

## UAS Research LIDAR Setup

### Needed Tools:

- Hokuyo URG-04LX-UG01
- Mini USB
- An onboard computer (preferably an Intel Nuc)

### Needed Software/ Operating Systems:

- Ubuntu 14.04
- ROS Indigo

### Prerequisite Instructions:

- Ubuntu Setup

### ROS Installation:

Be sure to be on your Ubuntu 14.04 operating system.

Follow these commands in the [Ubuntu install of ROS Indigo](#)

Once you finish the above tutorial type in an Ubuntu terminal “roscore”. If “roscore” runs then you have successfully installed ROS Indigo.

### LIDAR Installation:

(One time)

First install the packages for the Hokuyo\_Node by running the command below. This node will allow the LIDAR to stream data into the connected computer.

```
sudo apt-get install ros-indigo-hokuyo-node
```

List the permissions of the LIDAR.

```
ls -l /dev/ttyACM0
```

If you see “crw-rq-XX- 1 root ...” then the LIDAR is not configured yet due to the “XX”.  
Run the command.

```
sudo chmod a+rw /dev/ttyACM0
```

### Running the LIDAR:

You will need three different terminals open to run the Hokuyo\_Node.

The first node will need to be running roscore. To do this you need to type  
“roscore”

in your terminal.

In a new terminal be sure to go into the catkin\_ws folder that is located in your initial folder location. You can do this by typing “cd catkin\_ws”. Now that you are in the catkin\_ws you can specify where

the hokuyo\_node port is. First run,

```
“source devel/setup.bash”
```

to allow future commands to be run. To set the port location of the hokuyo\_node for this current terminal run the command

```
“rosparam set hokuyo_node/port /dev/ttyACM0”
```

this will set the desired port of the LIDAR to the right port location.

Now run,

```
“roslaunch hokuyo_node hokuyo_node”
```

you should see a few lines of code finished by “streaming data”. That means the LIDAR is currently streaming the data into the current terminal.

It is now possible to visualize the data by running

```
“roslaunch rviz rviz”
```

In Rviz locate the Fixed Frame segment. Input “/laser” into this area. After click “Add” and add the scan command under the “By topic” tab. You should now see a series of dots on the grid. These dots represents points that were returned back to the drone after reflecting of an object.

You can continue on to installing/ running the specific on-board algorithms in the dji\_sdk\_demo dji\_client.cpp. Look at \_\_\_\_\_ (vince's installation to continue).