

# ROS Tutorial For The Crane Control

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# How to use the game controller

# How to use the game controller 1/3

## **Preparing the connection**

1. Complete steps 1/4~3/4 of the “How to connect with the ROS ” according to the “Guide For The External Control”.
2. Configure the ROS master with the following command
  - export ROS\_MASTER\_URI=http://192.168.137.2:11311
  - export ROS\_IP=192.168.137.1

Note: “ROS\_IP” should be changed to the IP address of the ethernet adapter of your environment.

3. Press the PS button (It is located in the center) to turn on the controller. Its indicator turns blue when it can connect to the embedded PC via Bluetooth.

# How to use the game controller 2/3

## Preparing the connection

1. Run the ROS nodes with following commands.
  - `roslaunch crane_utility ps4controller_sample`
2. Control the gantry with the game controller. Refer to the following figure for the function of each buttons.



# How to use the game controller 3/3

## **Shutdown**

1. Stop the ROS node with Ctrl+C.
2. Press and hold the PS button to turn on the controller. Its indicator turns off when it's turned off.
3. Connect the charging cable of the top of console to the controller.

# How to use the Lidar camera

# How to use the Lidar camera 1/3

## Preparing the connection

1. Connect your laptop to the Jetson xavier NX via VNC. Refer to other manual for VNC installation.  
Use the following IP address, User name and Password.  
IP address: 192.168.137.12  
User name: jetson  
Password: nvidia
2. Run the following command on the terminal.  
- `realsense-viewer`
3. Click the “Add source” on the RealSense Viewer and add another camera. There are two available camera on the base of the winchbot.
4. Turn on the RGB camera switch on the left window. Check the receiving camera frames.

Note: If you see message of the “No Frames Received!”, need to reset the camera.  
Click “More” button on the left window, and reset the source.



# How to use the Lidar camera 2/3

## Run ROS nodes

1. Check camera serial numbers on the left window of the RealSense viewer. They are required for an identification on the ROS.
2. Launch a ROS node with following command on the terminal. The ROS core is automatically launched.
  - `roslaunch realsense2_camera rs_camera.launch camera:=cam_1 serial_no:=f0233197 align_depth:=true filters:=pointcloud`
  - `roslaunch realsense2_camera rs_camera.launch camera:=cam_2 serial_no:=f0172424 align_depth:=true filters:=pointcloud`

Note: Specify the camera name with “camera:=” and the camera number with “serial\_no:=”.

3. Launch the Rviz on the Jetson or your laptop (required installed ROS).
  - `rviz`

Note: If you use your laptop, will need the following command.

- `export ROS_MASTER_URI=http://192.168.137.2:11311`
- `export ROS_IP=192.168.137.1`

# How to use the Lidar camera 3/3

## **Check and see ROS messages**

1. Change the Fixed Frame to “camera\_aligned\_depth\_to\_color\_frame” on the left window on the Rviz.
2. Click “Add” button and select “By topic” tab. And then select the following message.
  - /depth/color/points/PointCloud2

Note: If you are looking at it on your laptop, the data may not be displayed correctly. That's because PointCloud data requires a very large amount of data transfer. Gigabit Ethernet can't meet that.

## **Shutdown**

1. Stop the ROS node on the Jetson with Ctrl+C.

Note: If you want more information for Lidar camera with ROS, see the following web link.

<https://dev.intelrealsense.com/docs/ros-wrapper>