Redefining a web application for the Robotics Foundations course

Han Meng Loo

2288527l

Proposal

Motivation

Students of the Robotics Foundation (H) course range from year 3 to masters students. To work on the lab exercises, one must have ROS (Robot Operating System) installed on their machine. ROS provides libraries and tools to help create and visualise robot applications. Some students are unfamiliar with the linux operating environment, which is required to ROS installation.

Aims

This projects aims to provide robotic foundation students a platform to conduct the assigned lab exercises without the need to meet various systems and software requirements. This web app will allow students to log in, work on lab exercises and receive feedback.

Progress

• *Identified project requirements such as user stories, system architecture and wireframes.*

• *Language and framework chosen: project will be implemented in python and using the Django and Theia framework.*

• *Background research conducted on deciding between Theia and JupyterLab.*

• *Basic django web app is up, but yet to integrate Theia with it (not sure how yet)*

• *Source control and manual VNC connection is working on the Theia browser app, users able to interact with rviz on Theia*

Problems and risks

Problems

• *Small userbase and community*

• *Only 1 documentation site*

• *Jupyter notebook run cell feature does not work, it is an ongoing Theia issue*

Risk

• *Jupyter notebook run cell feature does not work* **Mitigation:** will look into other ways to implement jupyter notebook into Theia as switching back to Jupyerlab would be too late into the L4 project

Plan

Semester 2

• *Week 1-2: have the web app up and running*

– Deliverable: a fully working web application with all features outlined in the user stories and wireframes

• Week 3-5: received feedback and work on improvements

– Deliverable: an improved version of the web app taking account of the feedback received in week 1-2

• Week 6: research on how to best evaluate the performance of the web app. Could also reuse evaluation performance conducted by the previous student

– Deliverable: detailed evaluation plan, with participant numbers, information sheet and analysis plan.

• Week 7-9: final implementation and improvements to the web app

– Deliverable: polished web app ready, passing basic tests, ready for evaluation stage.

• Week 9: evaluation experiments run.

– Deliverable: quantitative measures of usability and qualitative measures of effectiveness for at least ten users.

• Week 8-10: Write up.

– Deliverable: first draft submitted to supervisor two weeks before final deadline