How to log waypoints in VRX

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1 Introduction

This short tutorial will require VRX and all its dependencies, the `my_velocity_to_pwm` and `teleop_cpp_ros2` packages, the `gps_waypoint_logger` package, and the `controller.py` script. If you have any missing required packages consult ChatGPT.

2 Code

2.1 VRX Setup

Run the VRX simulation; this may differ depending on your file structure.

```
# Source and build the workspace
cd Documents/GitHub/vrx_ws
source install/setup.bash
colcon build --merge-install
#Launch vrx simulation
ros2 launch vrx_gz competition.launch.py
```

Listing 1: Run the VRX simulation

2.2 Manual Control Setup

Open a new terminal in the same workspace using the + sign on the top left of the terminal. Then run the velocity to pwm node.

```
source install/setup.bash
ros2 run my_velocity_to_pwm velocity_to_pwm_node
```

Open another new terminal in the same workspace and run the teleop script.

```
source install/setup.bash
ros2 run teleop_twist_keyboard teleop_twist_keyboard
```

In the teleop window you should be able to control the boat using the `U I O J K L M < >` keys.

2.3 Waypoint logger setup

Open a new terminal in the same workspace and start the waypoint logger.

```
source install/setup.bash
ros2 run gps_waypoint_logger gps_waypoint_logger
```

This will open the waypoint logger. Once you have logged some waypoints you need to publish them to ros, it is very important that you do not do this step until you have finished logging waypoints in the previous step.

Open a new terminal in the same workspace.

```
source install/setup.bash
# Rebuild the workspace again with the new waypoints
colcon build --merge-install
ros2 run gps_waypoint_logger waypoints_publisher
```

Your ros should now be ready for use with the `controller.py` script. Whenever you wish to relog new waypoints ctrl+c the waypoint logger and rerun it, then once you have logged the waypoints-rebuild the workspace then run the waypoint publisher