Meeting 2

SLAM applications with Turtlebot

- Application in a factory envirement could be monitoring locations of material, tools, and vehicles
- Turtlebots using SLAM can include infared readings which can map hot spots and heat disapation coming from a machine/room
- SLAM can optimize paths the turtlebot would take as well as increase the accuracy of its movements

Using SLAM can increase the speed and saftey of the Turtlebot. Cliff sensors don'tneed to be active if turtlebot already knows the surrounding whcih can allow it to move at 0.46 m/s

more SLAM application

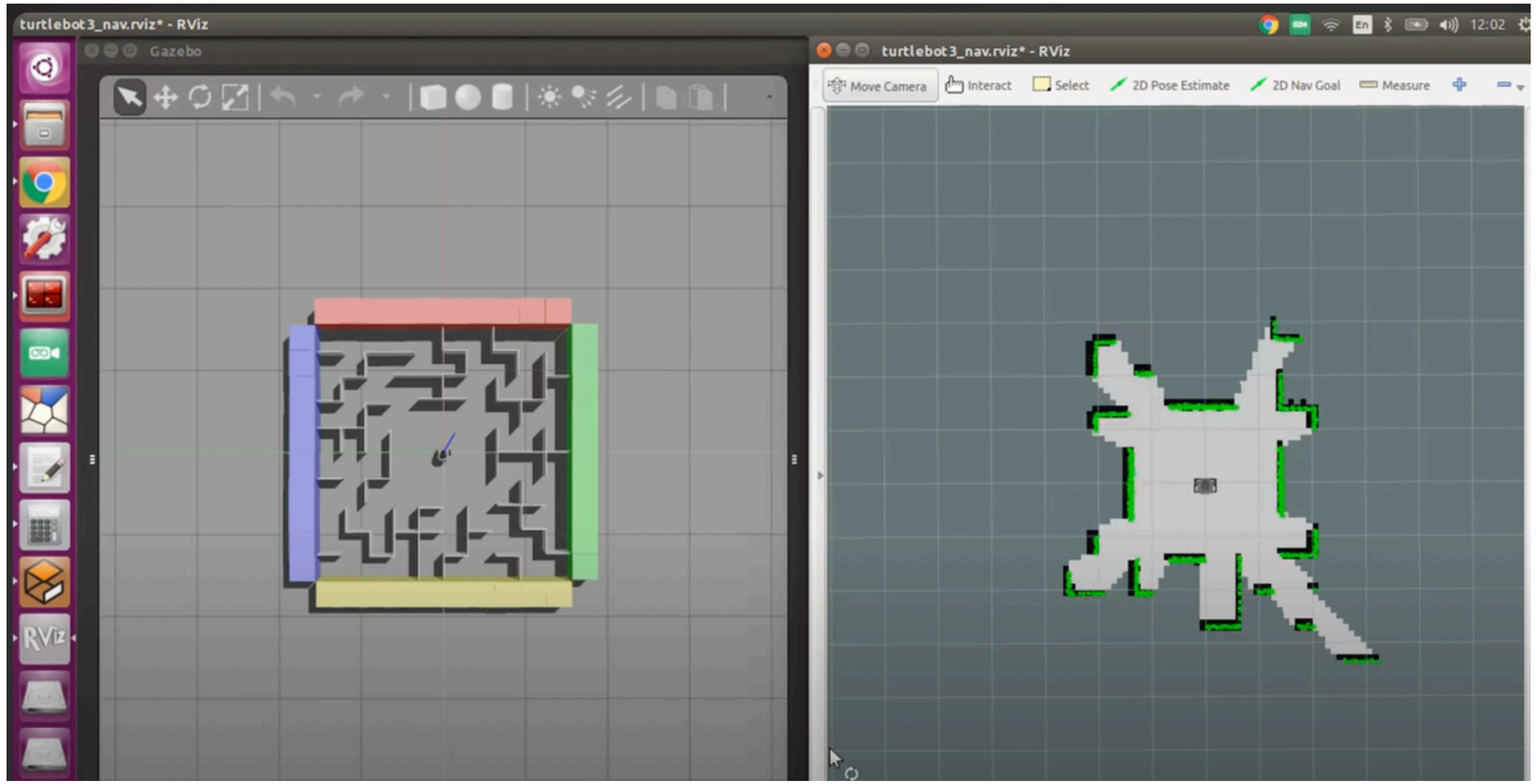
Article

This study addresses the challenges of robotic localization and navigation in visually degraded environments, such as low illumination and adverse weather conditions, by proposing a novel thermal infrared visual SLAM (Simultaneous Localization and Mapping) algorithm.

Idea for a demonstration using SLAM

Create a SLAM Maze Cracker

- Turtlebot maze solver that senses environment through laser scans and navigates

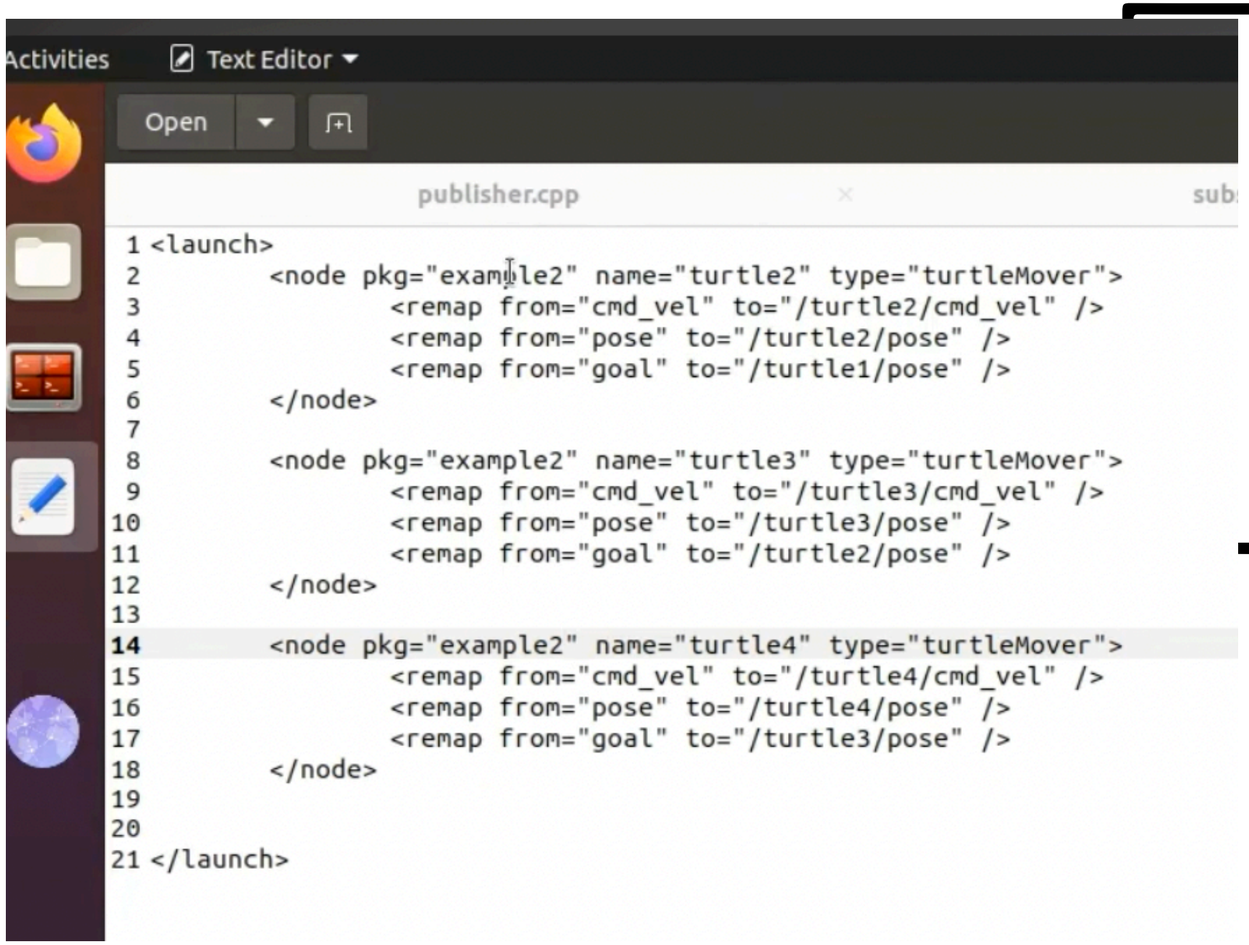


Github

Communication with multiple Turtlebots

- ROS 2 allows an unlimited amount of turtlebots to connect to eachother and 1 controlling PC (in practice the more there are the slower the system is till eventually stops)

Video demonstrating how to connect multiple turtlebots



Communication with multiple Turtlebots

- Multiple turtlebots can add to the SLAM map and use it together
- They can connect using the same wifi network or wired LAN
- Turtlebots can share information like maps, tasks, or positions for collaborative navigation or exploration