NPS ROS Center
NPS Robot Operating Systems (ROS)

General notes

- For third party stack installations, remember to update the `ROS_PACKAGE_PATH` environment variable to include the path to the new stack.

Peripherals installation

**Linux joystick (joy)**

- `ros-<distribution>-joystick-drivers`

**Nintendo Wiimote (wiimote_node)**

Pioneer P3-DX (Mobile Robots)

Installation

- Follow instructions [here](link)
- Install `ros-<distribution>-joystick-drivers` prior to installing `p2os` to ensure joystick options is enabled
- Need to change default serial port in `robot_params.h` and probably want to increase maximum speed

Quickstart

1. Open NEW Terminal
   a. Start up the Master node by typing: `$ roscore`
2. In NEW terminal window:
   a. Start up the `p2os_dashboard` (which has the software motor enable switch)
   b. Enter into the command line: `$ rosrun p2os_dashboard p2os_dashboard`
3. In NEW terminal window:
   a. Start up the `p2os` driver (which contains the main interface software)
   b. In `p2os/p2os_launch/`, type: `$ roslaunch p2os_driver.launch`
4. In NEW terminal window:
   a. Start up the tele-operation node
   b. In `p2os/p2os_launch/`, type: `$ roslaunch teleop_keyboard.launch`
5. You should now be able to use keyboard inputs to move the robot

**Hokuyo URG laser line scanner**

- ROS reference for using the Hokuyo node

Quick start

1. Plug in the USB cable and make sure the Hokuyo unit is attached to power (5V)
2. Follow the instructions on the ROS site (link above) to ensure USB port is read/writable
3. Start up `roscore`
4. Start the hokuyo node, either by
   - Launch file: in `p2os/p2os_launch:` `$ roslaunch hokuyo.launch`
   - By running the node directly: `$ rosrun hokuyo_node hokuyo_node`
5. You can visualize the output by using `rviz`
   a. Type: `$ rosrun rviz rviz -d `rospack find hokuyo_node`/hokuyo_test.vcg`

**Nintendo Wii Remote**

- ROS reference for installing the wiimote package
- ROS reference for using the wiimote node
- ROS reference for using the wiimote node to control a (simulated) turtle (you probably want this)

Quick start

1. After successful installation (per notes above), start the Master node
   a. Type: `$ roscore`
2. Start the wiimote node
a. Type: `$rosrun wiimote wiimote_node.py`

3. To run the simulated turtle to drive with the wiimote
   a. In `learning_wiimote/`, type: `$ roslaunch learning_wiimote turtle_wii.launch`

Hummingbird and Pelican quadrotors (Ascending Technologies)
Argonaut UAVs