Section 4: ROS Parameters and Heading Controller Gain Tuning
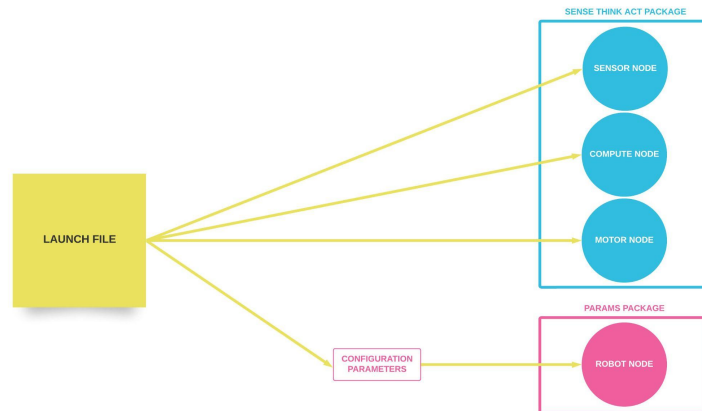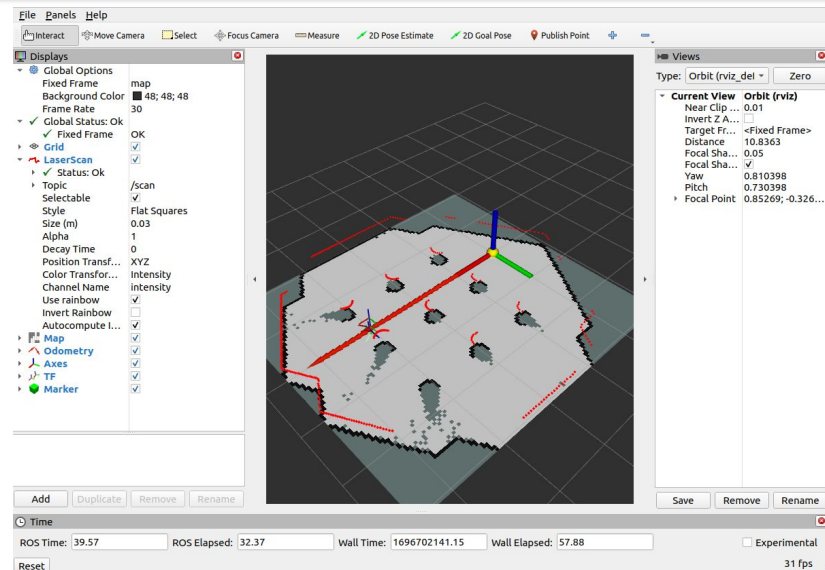
AA274A - Principles of Robot Autonomy I

Week 4 – Autumn 2023

Stanford University

Recap

- RViz: 3D visualization tool that visualizes information which otherwise would not even be parsable.

- Launch files: Simplifies the running of complex systems with many nodes and specific configuration details.

Today

- Learn how to use ROS Parameters.

- Apply heading controller on the actual robot!

ROS Parameters

- Can think of it as node settings.

- Used to configure nodes at startup and runtime without changing the code.

- Can be stored as integers, floats, booleans, strings, and lists.

- Consists of a key, a value, and a descriptor.

- Can be set through the command line or a YAML file and accessed by a node.
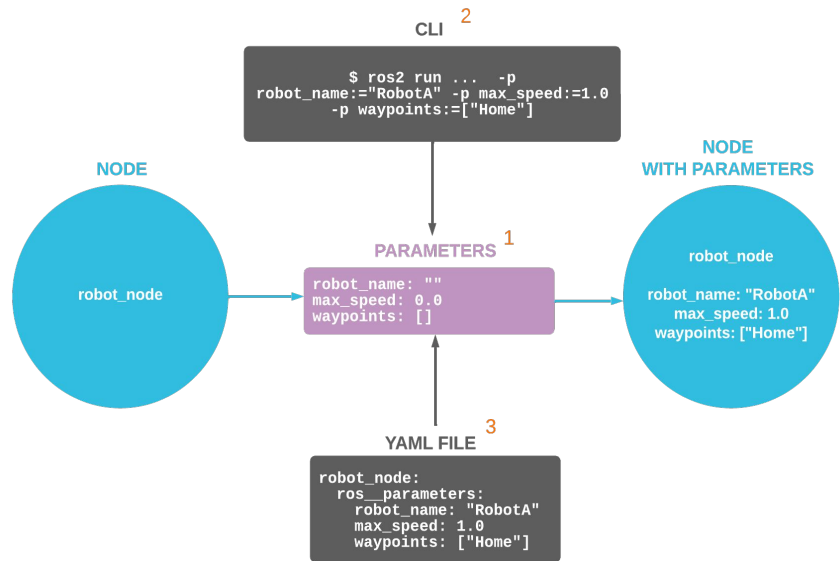
Heading Controller Gain Tuning

- We implemented a proportional controller in HW1.

- The controller minimized the error between the current heading of the turtlebot and a desired goal heading in simulation.

- We will be running that code on a physical robot.