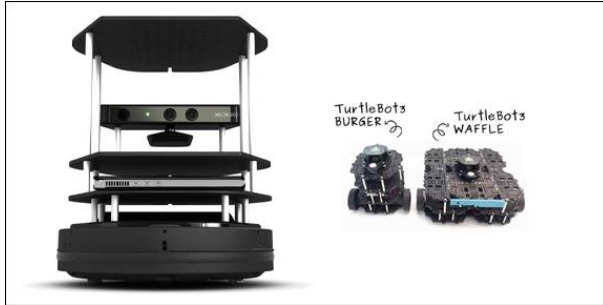


## 09/22/2020 TurtleBot Gazebo Chapter 3

### I. Talk about Turtlebot Page 78-79 (The components – base, netbook, sensors)



### II. Loading Gazebo Pages 80-82

`$ roslaunch turtlebot_gazebo turtlebot_world.launch` (Pg 81 in book See the picture)

### III. Explore the Turtlebot Package and files

`$ roscd turtlebot`

harman@D104-45931:/opt/ros/kinetic/share/turtlebot\$

`$ harman@D104-45931:/opt/ros/kinetic/share/turtlebot$ ls`  
package.xml

`$ harman@D104-45931:/opt/ros/kinetic/share/turtlebot$ gedit package.xml`

```
<package>
  <name>turtlebot</name>
  <version>2.4.2</version>
  <description>
    The turtlebot meta package provides all the basic drivers for running and using a TurtleBot.
  </description>
  <author>Tully Foote</author>
  <author>Michael Ferguson</author>
  <author>Melonee Wise</author>
  <maintainer email="stonier@rnd.yujinrobot.com">Daniel Stonier</maintainer>
  <maintainer email="tfoote@osrfoundation.org">Tully Foote</maintainer>
  <maintainer email="mferguson@willowgarage.com">Michael Ferguson</maintainer>
  <maintainer email="mwise@willowgarage.com">Melonee Wise</maintainer>
  <license>BSD</license>
  <url type="website">http://ros.org/wiki/turtlebot</url>
  <url type="repository">https://github.com/turtlebot/turtlebot</url>
  <url type="bugtracker">https://github.com/turtlebot/turtlebot/issues</url>
  <buildtool_depend>catkin</buildtool_depend>
  <run_depend>turtlebot_bringup</run_depend>
  <run_depend>turtlebot_capabilities</run_depend>
  <run_depend>turtlebot_description</run_depend>
  <run_depend>turtlebot_teleop</run_depend>
  <export>
    <metapackage/>
  </export>
</package>
```

```
$ cd .. (Explore /share)
harman@D104-45931:/opt/ros/kinetic/share$
```

```
harman@D104-45931:/opt/ros/kinetic/share$ ls | grep turtlebot (Directories)
turtlebot turtlebot_actions turtlebot_apps turtlebot_bringup
turtlebot_calibration turtlebot_capabilities turtlebot_create
turtlebot_dashboard turtlebot_description turtlebot_follower
turtlebot_gazebo turtlebot_interactions turtlebot_interactive_markers
turtlebot_msgs turtlebot_navigation turtlebot_rapps
turtlebot_rviz_launchers turtlebot_simulator turtlebot_stage
turtlebot_stdrr turtlebot_teleop
```

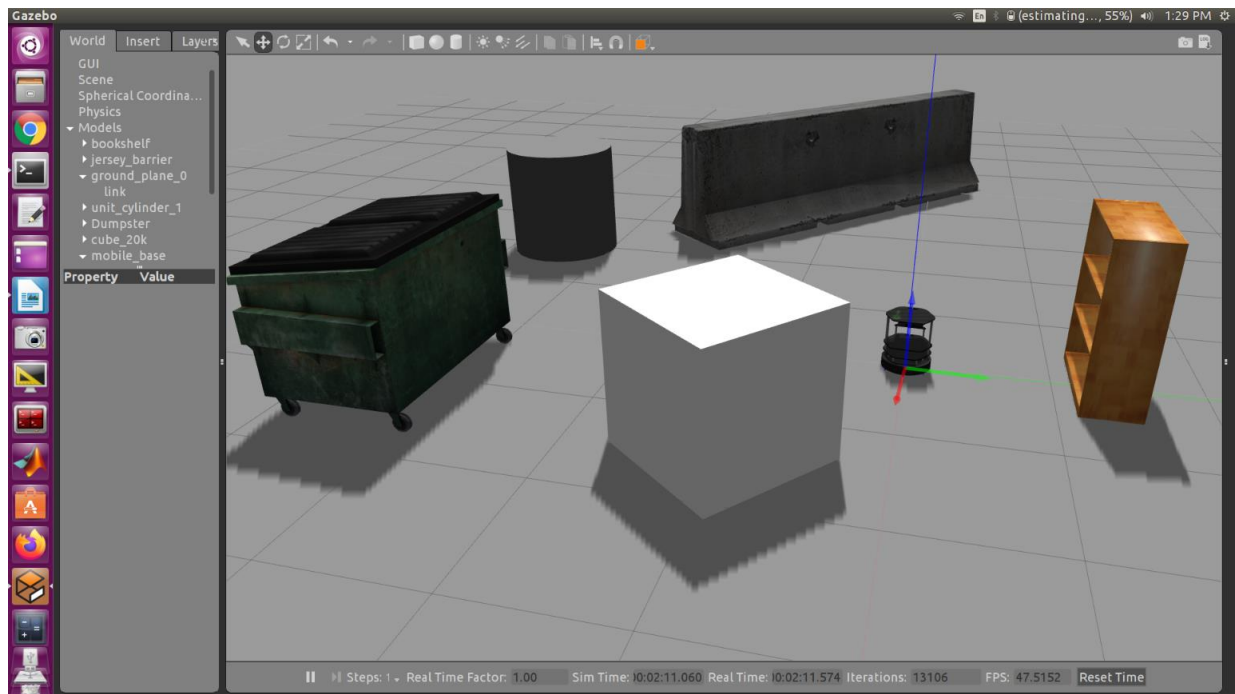
```
$ harman@D104-45931:/opt/ros/kinetic/share/turtlebot_gazebo$ ls
harman@D104-45931:/opt/ros/kinetic/share/turtlebot_gazebo$ ls
cmake launch maps package.xml worlds
```

```
$ harman@D104-45931:/opt/ros/kinetic/share/turtlebot_gazebo$ cd ~ (Go Home)
```

```
$ harman@D104-45931:~$ env | grep ROS
ROS_MASTER_URI=http://localhost:11311 (The Laptop is Master)
```

#### IV. Check out Gazebo

```
$ roslaunch turtlebot_gazebo turtlebot_world.launch (Pg 81 in book See the picture)
```



## From Run of Turtlebot - Gazebo

```
.....
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.
.
xacro: Traditional processing is deprecated. Switch to --inorder processing!
To check for compatibility of your document, use option --check-order.
For more infos, see http://wiki.ros.org/xacro#Processing\_Order
xacro.py is deprecated; please use xacro instead
started roslaunch server http://D104-45931:39267/
```

## SUMMARY

=====

### PARAMETERS

- \* /bumper2pointcloud/pointcloud\_radius: 0.24
- \* **/cmd\_vel\_mux/yaml\_cfg\_file: /opt/ros/kinetic/...**
- \* /depthimage\_to\_laserscan/output\_frame\_id: /camera\_depth\_frame
- \* /depthimage\_to\_laserscan/range\_min: 0.45
- \* /depthimage\_to\_laserscan/scan\_height: 10
- \* /robot\_description: <?xml version="1....
- \* /robot\_state\_publisher/publish\_frequency: 30.0
- \* /roscdistro: kinetic
- \* /rosversion: 1.12.14
- \* /use\_sim\_time: True

### NODES

```
/
 bumper2pointcloud (nodelet/nodelet)
 cmd_vel_mux (nodelet/nodelet)
 depthimage_to_laserscan (nodelet/nodelet)
 gazebo (gazebo_ros/gzserver)
 gazebo_gui (gazebo_ros/gzclient)
 laserscan_nodelet_manager (nodelet/nodelet)
 mobile_base_nodelet_manager (nodelet/nodelet)
 robot_state_publisher (robot_state_publisher/robot_state_publisher)
 spawn_turtlebot_model (gazebo_ros/spawn_model)
```

NOTE: There are turtlebot (16) and kobuki (The base - 15) packages  
use \$ rospack list | grep (turtlebot or kobuki)

```
harman@D104-45931:~$ rostopic list
```

```
/bumper2pointcloud
/cmd_vel_mux
/depthimage_to_laserscan
/gazebo
/gazebo_gui
/laserscan_nodelet_manager
/mobile_base_nodelet_manager
/robot_state_publisher
```

/rosout

**\$ rostopic list** (Gives about 50 topics)

.....

/camera/depth/image\_raw (For Chapter 4)

/camera/rgb/image\_raw

.

**/cmd\_vel\_mux/active**

/cmd\_vel\_mux/input/navi

.

/gazebo/link\_states

**/gazebo/model\_states**

/gazebo/parameter\_descriptions

/gazebo/parameter\_updates

/gazebo/set\_link\_state

/gazebo/set\_model\_state

/gazebo\_gui/parameter\_descriptions

**\$ rostopic echo /gazebo\_gui/parameter\_descriptions**

(name: "time\_step" value: 0.001; (A few examples

name: "gravity\_z" value: -9.8

/gazebo\_gui/parameter\_updates

**/joint\_states**

/laserscan\_nodelet\_manager/bond

/mobile\_base/commands/motor\_power

**/mobile\_base/commands/reset\_odometry**

**/mobile\_base/commands/velocity**

/mobile\_base/events/bumper

/mobile\_base/events/cliff

/mobile\_base/sensors/bumper\_pointcloud

/mobile\_base/sensors/core

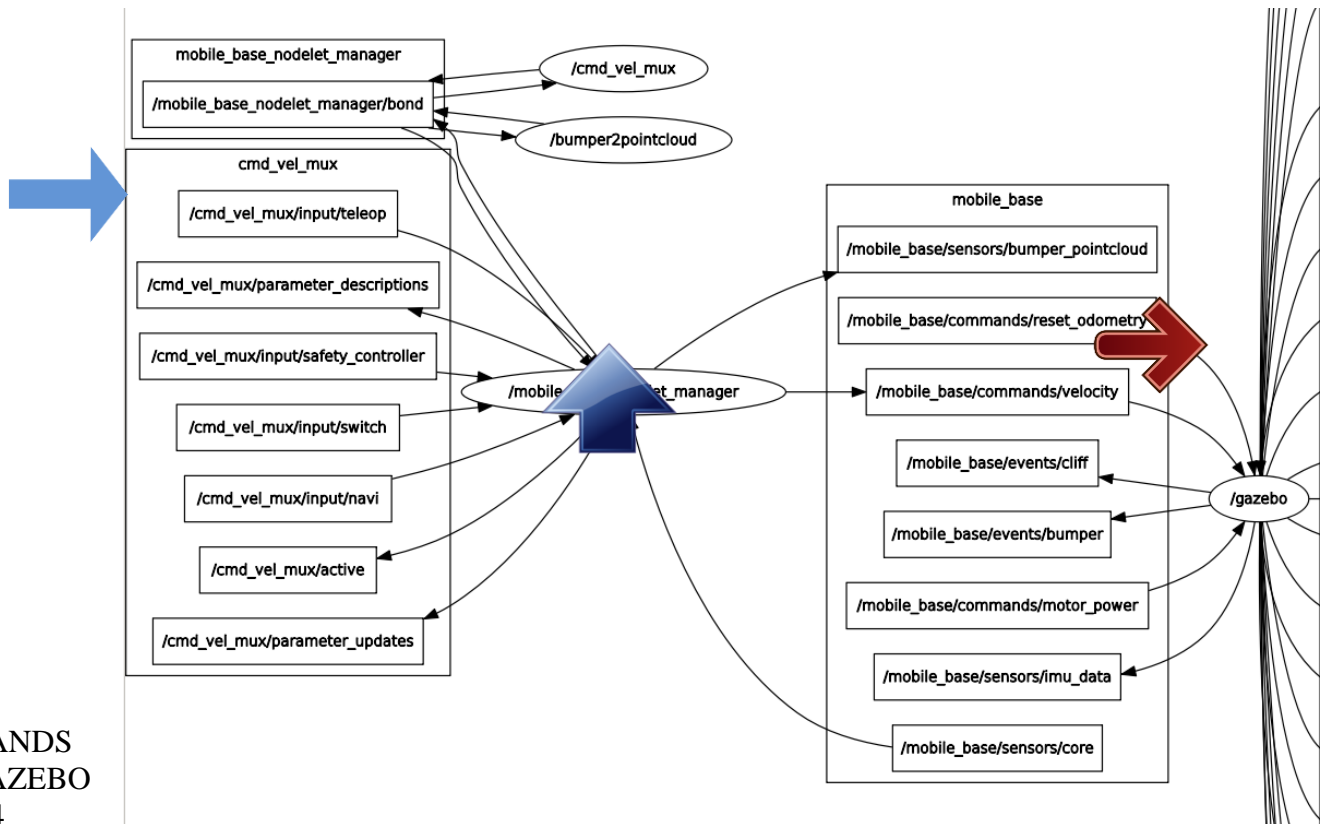
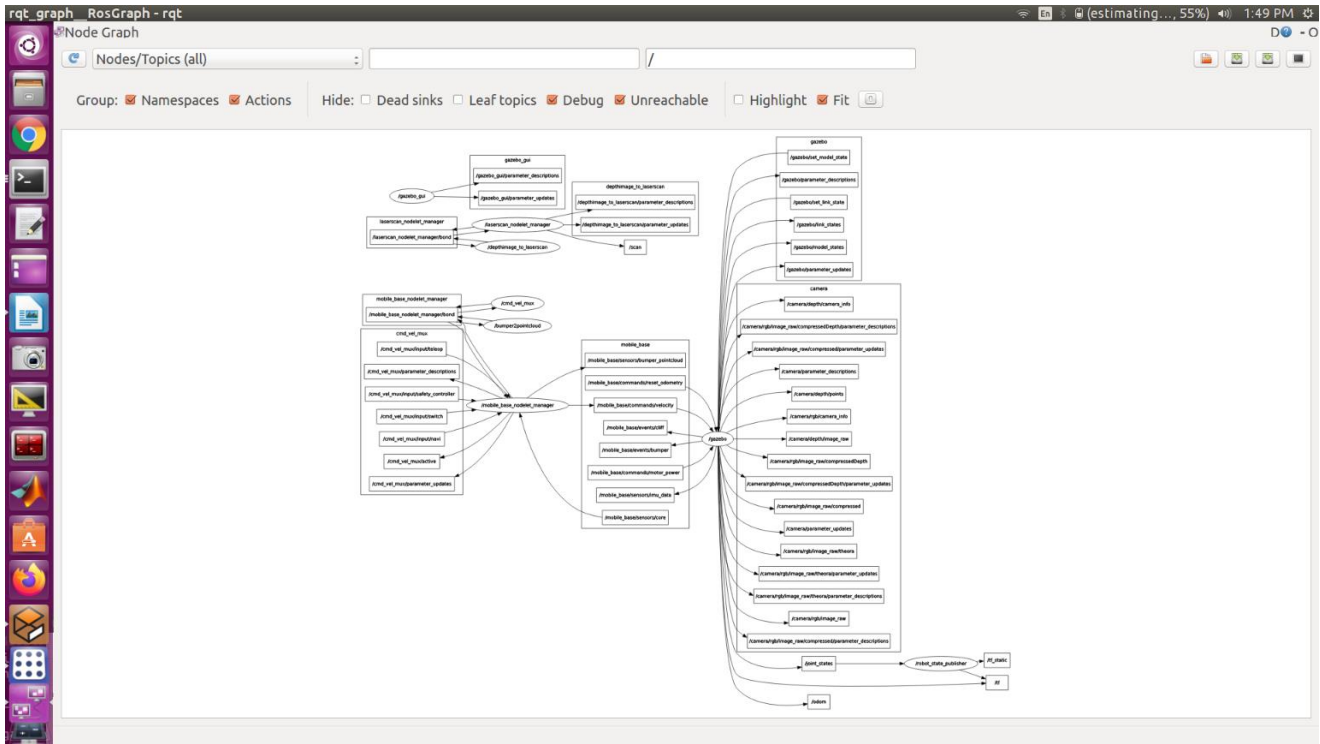
/mobile\_base/sensors/imu\_data

/mobile\_base\_nodelet\_manager/bond

**/odom**

**/odom is result and /cmd\_vel\_mux is input.**

\$ harman@D104-45931:~\$ rqt\_graph



ROS  
COMMANDS  
AND GAZEBO  
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