EE346 - Mobile Robot Navigation and Control

Fall 2023
Laboratory #1 (3%)
Due Date: September 20
Getting Up to Speed with Linux and Python

Objectives

- Become familiar with the Linux operating system and Ubuntu in particular.
- Become familiar with the Python programming language.
- Install ROS on a Ubuntu laptop.

Procedure

The instruction of this course depends heavily on online materials. One such important material is the Wiki page: wiki.ros.org. In this lab, you will begin to become familiar with the structure of the Wiki page and some of the introductory sections on ROS installation and operation. To start, you will go through a couple of tutorial videos on Linux and Python, the OS and the programming language that ROS uses.

Part I: Linux Basics (Week 1)

If you are not familiar with Linux/Ubuntu, you will need to learn its basics, such as file structure and commands. Please spend time on your own to become familiar with it. One Linux tutorial is at: http://www.ee.surrey.ac.uk/Teaching/Unix/. Alternatively, watch the video at

https://www.freecodecamp.org/news/learn-the-basics-of-the-linux-operating-system/

Once you feel comfortable with Linux, take the two quizzes at

https://www.proprofs.com/quiz-school/story.php?title=commands-linux
https://tuxthink.blogspot.com/2012/06/linux-basics-commands-quiz.html

and ask a TA to check your Linux knowledge.

Part II: Python Basics (Week 1 or 2)

Python is the programming language we will use in this course, to develop ROS programs that control your robot. Watch the video at the link below to become familiar with Python.

https://www.freecodecamp.org/news/free-python-crash-course/

Once you feel comfortable with Python, take the two quizzes at

https://pynative.com/basic-python-quiz-for-beginners/
https://www.w3schools.com/quiztest/quiztest.asp?qtest=PYTHON

and ask a TA to check your Python knowledge.

Part III: Installing ROS (Melodic) on the team Ubuntu (Week 2)

Visit http://wiki.ros.org, and find the page ROS Tutorials. Install ROS on your Ubuntu computer by following the instructions in the first two steps: 1.1 Beginner Level: "1. *Installing and Configuring Your ROS Environment*" and 2. "*Navigating the ROS Filesystem*".

Marking

If you are able to complete the lab before the end of the second week, you will receive:

Part I: 1% (individual demonstration)
Part II: 1% (individual demonstration)
Part III: 1% (group demonstration)

If you are not able to complete any parts of the demo within the lecture session, you will get a 20% penalty of the part weight, and an additional 20% for each day of delayed demo (checking by a TA).