you can Google them).
- Make a numerical simulation of a discrete-time PD controller to investigate how low control update rates affect stability.

Along with your partner, write a 1-paragraph final project topic proposal and turn it in at the start of class on 11/17. Make sure it clearly specifies what the programming tasks are.

I’m open-minded about topics, but I will want to make sure that no groups end up with projects that are too easy or too hard, so there might be some give-and-take after you turn in your topic proposal.

Each group will give a brief presentation of their project during our scheduled final exam slot on 12/15 from 9AM-12PM.