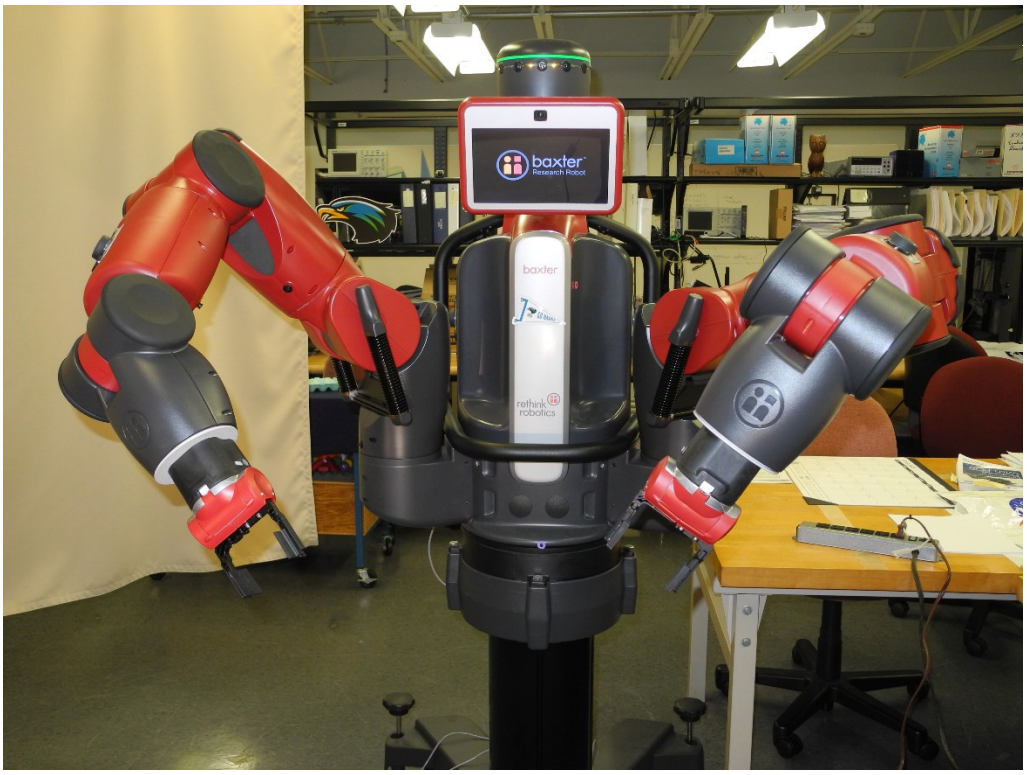
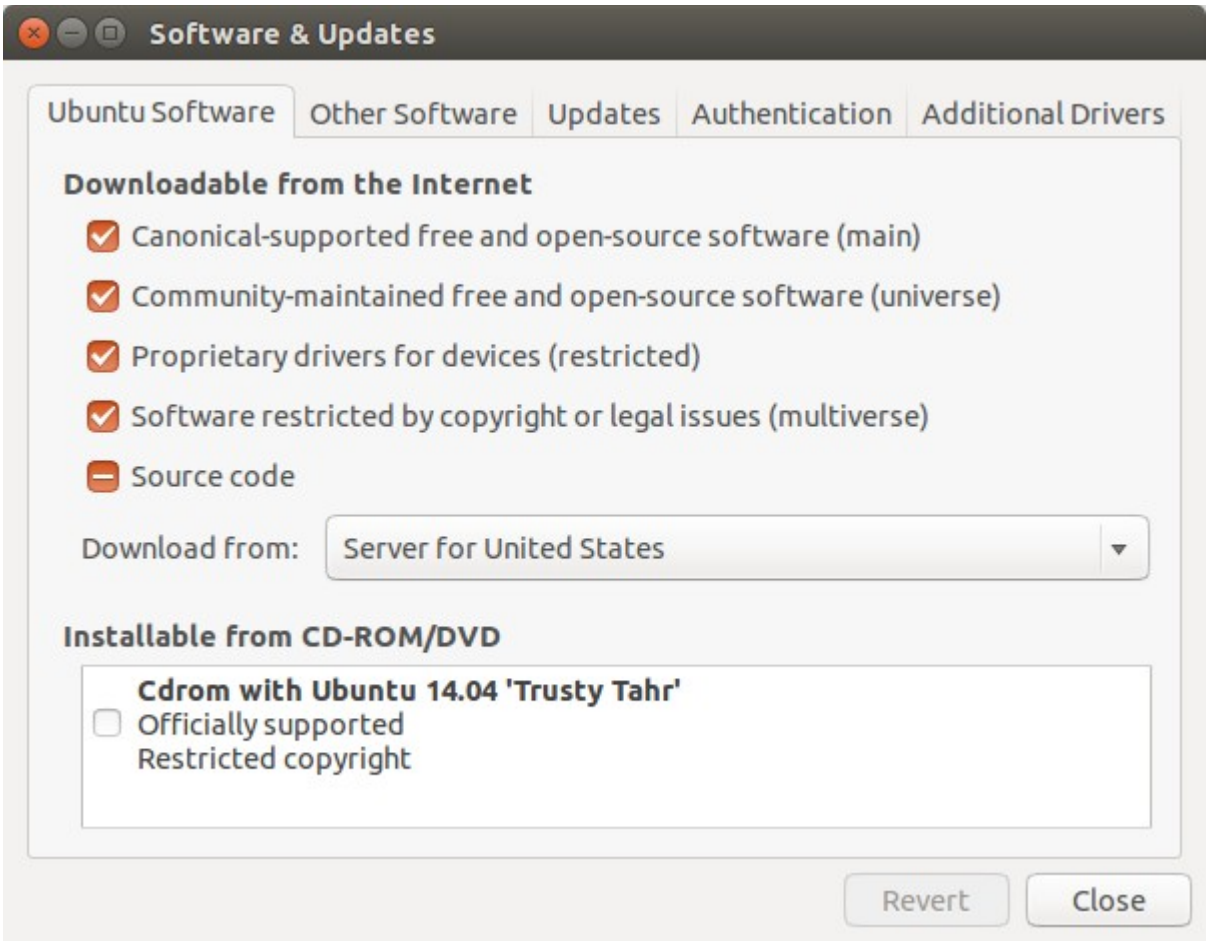
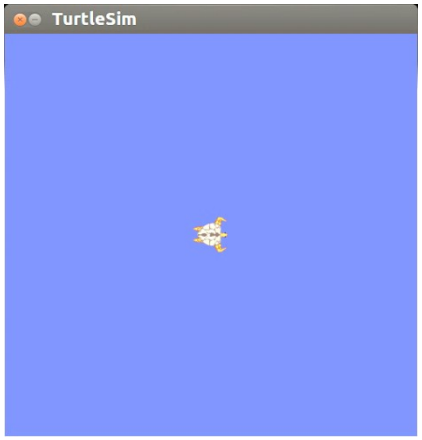
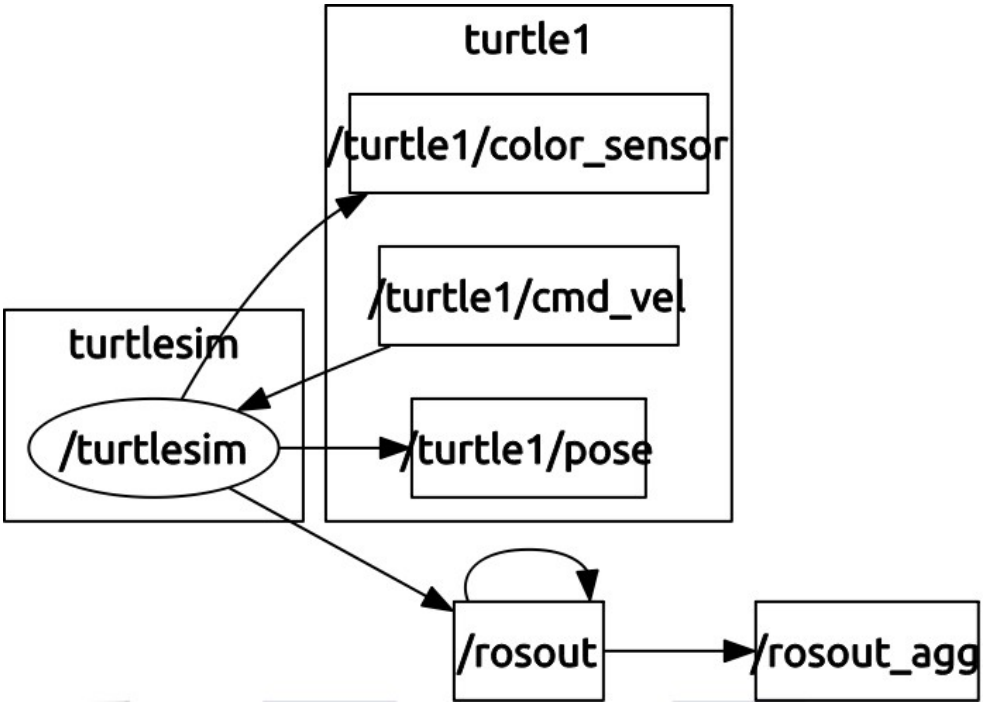
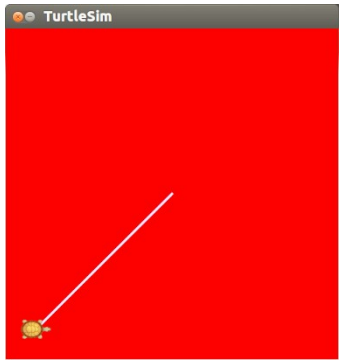
Chapter 1 - Getting Started with ROS

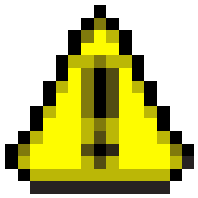

baxter
Research Robot
baxter
rethink robotics


Software & Updates
Ubuntu Software
Other Software
Updates
Authentication
Additional Drivers
Downloadable from the Internet
Canonical-supported free and open-source software (main)
Community-maintained free and open-source software (universe)
Proprietary drivers for devices (restricted)
Software restricted by copyright or legal issues (multiverse)
Source code
Download from:
Server for United States
Installable from CD-ROM/DVD
Cdrom with Ubuntu 14.04 'Trusty Tahr'
Officially supported
Restricted copyright
Revert
Close

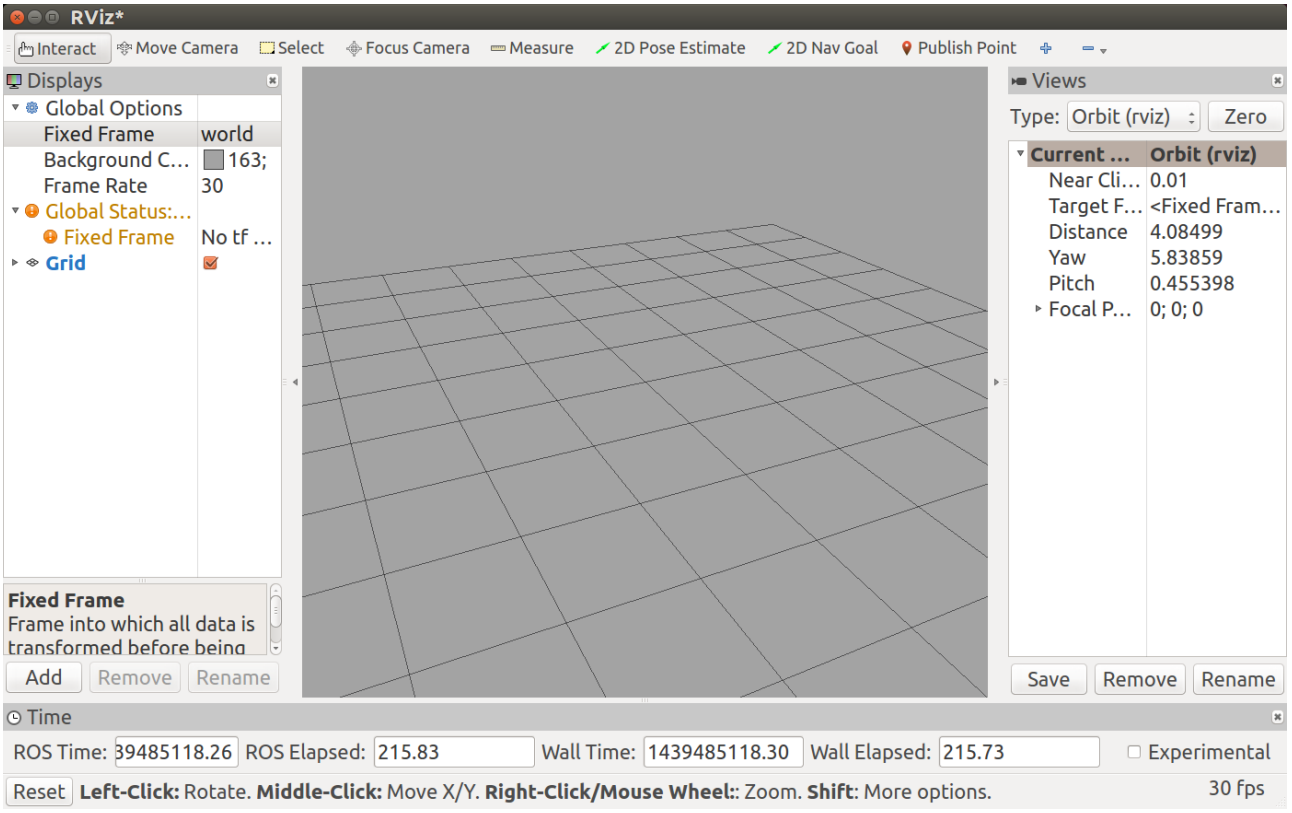

TurtleSim

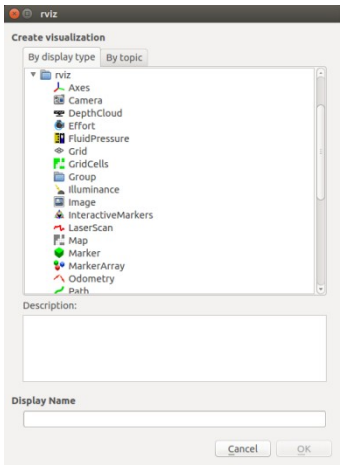

turtle1
/turtle1/color_sensor
/turtle1/cmd_vel
turtlesim
/turtlesim
/turtle1/pose
/rosout
/rosout_agg

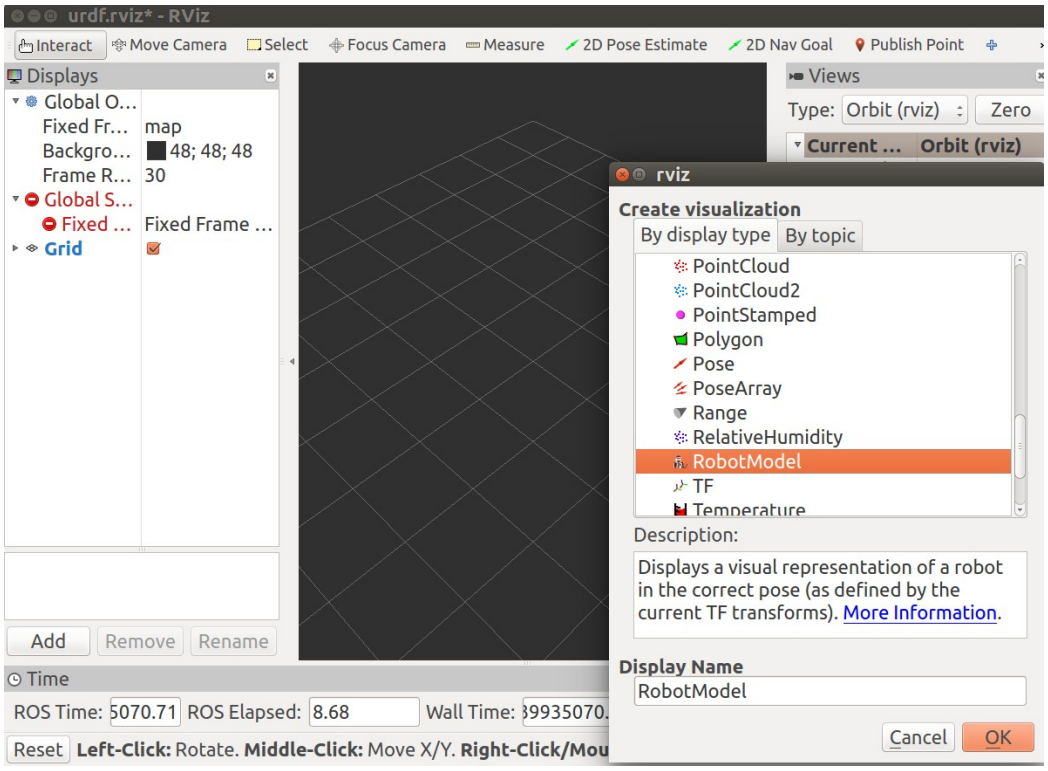

TurtleSim

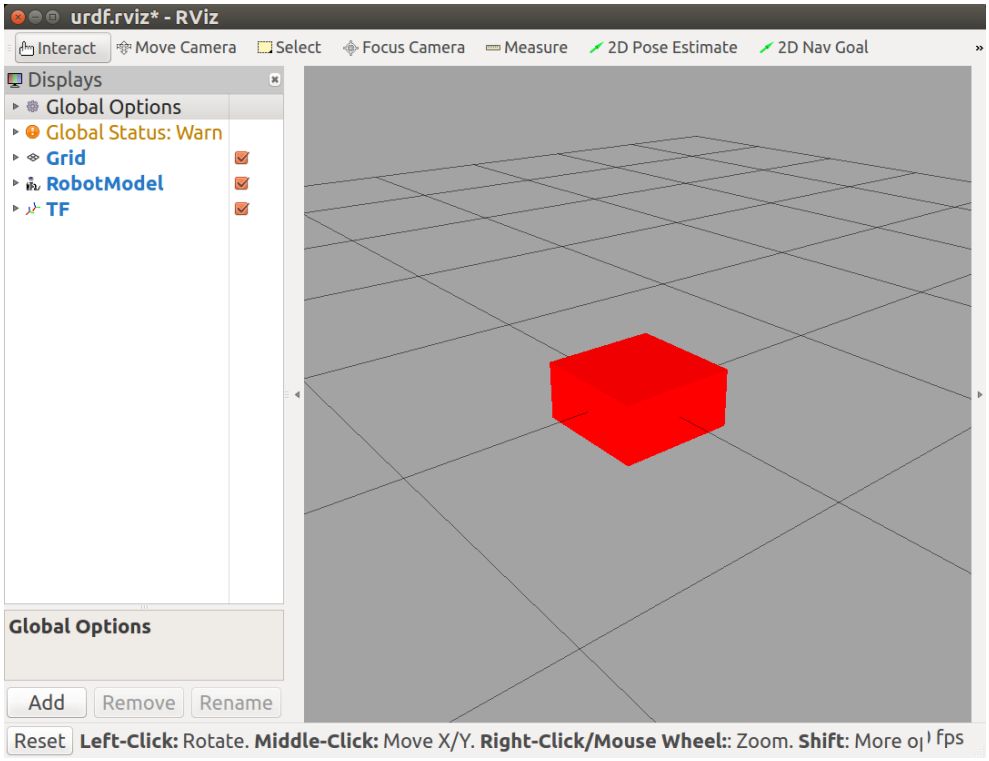


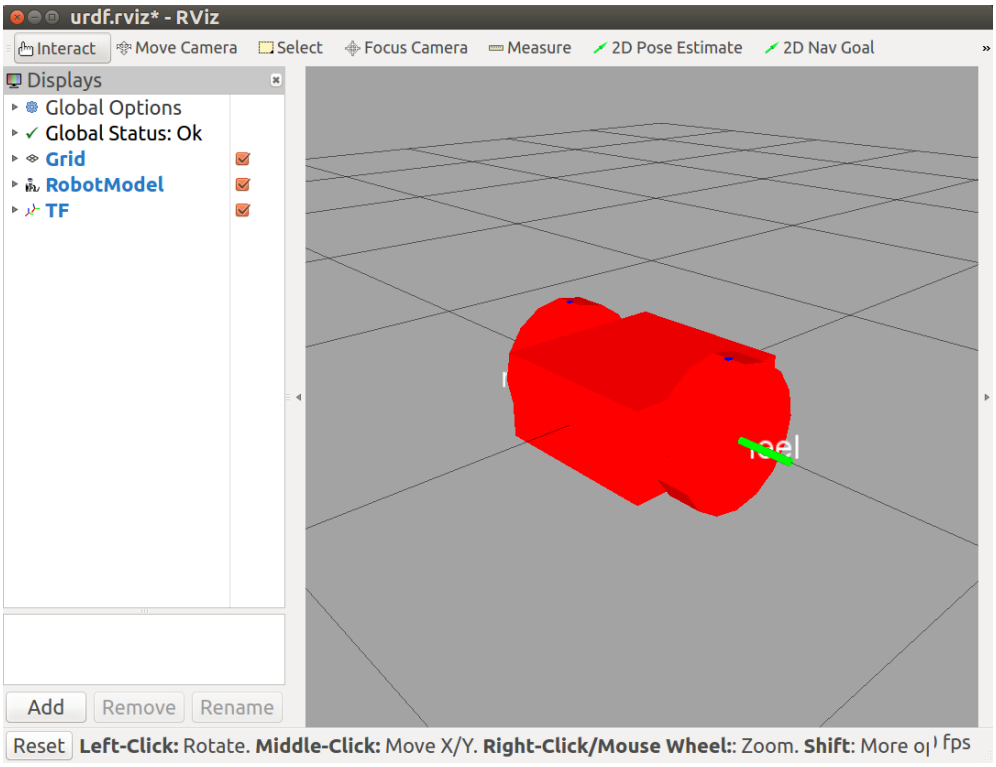
Chapter 2 - Creating Your First Two-Wheeled ROS Robot (in Simulation)

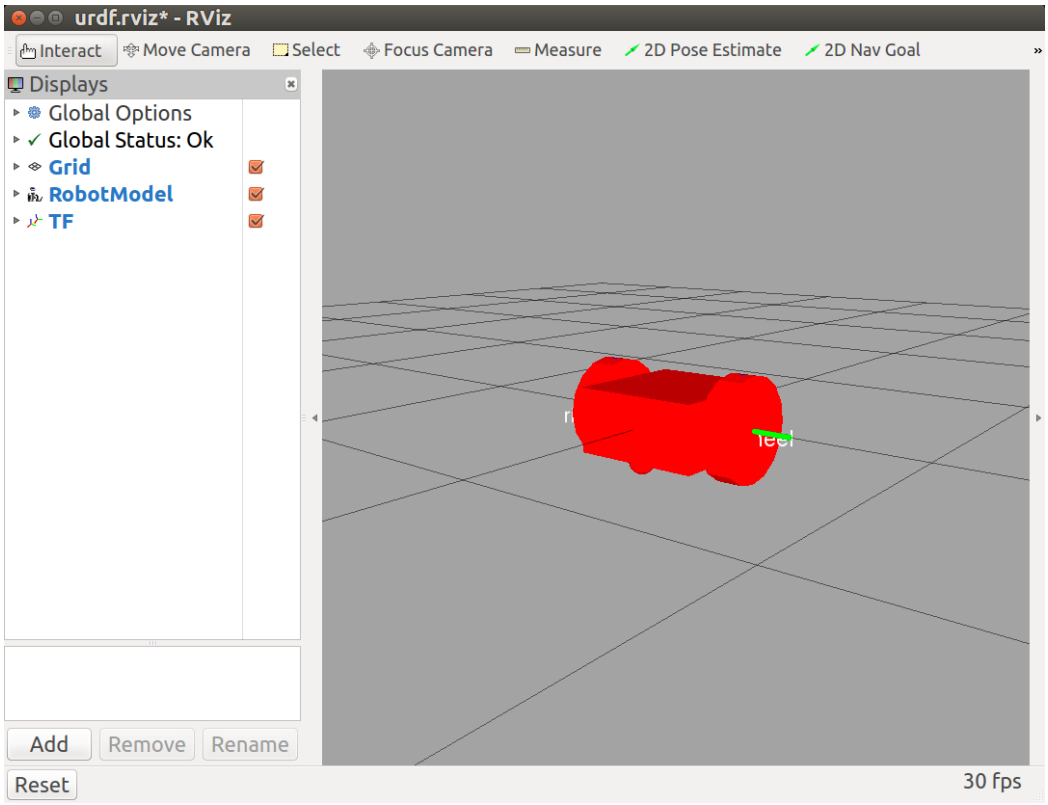


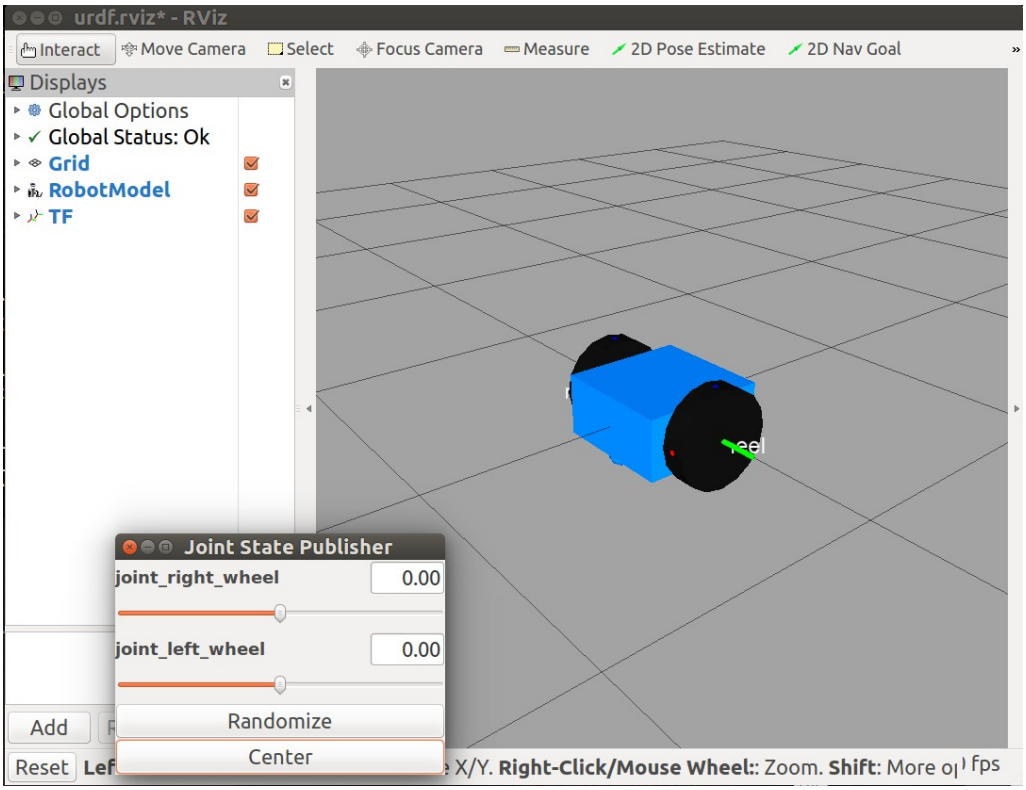

rviz
Create visualization
By display type
By topic
rviz
Axes
Camera
DepthCloud
Effort
FluidPressure
Grid
GridCells
Group
Illuminance
Image
InteractiveMarkers
LaserScan
Map
Marker
MarkerArray
Odometry
Path
Description:
Display Name
Cancel
OK

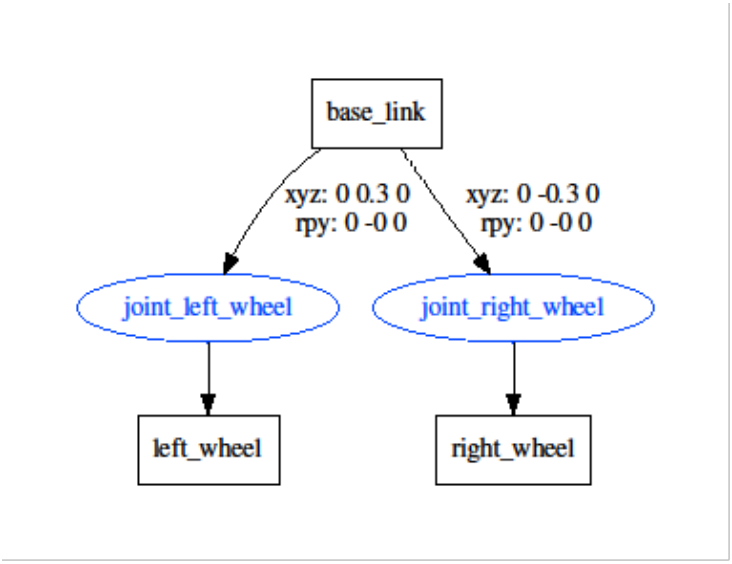

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
Displays
Global O...
Fixed Fr...
map
Backgro...
48; 48; 48
Frame R...
30
Global S...
Fixed ...
Fixed Frame ...
Grid
Add
Remove
Rename
Views
Type:
Orbit (rviz)
Zero
Current ...
Orbit (rviz)
Time
ROS Time:
5070.71
ROS Elapsed:
8.68
Wall Time:
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mou
rviz
Create visualization
By display type
By topic
PointCloud
PointCloud2
PointStamped
Polygon
Pose
PoseArray
Range
RelativeHumidity
RobotModel
TF
Temperature
Description:
Displays a visual representation of a robot in the correct pose (as defined by the current TF transforms). More Information.
Display Name
RobotModel
Cancel
OK

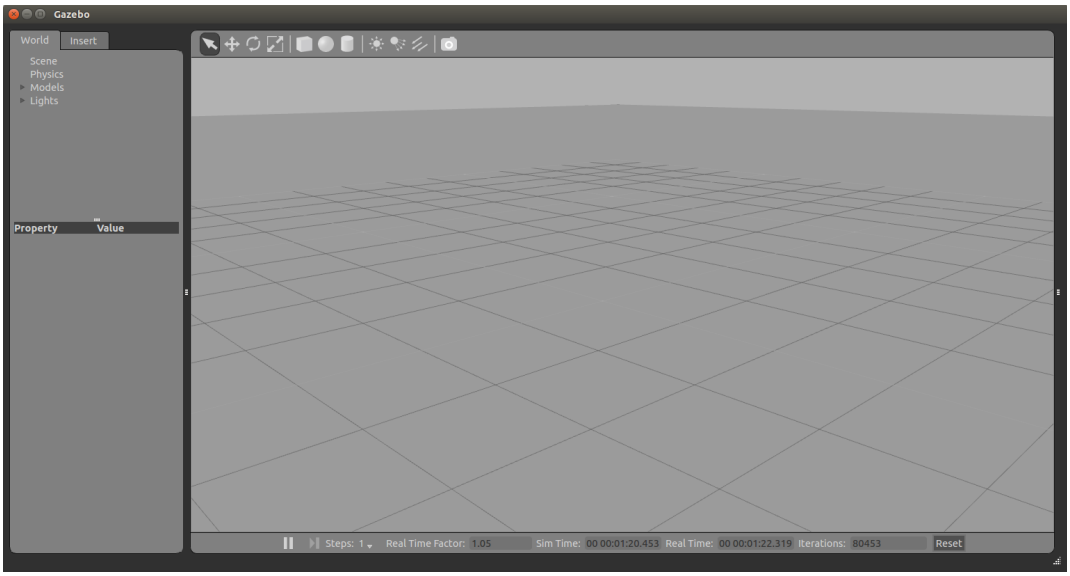

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Warn
Grid
RobotModel
TF
Global Options
Add
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More o
fps

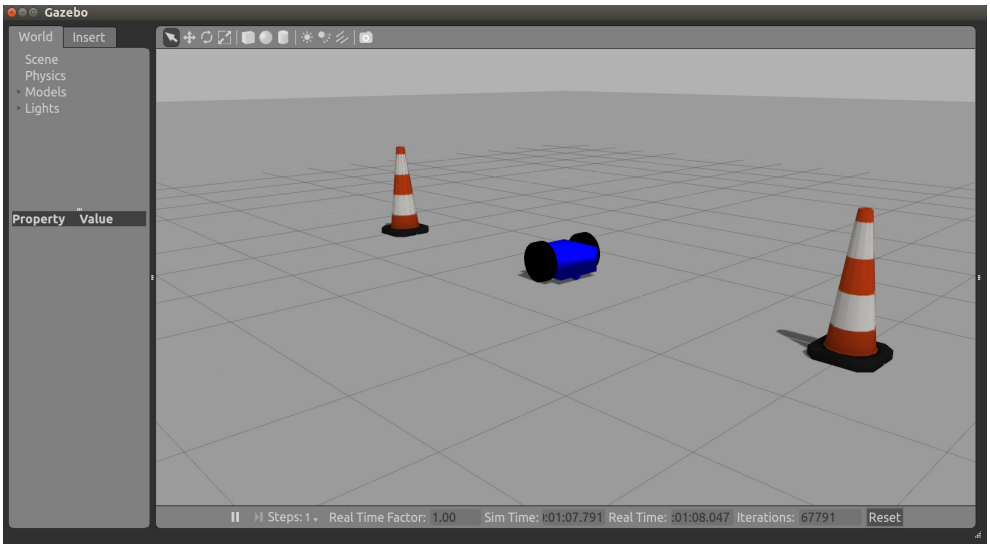

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Add
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More o
fps

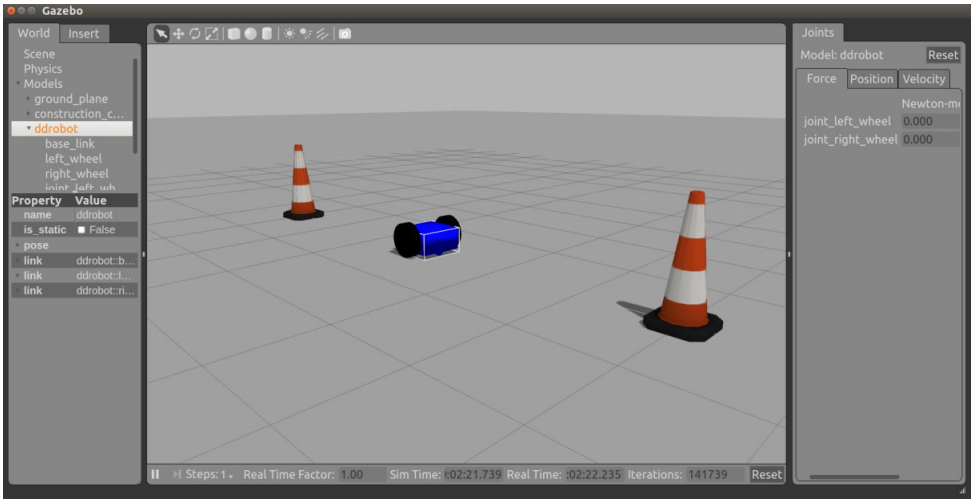

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Add
Remove
Rename
Reset
30 fps


urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Joint State Publisher
joint_right_wheel
0.00
joint_left_wheel
0.00
Randomize
Center
Add
Reset
X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More o
fps

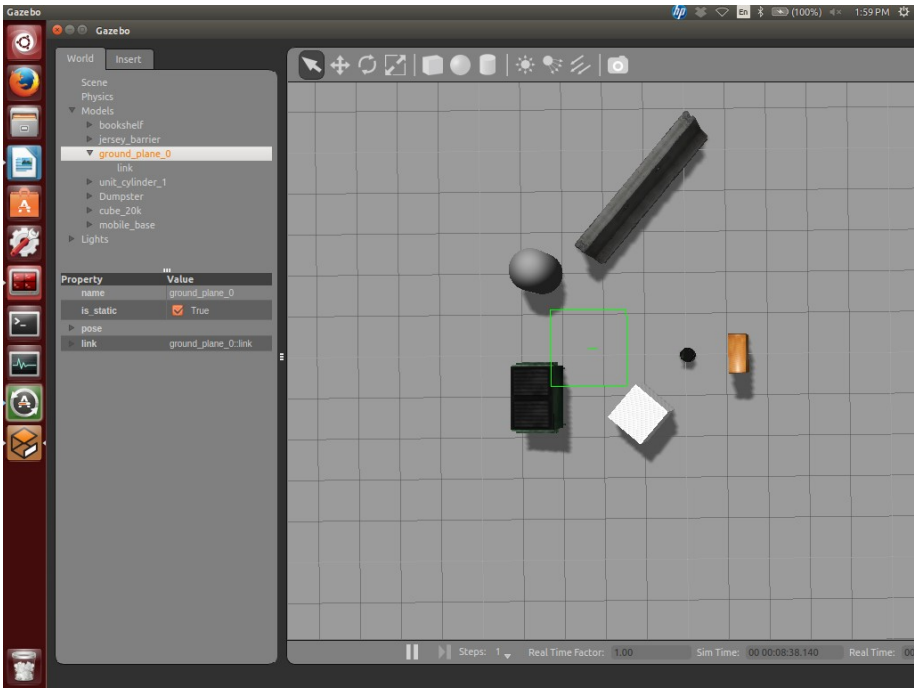

base_link
xyz: 0 0.3 0
rpy: 0 -0 0
xyz: 0 -0.3 0
rpy: 0 -0 0
joint_left_wheel
joint_right_wheel
left_wheel
right_wheel

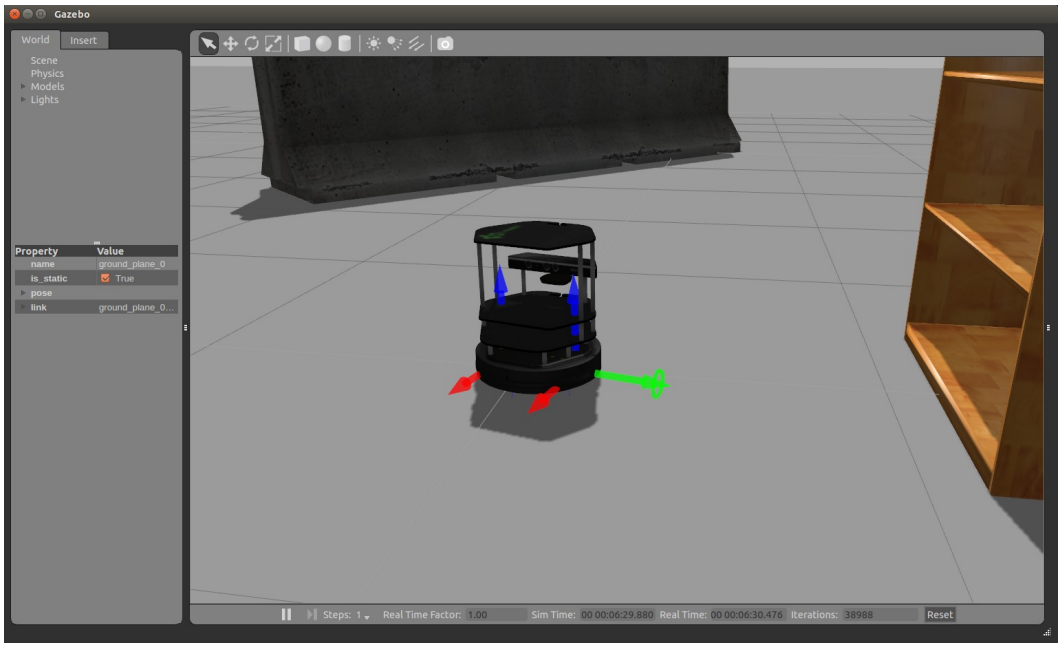

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.05
Sim Time: 00 00:01:20.453
Real Time: 00 00:01:22.319
Iterations: 80453
Reset

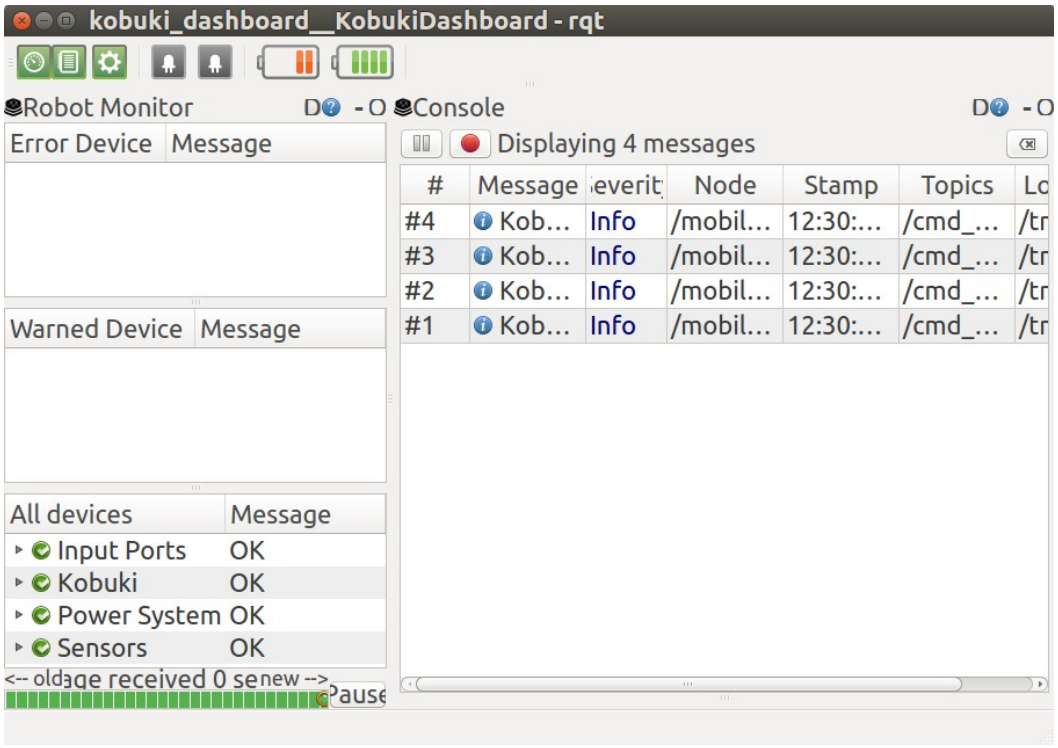

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 01:07.791
Real Time: 01:08.047
Iterations: 67791
Reset

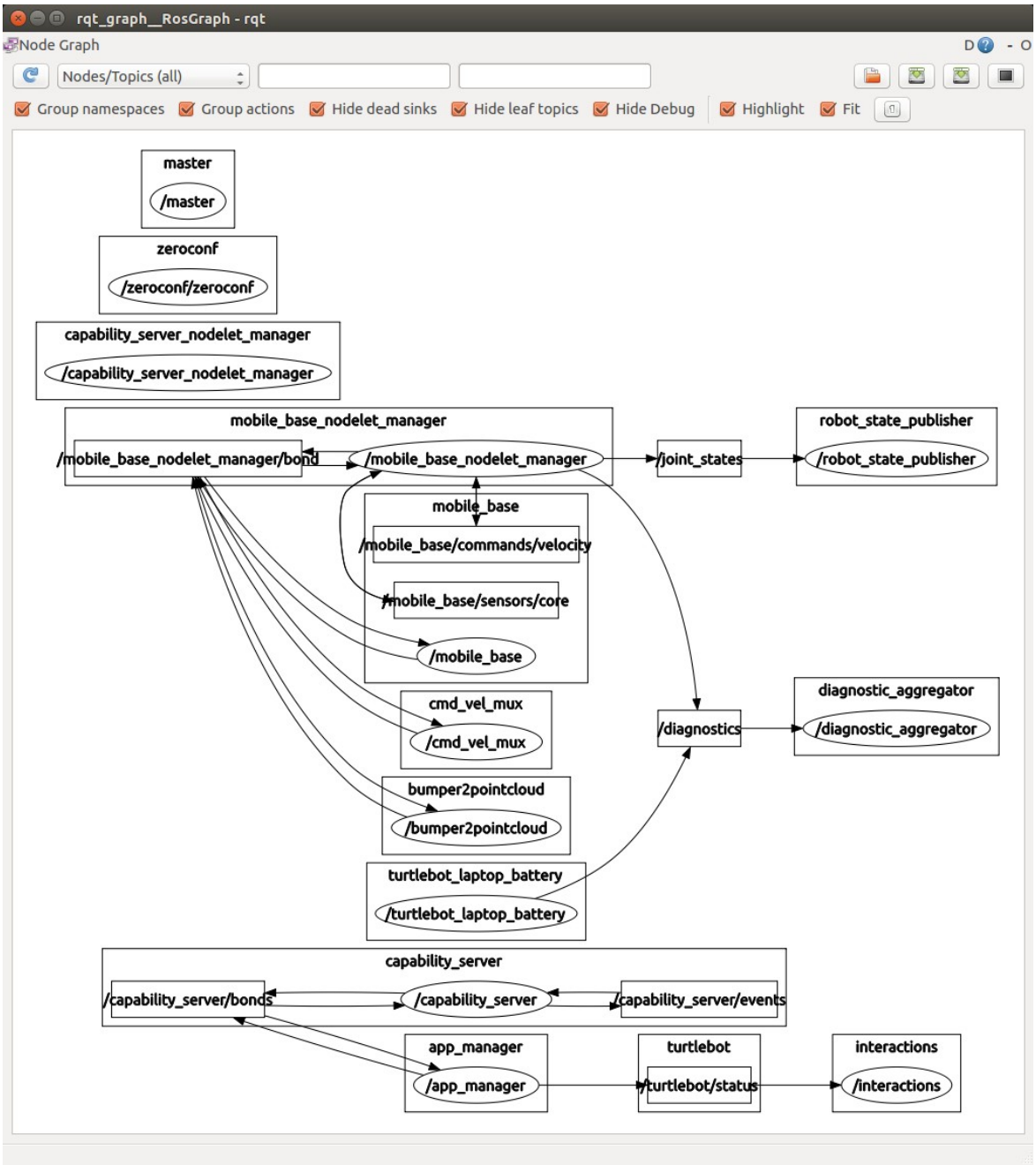

Gazebo
World
Insert
Scene
Physics
Models
ground_plane
construction_c...
ddrobot
base_link
left_wheel
right_wheel
Property
Value
name
ddrobot
is_static
False
pose
link
ddrobot::b...
link
ddrobot::l...
link
ddrobot::ri...
Joints
Model: ddrobot
Reset
Force
Position
Velocity
Newton-m
joint_left_wheel
0.000
joint_right_wheel
0.000
Steps: 1
Real Time Factor: 1.00
Sim Time: 02:21.739
Real Time: 02:22.235
Iterations: 141739
Reset

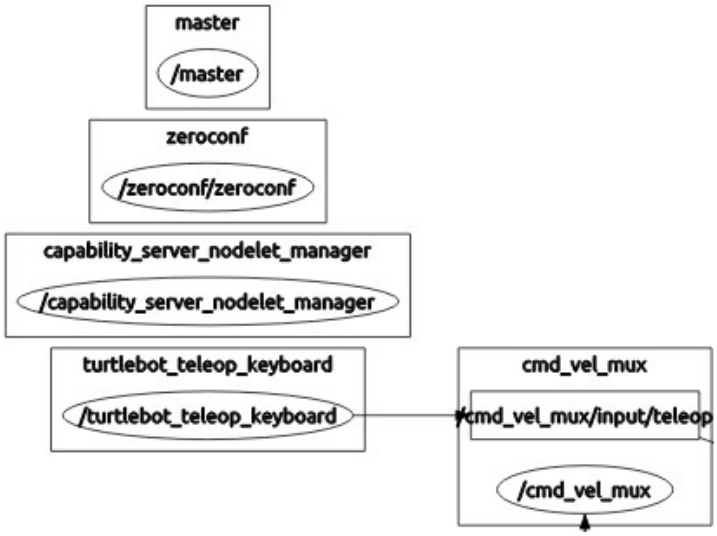
Chapter 3 - Driving Around with TurtleBot

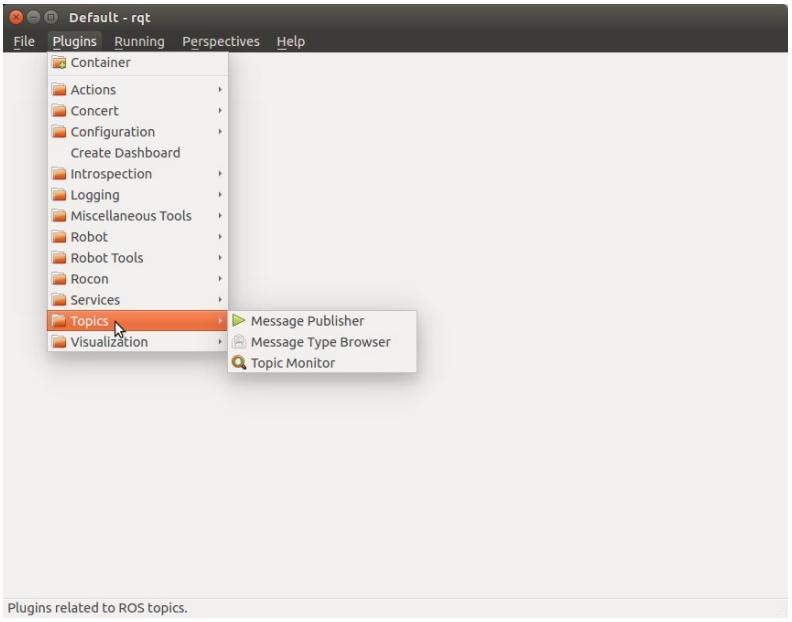

Gazebo
Gazebo
World
Insert
Scene
Physics
Models
bookshelf
jersey_barrier
ground_plane_0
link
unit_cylinder_1
Dumpster
cube_20k
mobile_base
Lights
Property
Value
name
ground_plane_0
is_static
True
pose
link
ground_plane_0::link
Steps:
Real Time Factor:
1.00
Sim Time:
00 00:08:38.140
Real Time:

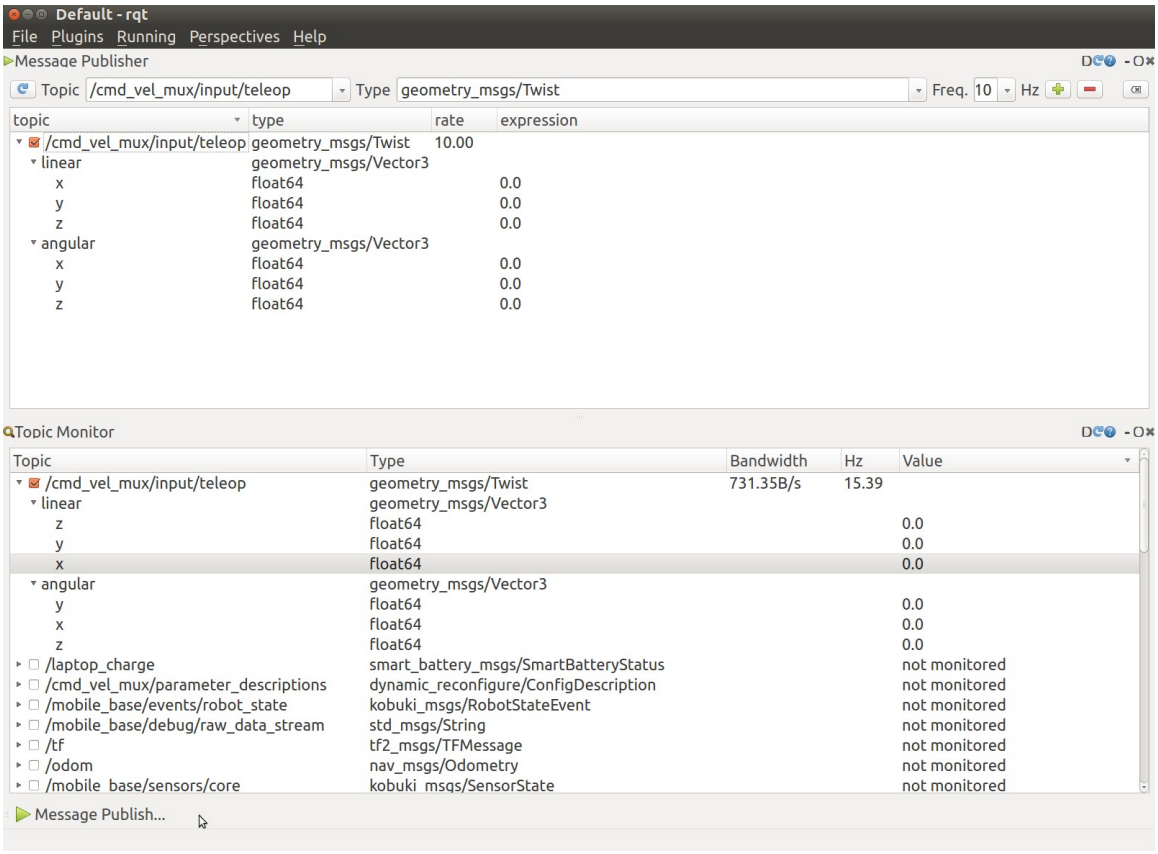

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
name
ground_plane_0
is_static
True
pose
link
ground_plane_0...
Steps: 1
Real Time Factor: 1.00
Sim Time: 00 00:06:29.880
Real Time: 00 00:06:30.476
Iterations: 38988
Reset

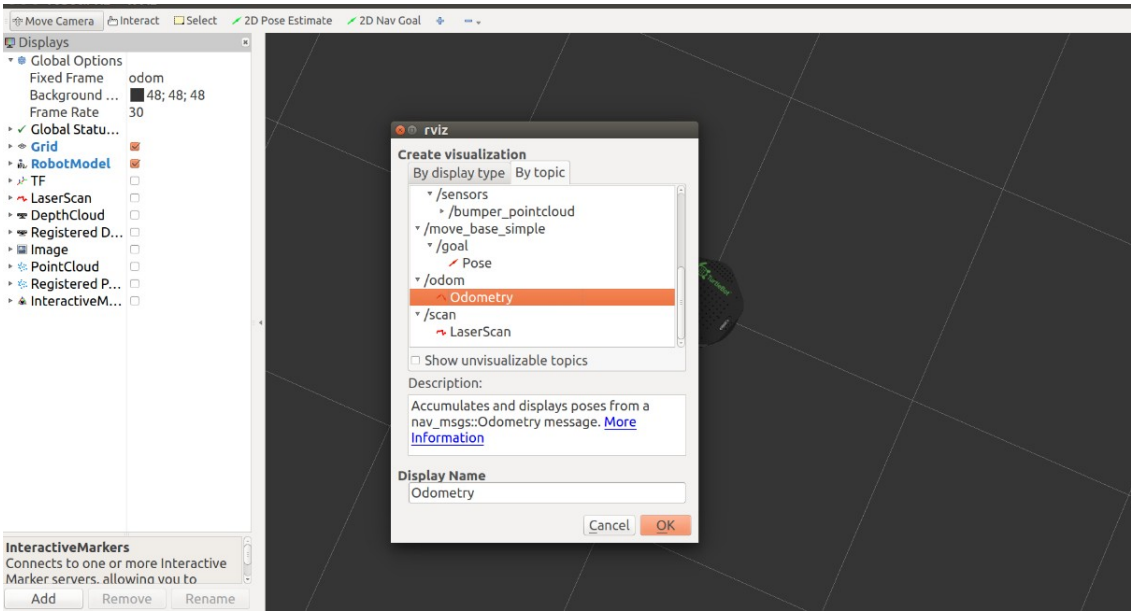

kobuki_dashboard__KobukiDashboard - rqt
Robot Monitor
Error Device
Message
Warned Device
Message
All devices
Message
Input Ports
OK
Kobuki
OK
Power System
OK
Sensors
OK
<-- old
age received 0 se
new -->
Pause
Console
Displaying 4 messages
#
Message
Node
Stamp
Topics
#4
Kob…
Info
/mobil…
12:30:…
/cmd_…
#3
Kob…
Info
/mobil…
12:30:…
/cmd_…
#2
Kob…
Info
/mobil…
12:30:…
/cmd_…
#1
Kob…
Info
/mobil…
12:30:…
/cmd_…

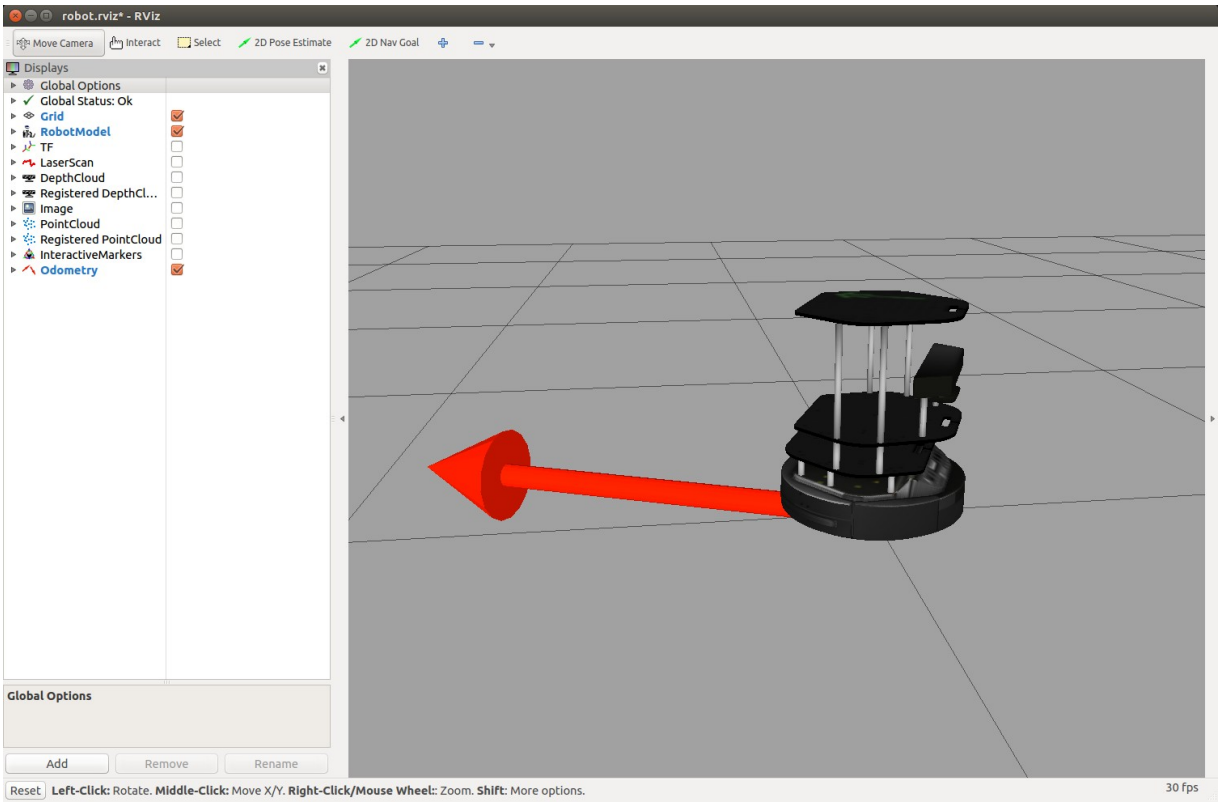

rqt_graph__RosGraph - rqt
Node Graph
Nodes/Topics (all)
Group namespaces
Group actions
Hide dead sinks
Hide leaf topics
Hide Debug
Highlight
Fit
master
/master
zeroconf
/zeroconf/zeroconf
capability_server_nodelet_manager
/capability_server_nodelet_manager
mobile_base_nodelet_manager
/mobile_base_nodelet_manager/bond
/mobile_base_nodelet_manager
/joint_states
robot_state_publisher
/robot_state_publisher
mobile_base
/mobile_base/commands/velocity
/mobile_base/sensors/core
/mobile_base
cmd_vel_mux
/cmd_vel_mux
/diagnostics
diagnostic_aggregator
/diagnostic_aggregator
bumper2pointcloud
/bumper2pointcloud
turtlebot_laptop_battery
/turtlebot_laptop_battery
capability_server
/capability_server/bonds
/capability_server
/capability_server/events
app_manager
/app_manager
turtlebot
/turtlebot/status
interactions
/interactions

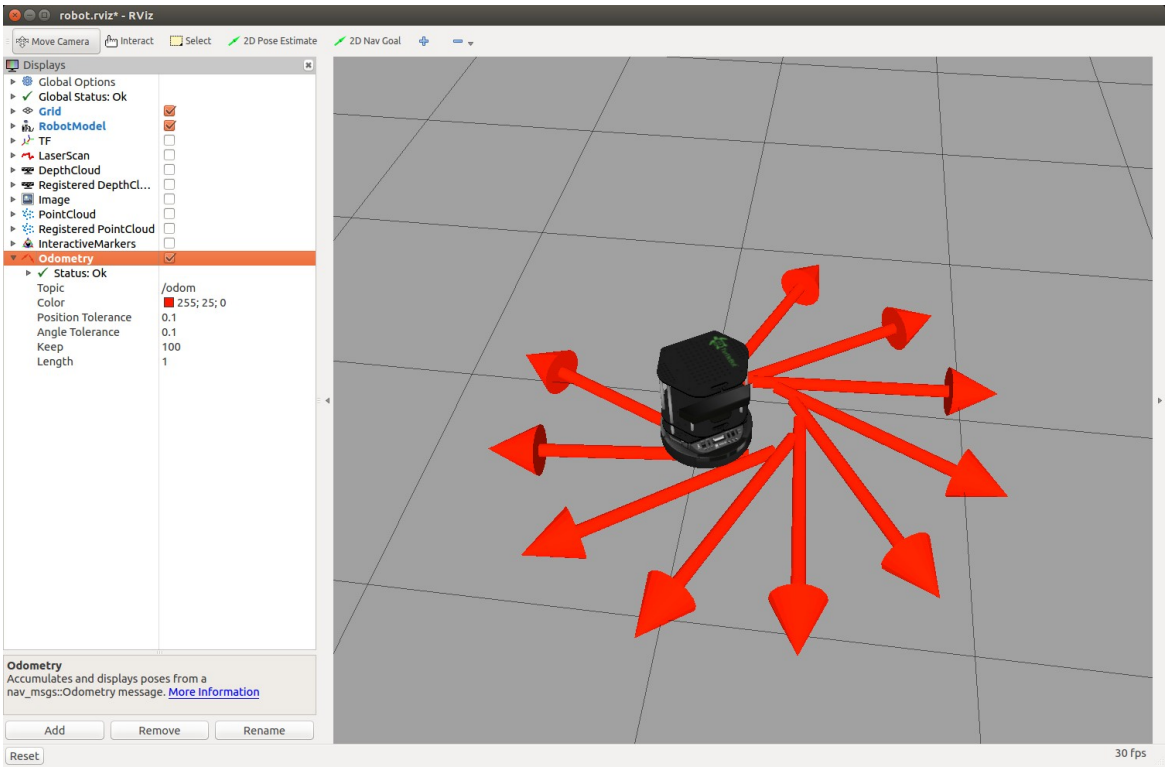

master
/master
zeroconf
/zeroconf/zeroconf
capability_server_nodelet_manager
/capability_server_nodelet_manager
turtlebot_teleop_keyboard
/turtlebot_teleop_keyboard
cmd_vel_mux
/cmd_vel_mux/input/teleop
/cmd_vel_mux

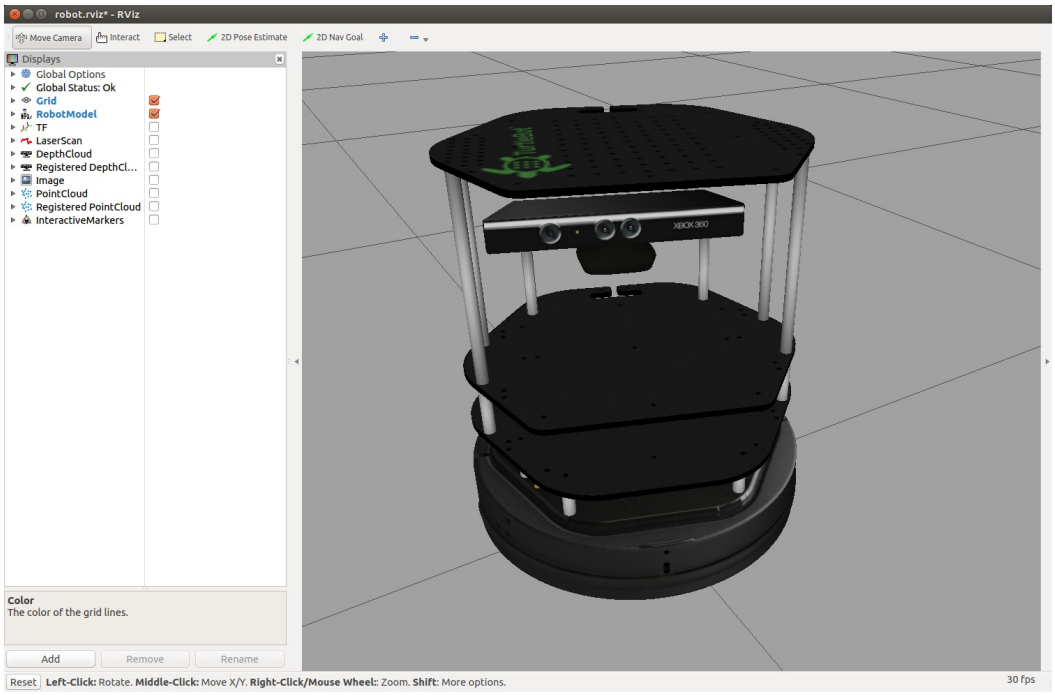

Default - rqt
File
Plugins
Running
Perspectives
Help
Container
Actions
Concert
Configuration
Create Dashboard
Introspection
Logging
Miscellaneous Tools
Robot
Robot Tools
Rocon
Services
Topics
Visualization
Message Publisher
Message Type Browser
Topic Monitor
Plugins related to ROS topics.

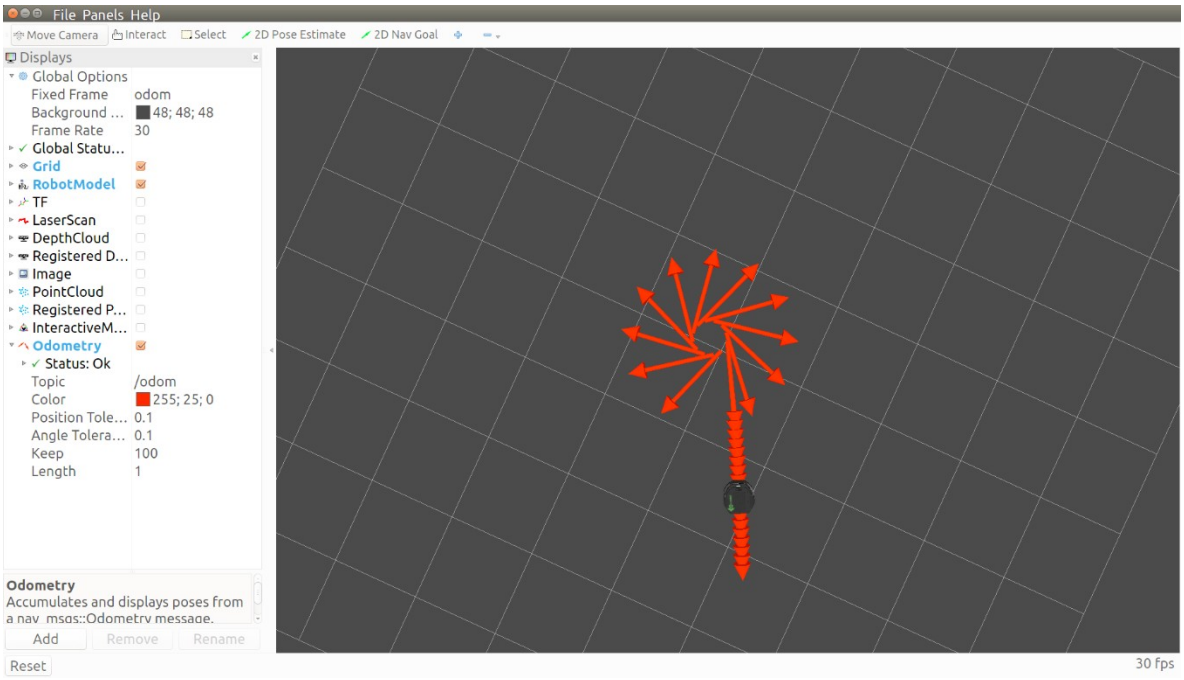

Default - rqt
File Plugins Running Perspectives Help
Message Publisher
Topic /cmd_vel_mux/input/teleop
Type geometry_msgs/Twist
Freq. 10 Hz
topic type rate expression
/cmd_vel_mux/input/teleop geometry_msgs/Twist 10.00
linear geometry_msgs/Vector3
x float64 0.0
y float64 0.0
z float64 0.0
angular geometry_msgs/Vector3
x float64 0.0
y float64 0.0
z float64 0.0
Topic Monitor
Topic Type Bandwidth Hz Value
/cmd_vel_mux/input/teleop geometry_msgs/Twist 731.35B/s 15.39
linear geometry_msgs/Vector3
z float64 0.0
y float64 0.0
x float64 0.0
angular geometry_msgs/Vector3
y float64 0.0
x float64 0.0
z float64 0.0
/laptop_charge smart_battery_msgs/SmartBatteryStatus not monitored
/cmd_vel_mux/parameter_descriptions dynamic_reconfigure/ConfigDescription not monitored
/mobile_base/events/robot_state kobuki_msgs/RobotStateEvent not monitored
/mobile_base/debug/raw_data_stream std_msgs/String not monitored
/tf tf2_msgs/TFMessage not monitored
/odom nav_msgs/Odometry not monitored
/mobile_base/sensors/core kobuki_msgs/SensorState not monitored
Message Publish...

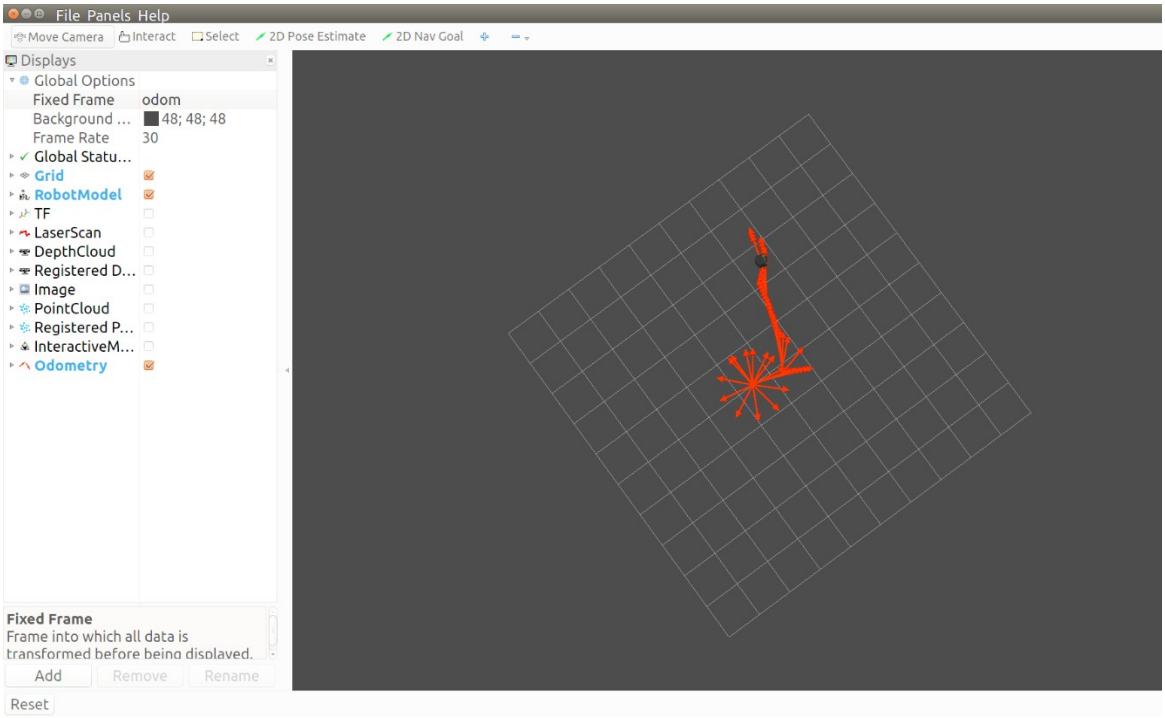

Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Fixed Frame
odom
Background ...
48; 48; 48
Frame Rate
30
Global Statu...
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered D...
Image
PointCloud
Registered P...
InteractiveM...
InteractiveMarkers
Connects to one or more Interactive Marker servers, allowing you to
Add
Remove
Rename
rviz
Create visualization
By display type
By topic
/sensors
/bumper_pointcloud
/move_base_simple
/goal
Pose
/odom
Odometry
/scan
LaserScan
Show unvisualizable topics
Description:
Accumulates and displays poses from a nav_msgs::Odometry message. More Information
Display Name
Odometry
Cancel
OK


robot.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered DepthCl...
Image
PointCloud
Registered PointCloud
InteractiveMarkers
Odometry
Global Options
Add
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
30 fps


robot.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered DepthCl...
Image
PointCloud
Registered PointCloud
InteractiveMarkers
Odometry
Status: Ok
Topic /odom
Color 255; 25; 0
Position Tolerance 0.1
Angle Tolerance 0.1
Keep 100
Length 1
Odometry
Accumulates and displays poses from a nav_msgs::Odometry message. More Information
Add
Remove
Rename
Reset
30 fps


robot.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered DepthCl...
Image
PointCloud
Registered PointCloud
InteractiveMarkers
Color
The color of the grid lines.
Add
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
30 fps


File Panels Help
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Fixed Frame odom
Background ... 48; 48; 48
Frame Rate 30
Global Statu...
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered D...
Image
PointCloud
Registered P...
InteractiveM...
Odometry
Status: Ok
Topic /odom
Color 255; 25; 0
Position Tole... 0.1
Angle Tolera... 0.1
Keep 100
Length 1
Odometry
Accumulates and displays poses from
a nav_msgs::Odometry message.
Add
Remove
Rename
Reset
30 fps


File Panels Help
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Fixed Frame
odom
Background ...
48; 48; 48
Frame Rate
30
Global Statu...
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered D...
Image
PointCloud
Registered P...
InteractiveM...
Odometry
Fixed Frame
Frame into which all data is transformed before being displayed.
Add
Remove
Rename
Reset

Chapter 4 - Navigating the World with TurtleBot

Kinect for Xbox 360

Kinect for Xbox One

Kinect for Windows v2

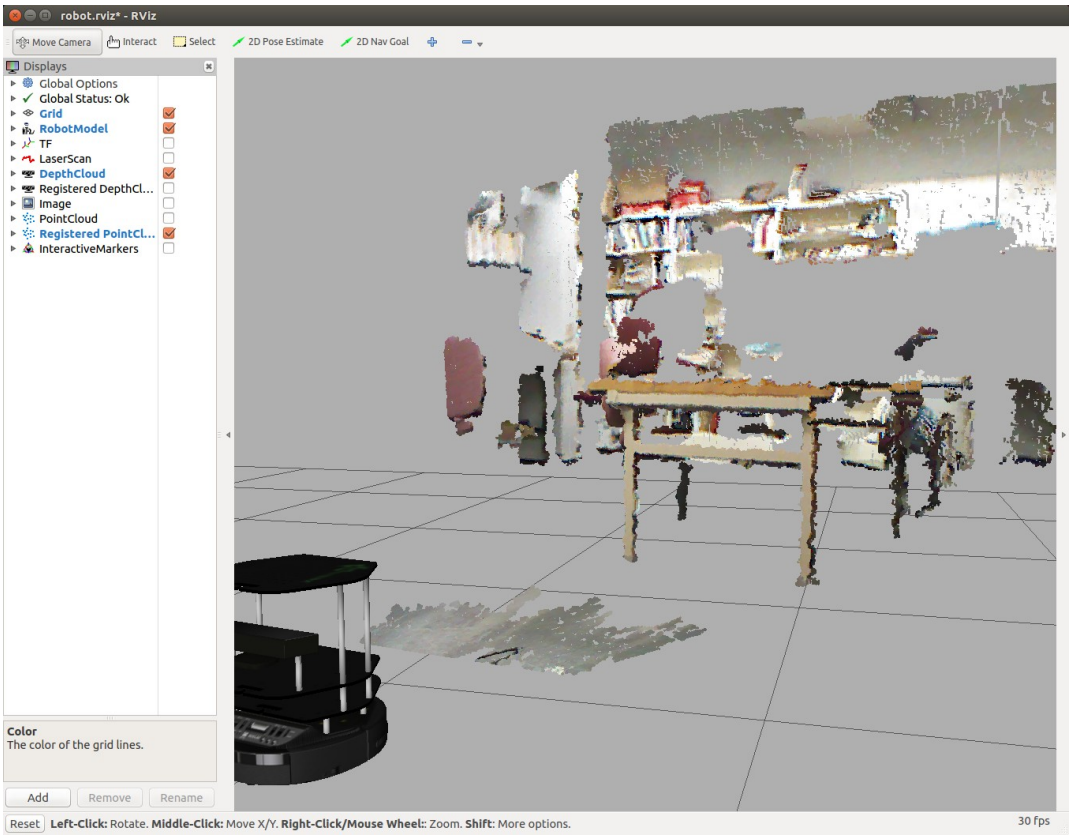
ASUS Xtion

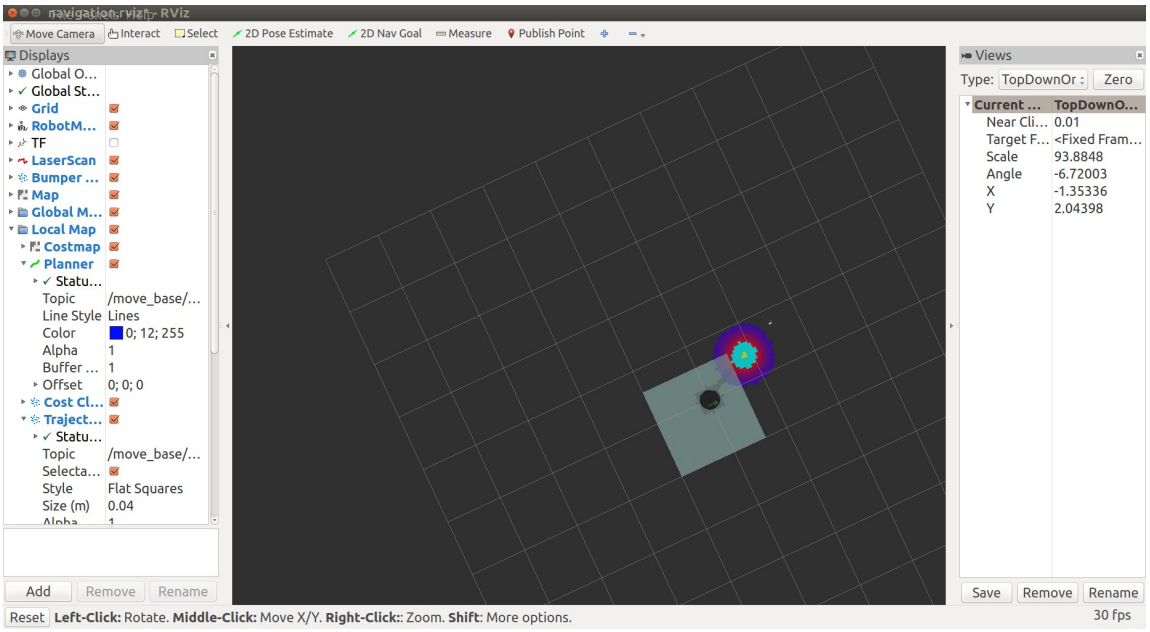
ASUS Xtion PRO

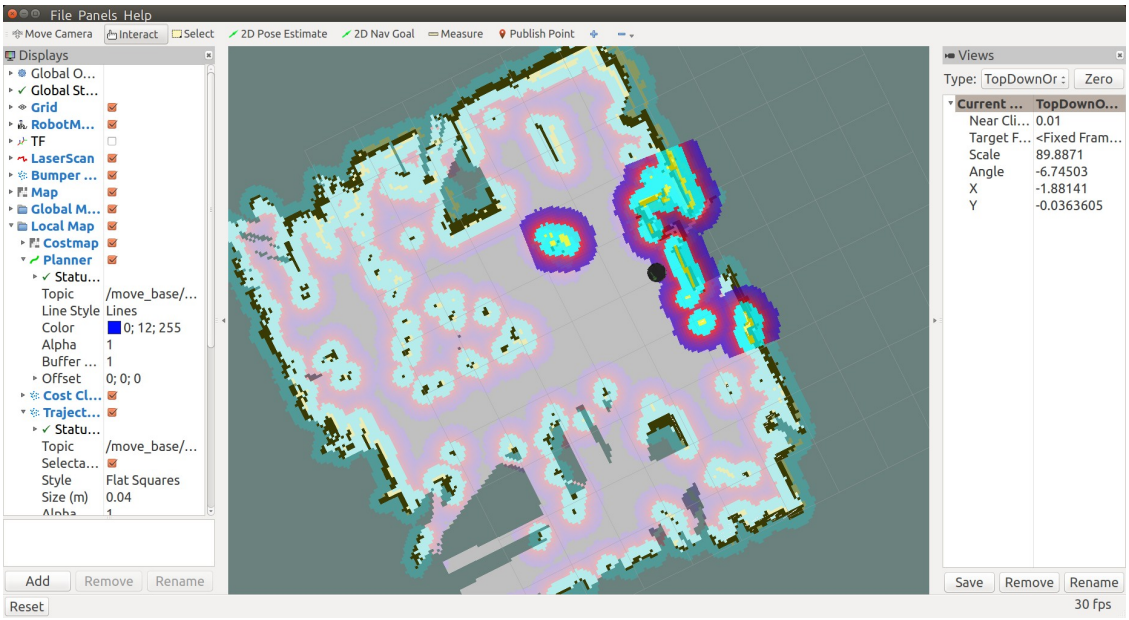
ASUS PRO LIVE

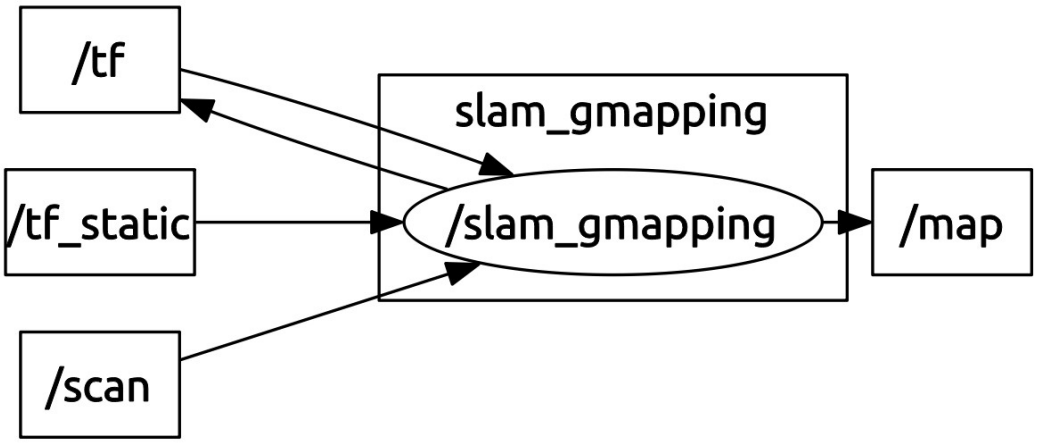
/camera/rgb/image_color

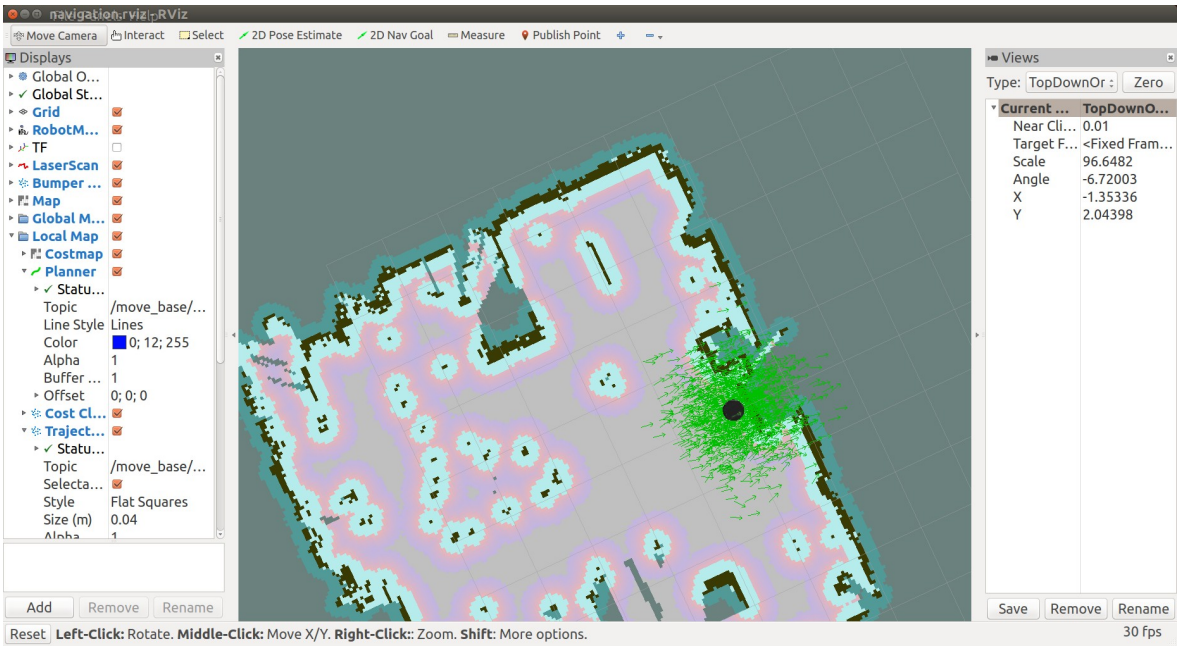
/camera/depth/image

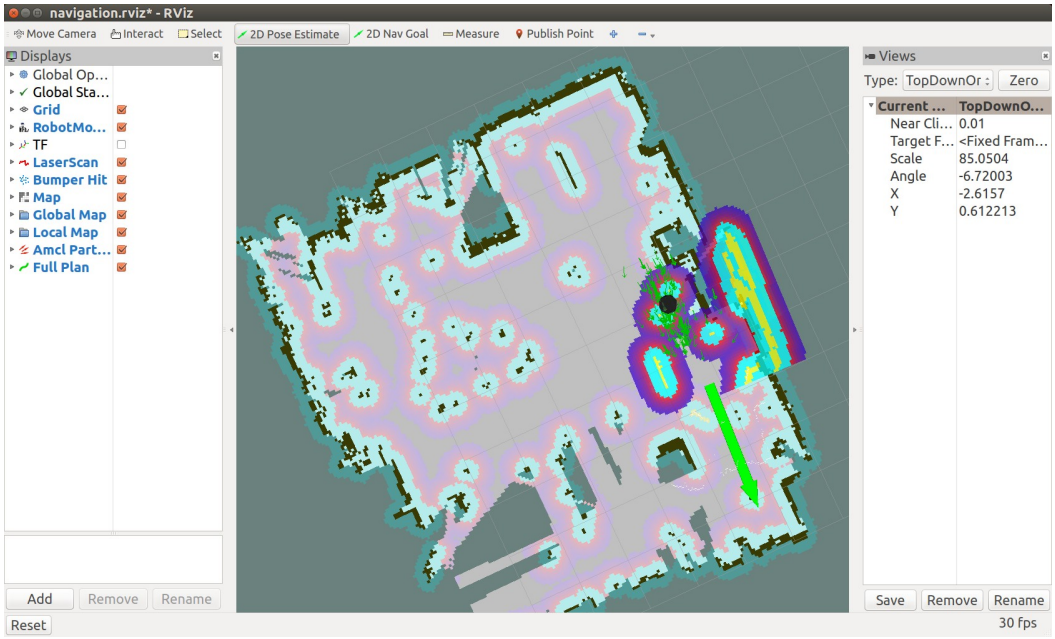

robot.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
LaserScan
DepthCloud
Registered DepthCl...
Image
PointCloud
Registered PointCl...
InteractiveMarkers
Color
The color of the grid lines.
Add
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
30 fps

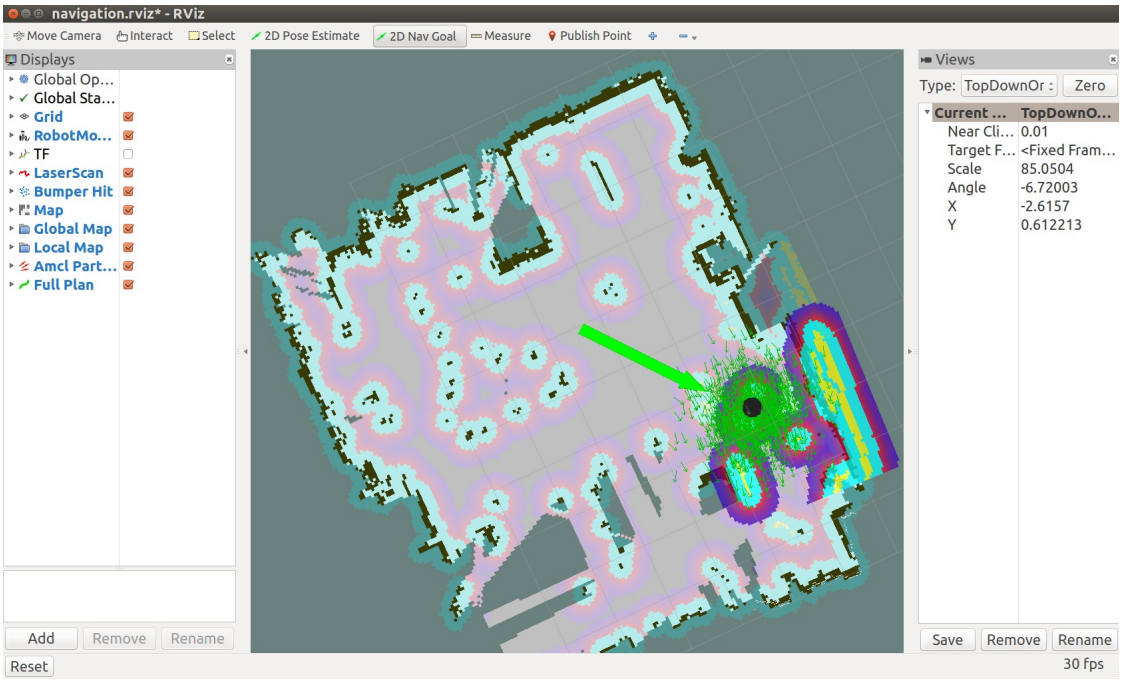

navigation.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Measure
Publish Point
Displays
Global O...
Global St...
Grid
RobotM...
TF
LaserScan
Bumper ...
Map
Global M...
Local Map
Costmap
Planner
Statu...
Topic /move_base/...
Line Style Lines
Color 0; 12; 255
Alpha 1
Buffer ... 1
Offset 0; 0; 0
Cost Cl...
Traject...
Statu...
Topic /move_base/...
Selecta...
Style Flat Squares
Size (m) 0.04
Add
Remove
Rename
Views
Type: TopDownOr
Zero
Current ... TopDownO...
Near Cli... 0.01
Target F... <Fixed Fram...
Scale 93.8848
Angle -6.72003
X -1.35336
Y 2.04398
Save
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click:: Zoom. Shift: More options.
30 fps

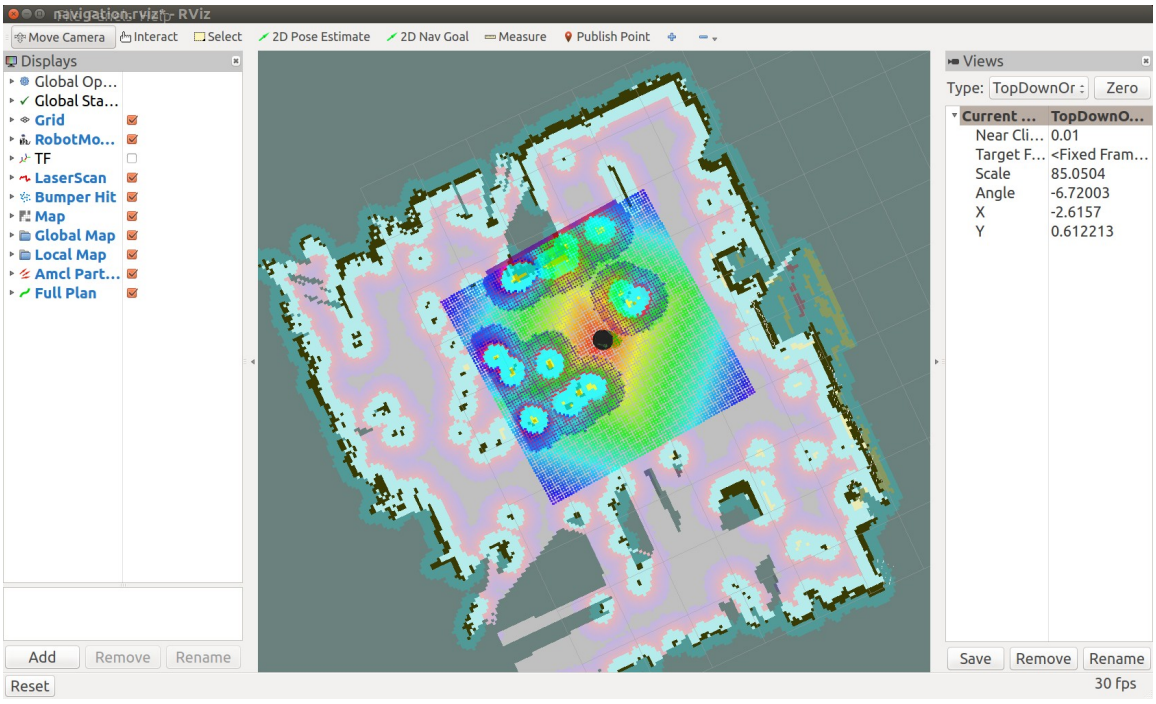

File Panels Help
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Measure
Publish Point
Displays
Global O...
Global St...
Grid
RobotM...
TF
LaserScan
Bumper ...
Map
Global M...
Local Map
Costmap
Planner
Statu...
Topic /move_base/...
Line Style Lines
Color 0; 12; 255
Alpha 1
Buffer ... 1
Offset 0; 0; 0
Cost Cl...
Traject...
Statu...
Topic /move_base/...
Selecta...
Style Flat Squares
Size (m) 0.04
Add
Remove
Rename
Views
Type: TopDownOr
Zero
Current ... TopDownO...
Near Cli... 0.01
Target F... <Fixed Fram...
Scale 89.8871
Angle -6.74503
X -1.88141
Y -0.0363605
Save
Remove
Rename
Reset
30 fps

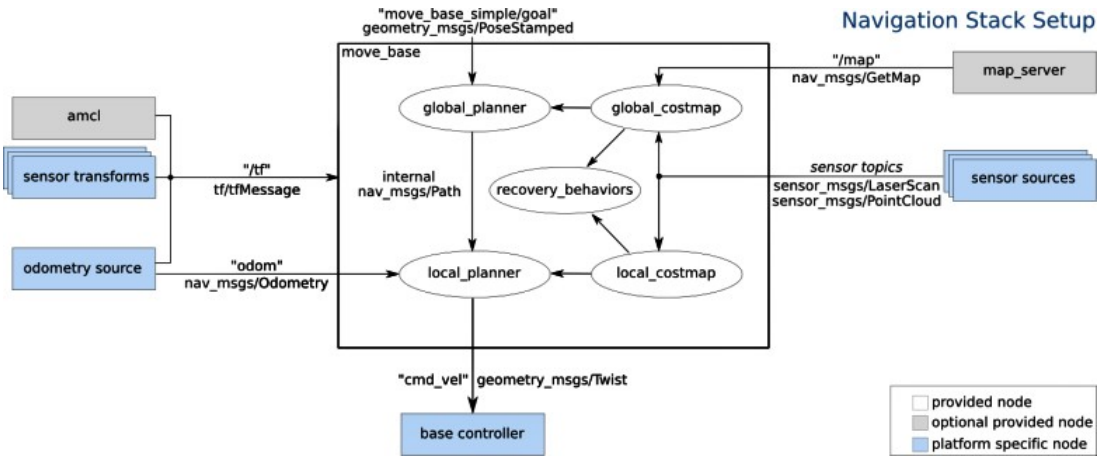

/tf
slam_gmapping
/tf_static
/slam_gmapping
/map
/scan

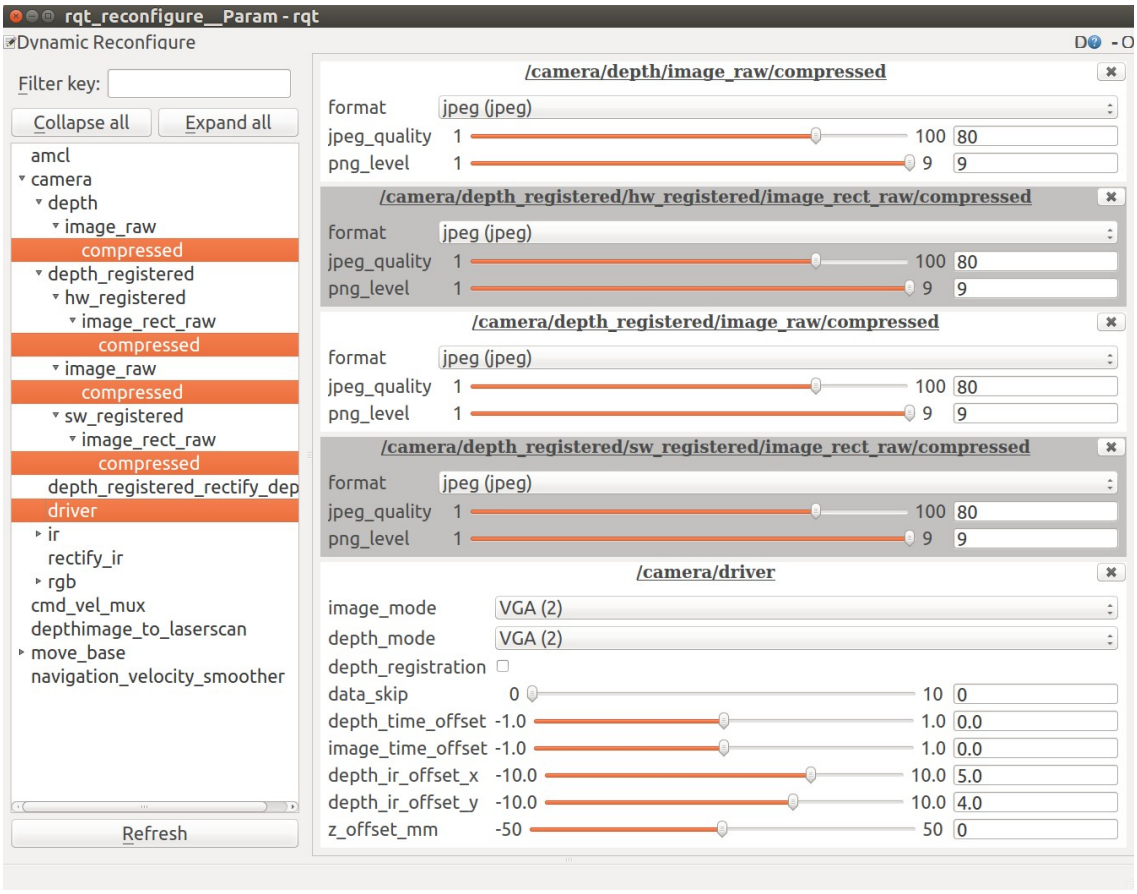

navigation.rviz - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Measure
Publish Point
Displays
Global O...
Global St...
Grid
RobotM...
TF
LaserScan
Bumper ...
Map
Global M...
Local Map
Costmap
Planner
Statu...
Topic /move_base/...
Line Style Lines
Color 0; 12; 255
Alpha 1
Buffer ... 1
Offset 0; 0; 0
Cost Cl...
Traject...
Statu...
Topic /move_base/...
Selecta...
Style Flat Squares
Size (m) 0.04
Add
Remove
Rename
Views
Type: TopDownOr :
Zero
Current ... TopDownO...
Near Cli... 0.01
Target F... <Fixed Fram...
Scale 96.6482
Angle -6.72003
X -1.35336
Y 2.04398
Save
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click:: Zoom. Shift: More options.
30 fps

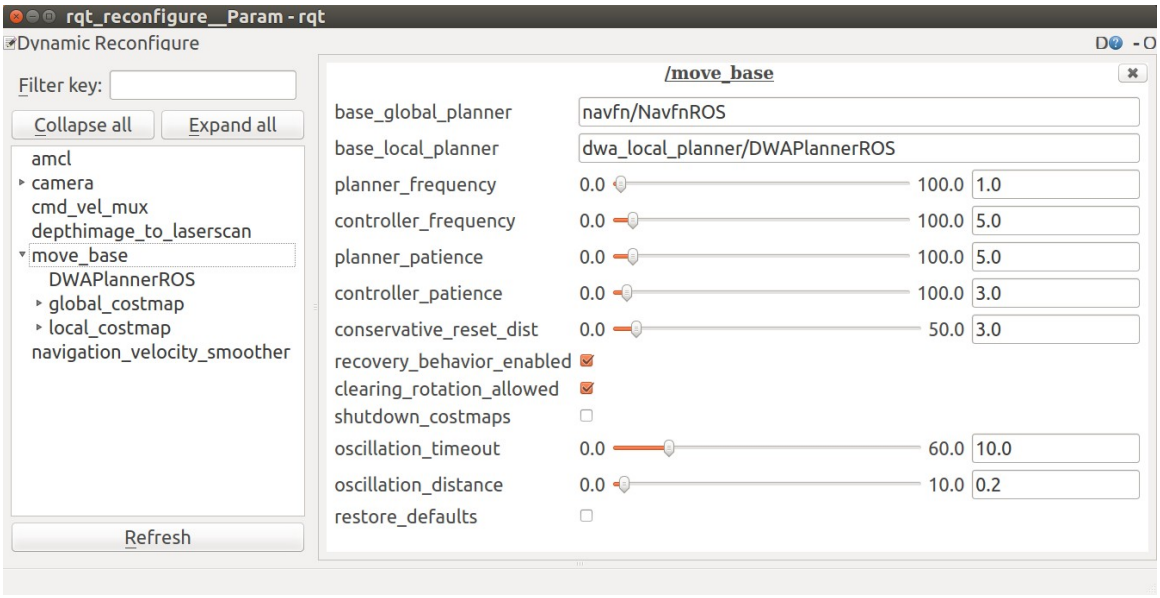

navigation.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Measure
Publish Point
Displays
Global Op…
Global Sta…
Grid
RobotMo…
TF
LaserScan
Bumper Hit
Map
Global Map
Local Map
Amcl Part…
Full Plan
Add
Remove
Rename
Reset
Views
Type: TopDownOr :
Zero
Current …
TopDownO…
Near Cli…
0.01
Target F…
<Fixed Fram…
Scale
85.0504
Angle
-6.72003
X
-2.6157
Y
0.612213
Save
Remove
Rename
30 fps


navigation.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Measure
Publish Point
Displays
Global Op...
Global Sta...
Grid
RobotMo...
TF
LaserScan
Bumper Hit
Map
Global Map
Local Map
Amcl Part...
Full Plan
Add
Remove
Rename
Reset
Views
Type: TopDownOr :
Zero
Current ...
TopDownO...
Near Cli...
0.01
Target F...
<Fixed Fram...
Scale
85.0504
Angle
-6.72003
X
-2.6157
Y
0.612213
Save
Remove
Rename
30 fps

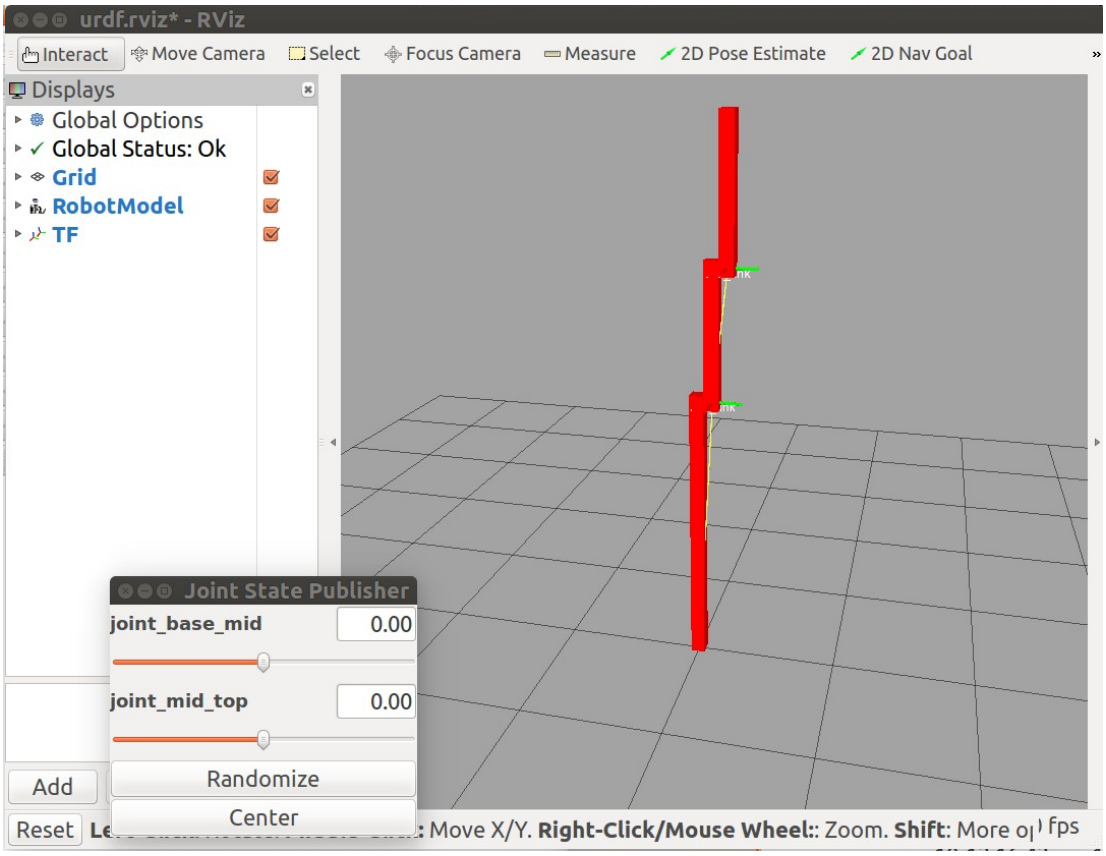

navigation.rviz* - RViz
Move Camera
Interact
Select
2D Pose Estimate
2D Nav Goal
Measure
Publish Point
Displays
Global Op...
Global Sta...
Grid
RobotMo...
TF
LaserScan
Bumper Hit
Map
Global Map
Local Map
Amcl Part...
Full Plan
Add
Remove
Rename
Reset
Views
Type: TopDownOr :
Zero
Current ...
TopDownO...
Near Cli... 0.01
Target F... <Fixed Fram...
Scale 85.0504
Angle -6.72003
X -2.6157
Y 0.612213
Save
Remove
Rename
30 fps

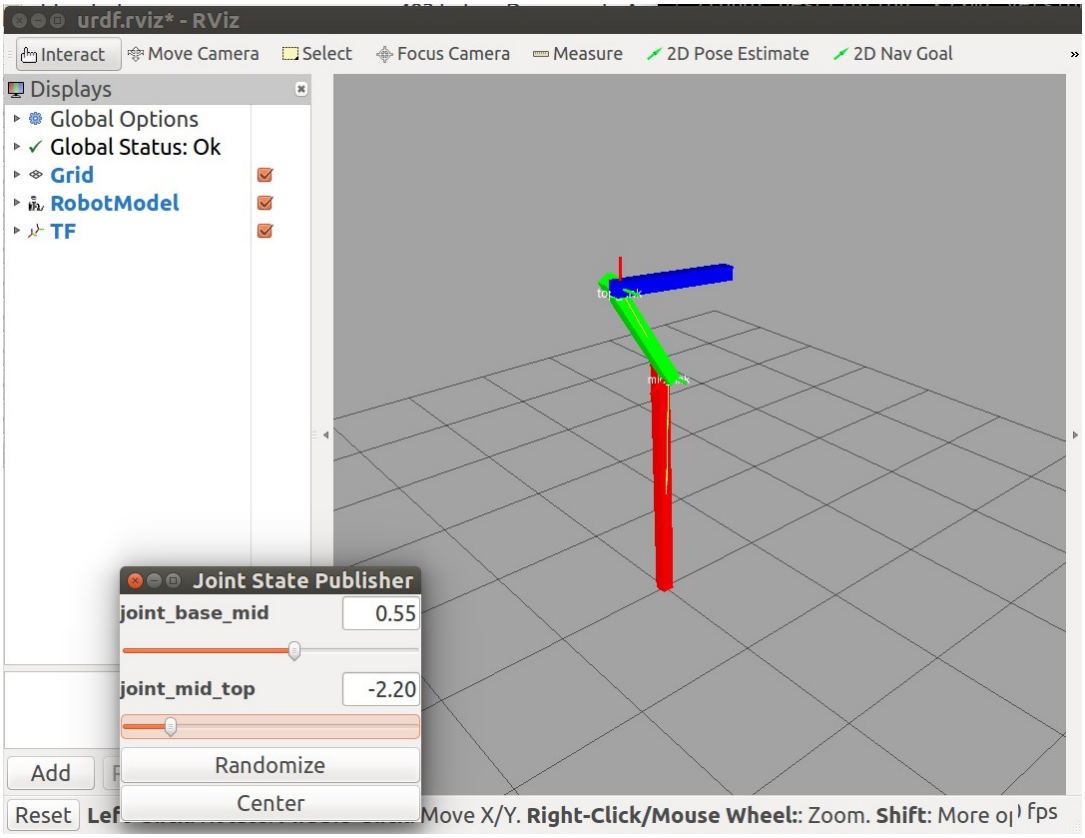

Navigation Stack Setup
"move_base_simple/goal"
geometry_msgs/PoseStamped
move_base
"/map"
nav_msgs/GetMap
map_server
global_planner
global_costmap
amcl
sensor transforms
"/tf"
tf/tfMessage
internal
nav_msgs/Path
recovery_behaviors
sensor topics
sensor_msgs/LaserScan
sensor_msgs/PointCloud
sensor sources
odometry source
"odom"
nav_msgs/Odometry
local_planner
local_costmap
"cmd_vel"
geometry_msgs/Twist
base controller
provided node
optional provided node
platform specific node

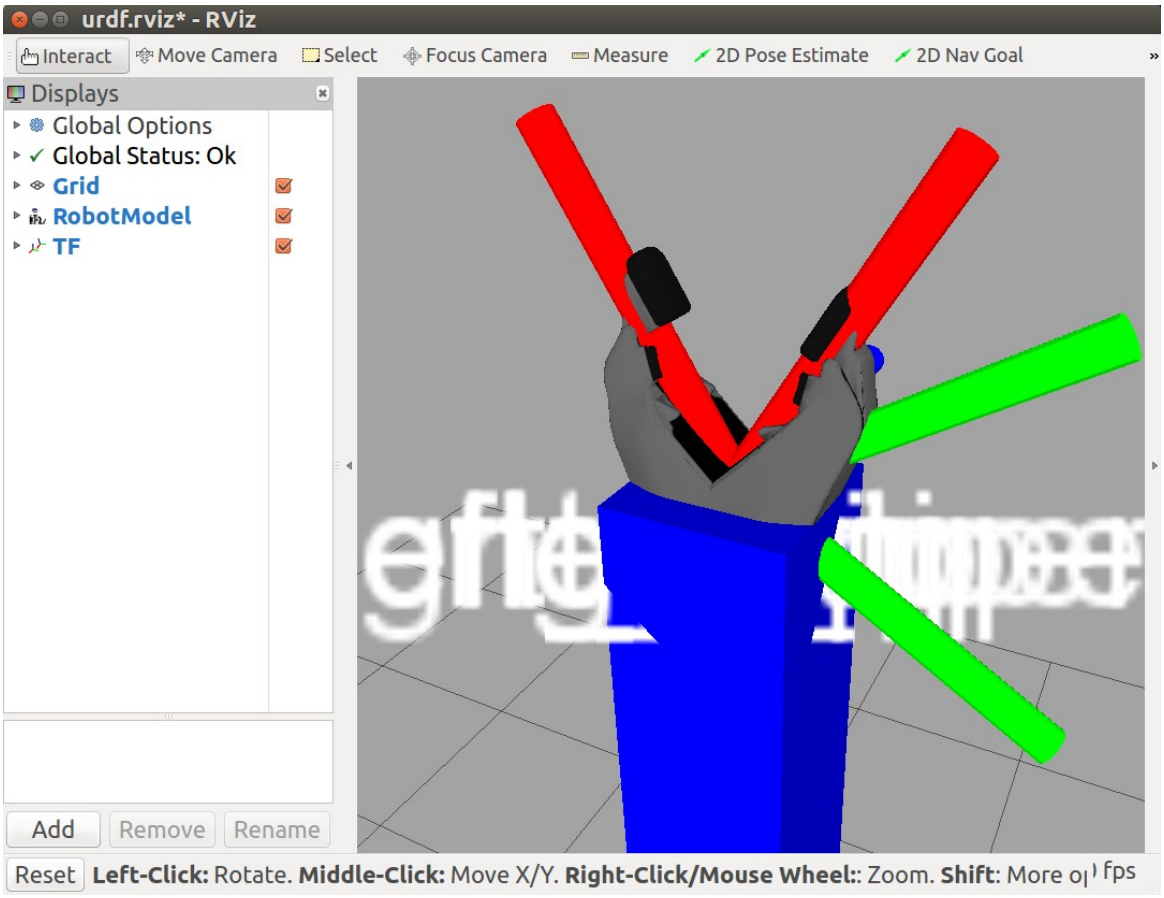

rqt_reconfigure__Param - rqt
Dynamic Reconfigure
Filter key:
Collapse all
Expand all
amcl
camera
depth
image_raw
compressed
depth_registered
hw_registered
image_rect_raw
compressed
image_raw
compressed
sw_registered
image_rect_raw
compressed
depth_registered_rectify_dep
driver
ir
rectify_ir
rgb
cmd_vel_mux
depthimage_to_laserscan
move_base
navigation_velocity_smoother
Refresh
/camera/depth/image_raw/compressed
format jpeg (jpeg)
jpeg_quality 1 100 80
png_level 1 9 9
/camera/depth_registered/hw_registered/image_rect_raw/compressed
format jpeg (jpeg)
jpeg_quality 1 100 80
png_level 1 9 9
/camera/depth_registered/image_raw/compressed
format jpeg (jpeg)
jpeg_quality 1 100 80
png_level 1 9 9
/camera/depth_registered/sw_registered/image_rect_raw/compressed
format jpeg (jpeg)
jpeg_quality 1 100 80
png_level 1 9 9
/camera/driver
image_mode VGA (2)
depth_mode VGA (2)
depth_registration
data_skip 0 10 0
depth_time_offset -1.0 1.0 0.0
image_time_offset -1.0 1.0 0.0
depth_ir_offset_x -10.0 10.0 5.0
depth_ir_offset_y -10.0 10.0 4.0
z_offset_mm -50 50 0

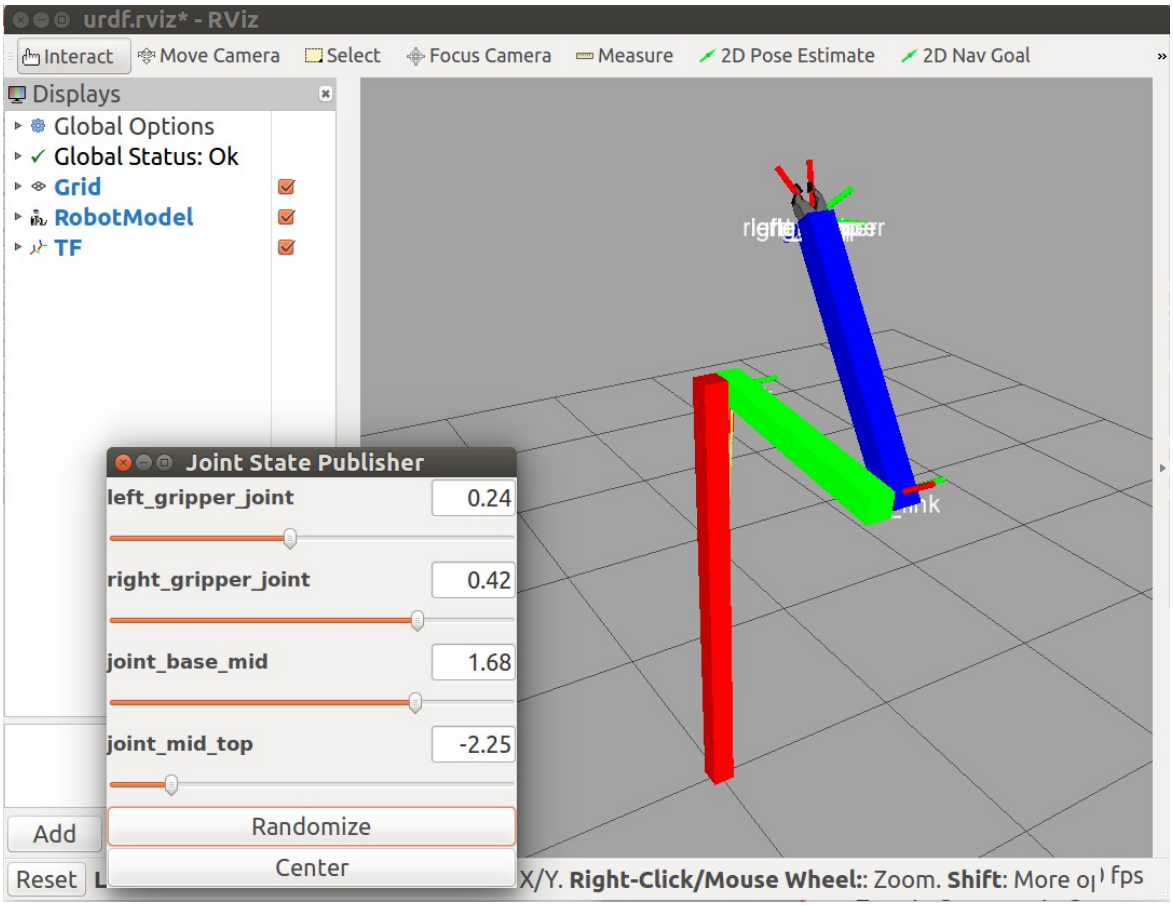


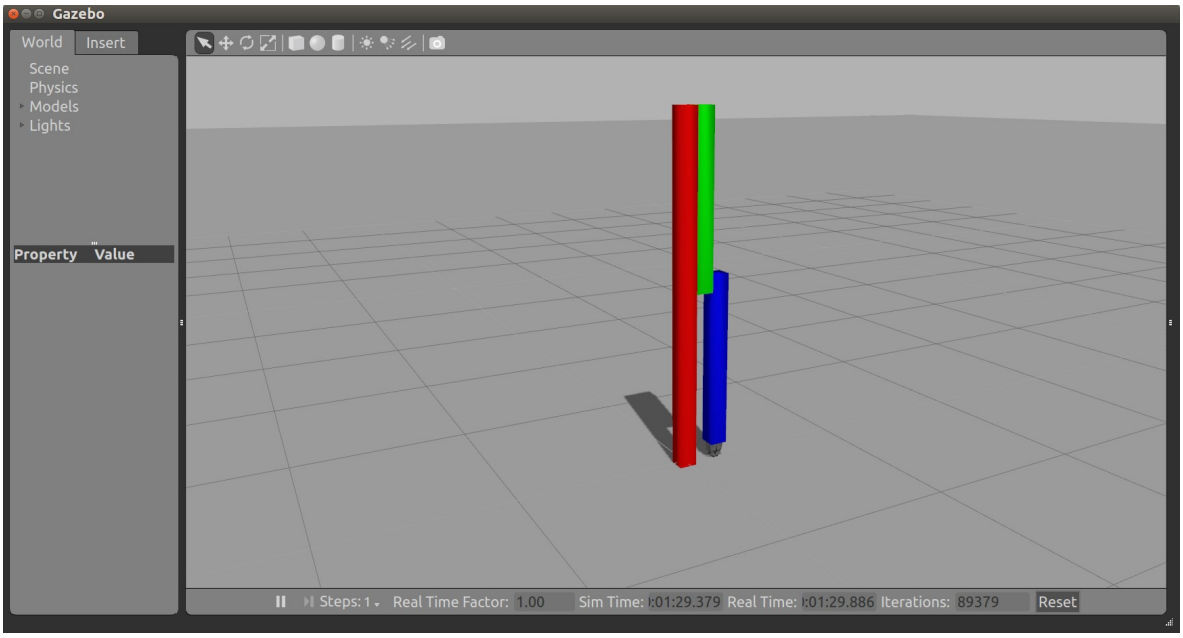
Chapter 5 - Creating Your First Robot Arm (in Simulation)

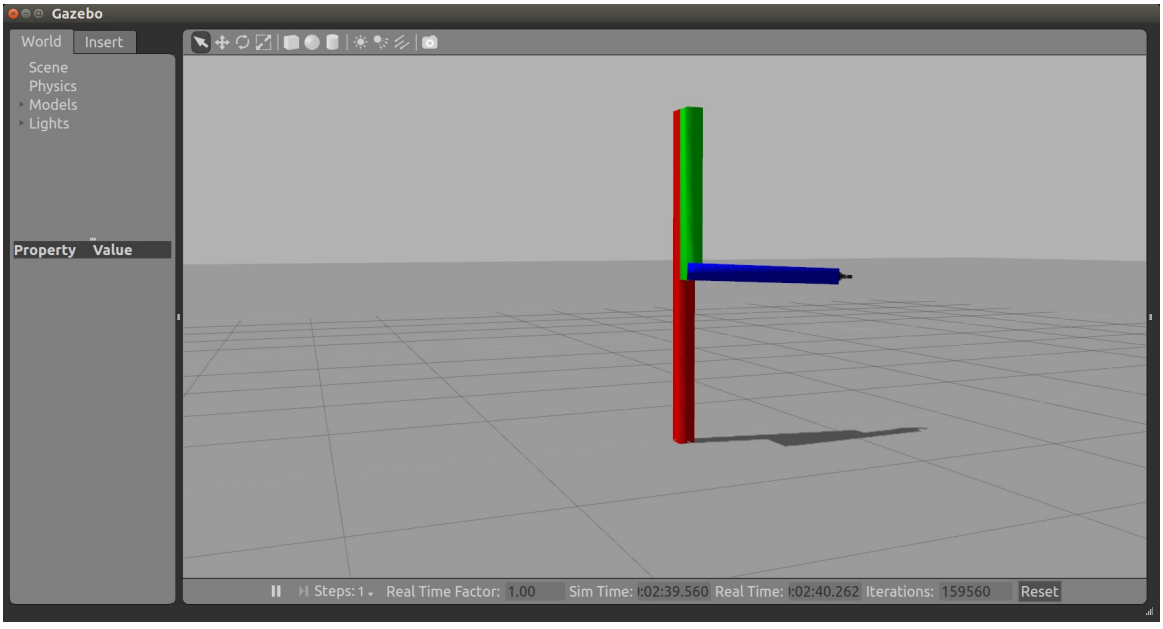

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Joint State Publisher
joint_base_mid
0.00
joint_mid_top
0.00
Randomize
Center
Add
Reset
Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More o
fps

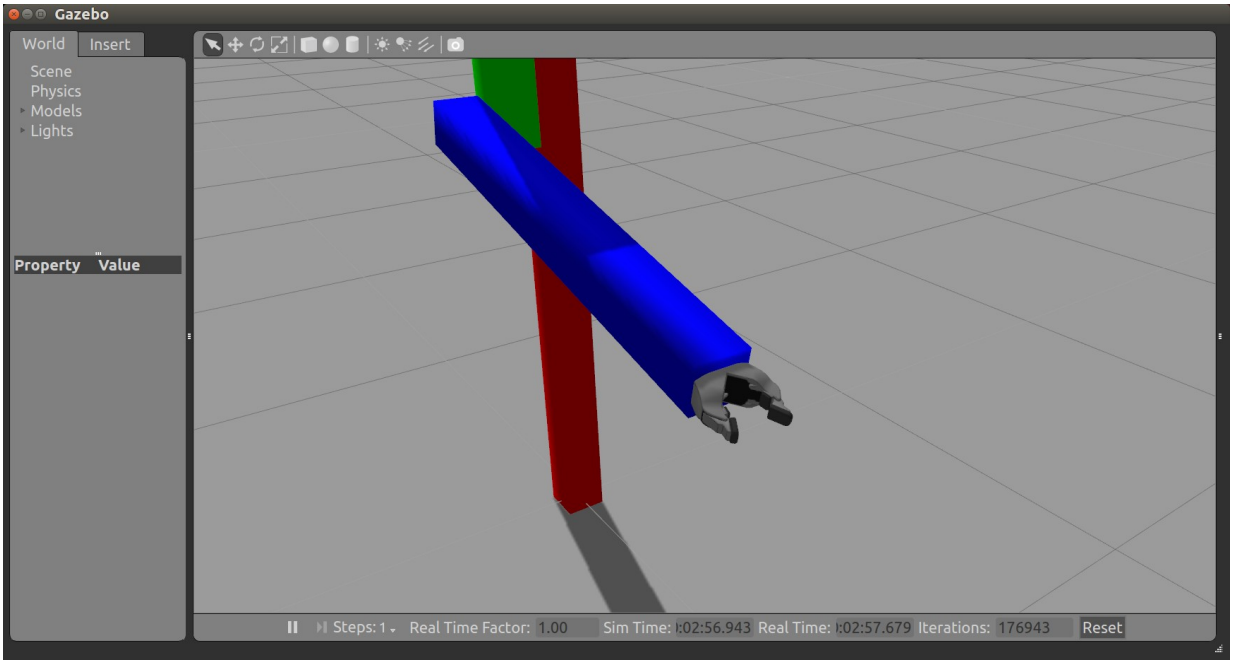

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Joint State Publisher
joint_base_mid
0.55
joint_mid_top
-2.20
Randomize
Center
Add
Reset
Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More
fps

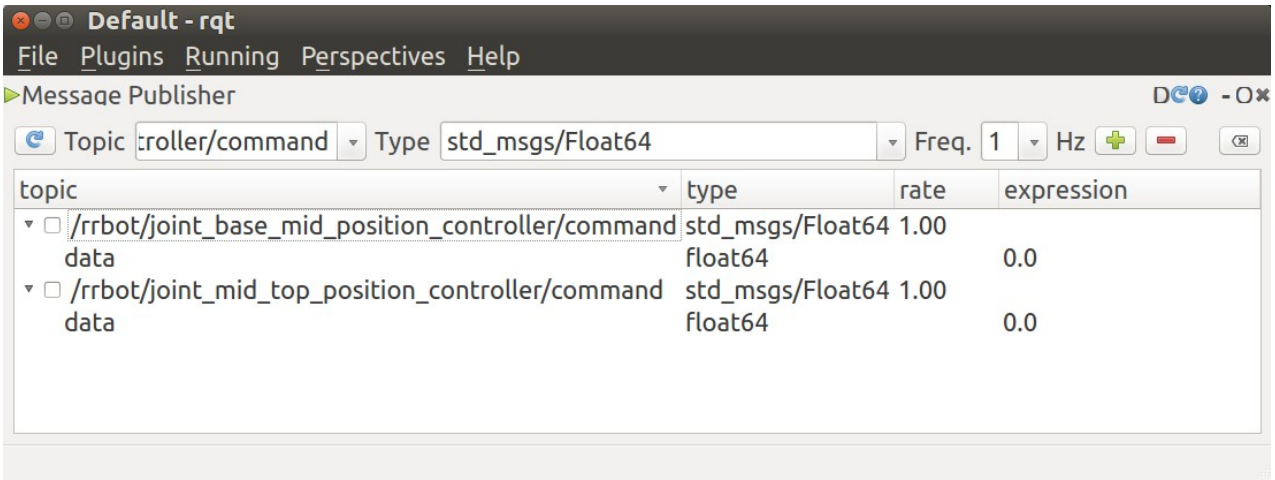

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Add
Remove
Rename
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More o
fps

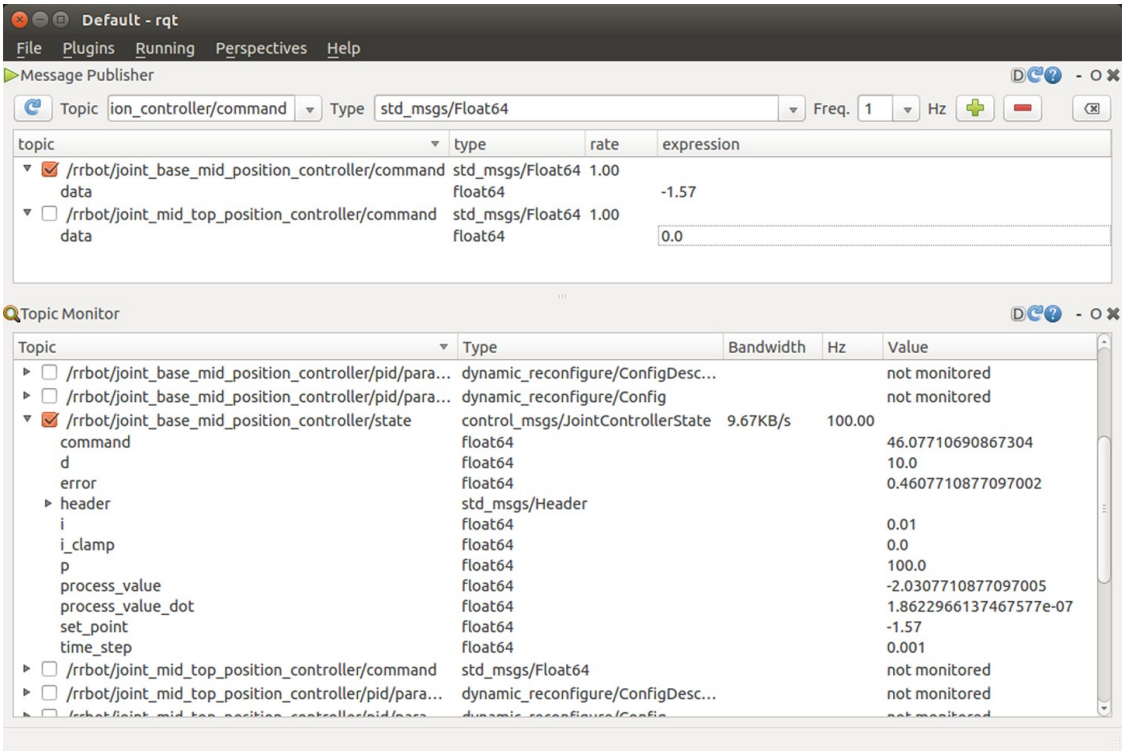

urdf.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Displays
Global Options
Global Status: Ok
Grid
RobotModel
TF
Joint State Publisher
left_gripper_joint
0.24
right_gripper_joint
0.42
joint_base_mid
1.68
joint_mid_top
-2.25
Randomize
Center
Add
Reset
X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More o
fps

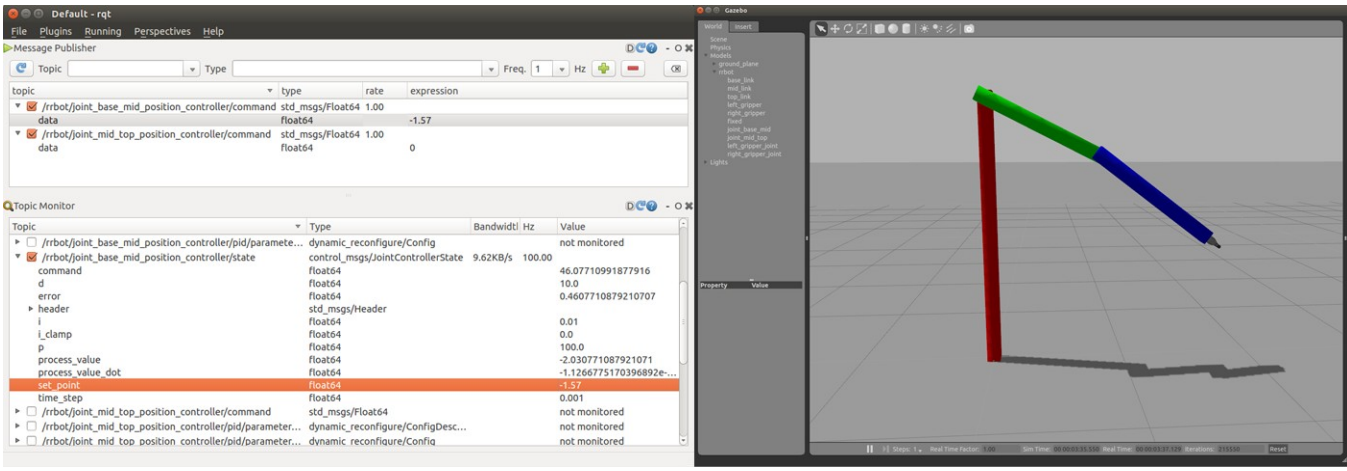

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 01:29.379
Real Time: 01:29.886
Iterations: 89379
Reset


Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 02:39.560
Real Time: 02:40.262
Iterations: 159560
Reset


Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time:
02:56.943
Real Time:
02:57.679
Iterations: 176943
Reset

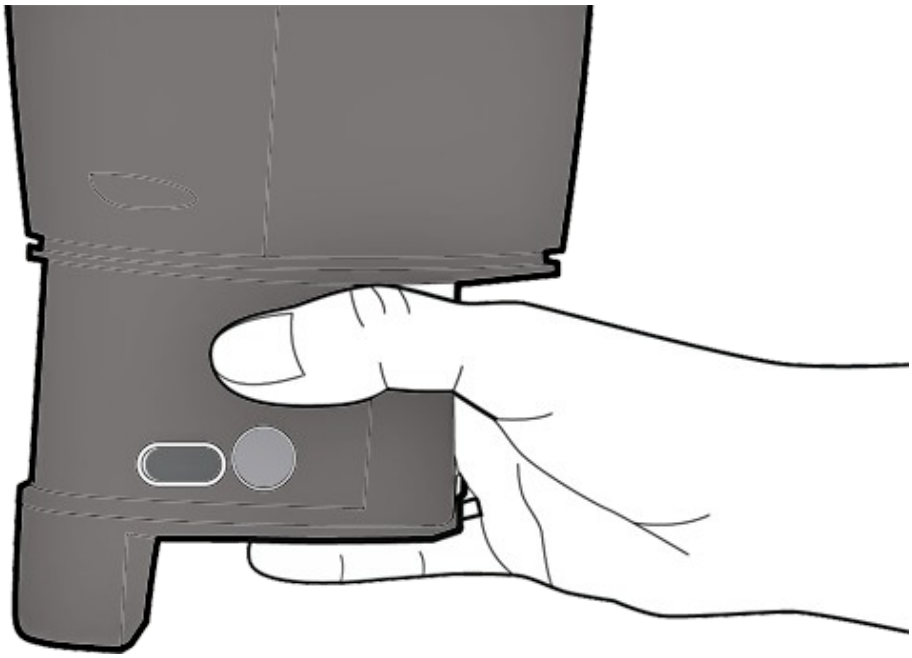

Default - rqt
File
Plugins
Running
Perspectives
Help
Message Publisher
Topic
troller/command
Type
std_msgs/Float64
Freq.
1
Hz
topic
type
rate
expression
/rrbot/joint_base_mid_position_controller/command
std_msgs/Float64
1.00
data
float64
0.0
/rrbot/joint_mid_top_position_controller/command
std_msgs/Float64
1.00
data
float64
0.0

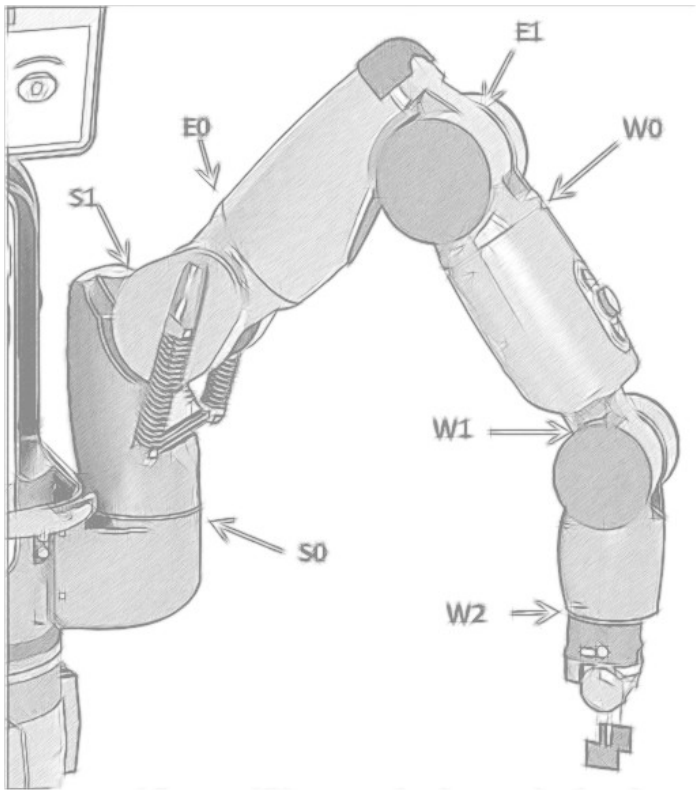

Default - rqt
File Plugins Running Perspectives Help
Message Publisher
Topic ion_controller/command Type std_msgs/Float64 Freq. 1 Hz
topic type rate expression
/rrbot/joint_base_mid_position_controller/command std_msgs/Float64 1.00
data float64 -1.57
/rrbot/joint_mid_top_position_controller/command std_msgs/Float64 1.00
data float64 0.0
Topic Monitor
Topic Type Bandwidth Hz Value
/rrbot/joint_base_mid_position_controller/pid/para... dynamic_reconfigure/ConfigDesc... not monitored
/rrbot/joint_base_mid_position_controller/pid/para... dynamic_reconfigure/Config not monitored
/rrbot/joint_base_mid_position_controller/state control_msgs/JointControllerState 9.67KB/s 100.00
command float64 46.07710690867304
d float64 10.0
error float64 0.4607710877097002
header std_msgs/Header
i float64 0.01
i_clamp float64 0.0
p float64 100.0
process_value float64 -2.0307710877097005
process_value_dot float64 1.8622966137467577e-07
set_point float64 -1.57
time_step float64 0.001
/rrbot/joint_mid_top_position_controller/command std_msgs/Float64 not monitored
/rrbot/joint_mid_top_position_controller/pid/para... dynamic_reconfigure/ConfigDesc... not monitored

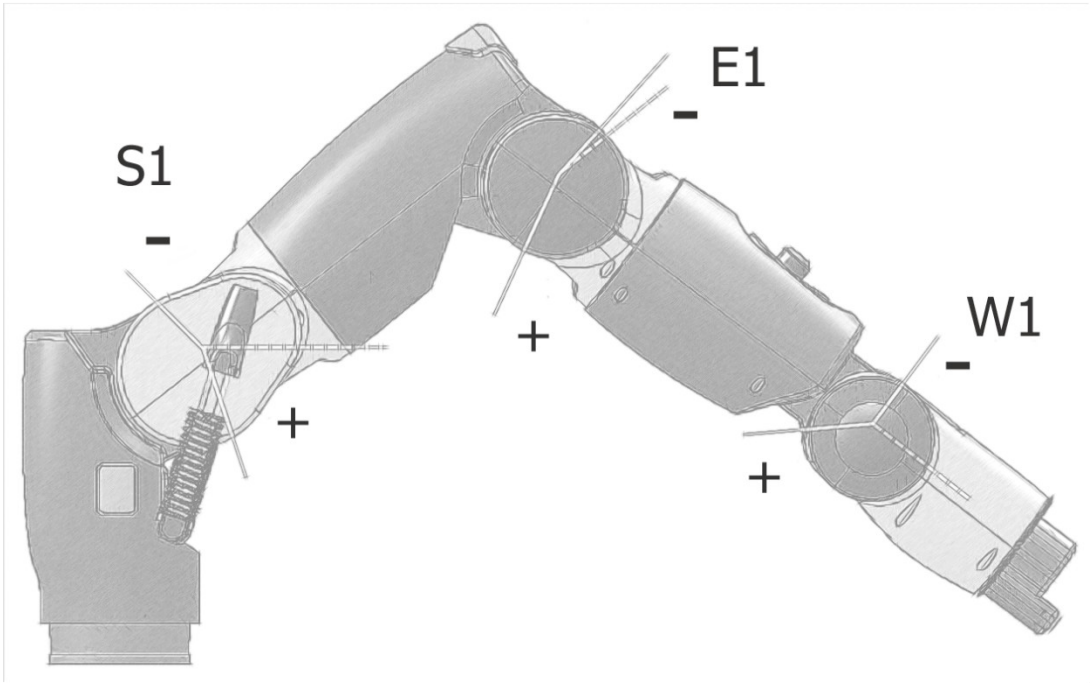

Default - rqt
File Plugins Running Perspectives Help
Message Publisher
Topic Type Freq. 1 Hz
topic type rate expression
/rrbot/joint_base_mid_position_controller/command std_msgs/Float64 1.00
data float64 -1.57
/rrbot/joint_mid_top_position_controller/command std_msgs/Float64 1.00
data float64 0
Topic Monitor
Topic Type Bandwidth Hz Value
/rrbot/joint_base_mid_position_controller/pid/paramete... dynamic_reconfigure/Config not monitored
/rrbot/joint_base_mid_position_controller/state control_msgs/JointControllerState 9.62KB/s 100.00
command float64 46.07710991877916
d float64 10.0
error float64 0.4607710879210707
header std_msgs/Header
i float64 0.01
i_clamp float64 0.0
p float64 100.0
process_value float64 -2.030771087921071
process_value_dot float64 -1.1266775170396892e-...
set_point float64 -1.57
time_step float64 0.001
/rrbot/joint_mid_top_position_controller/command std_msgs/Float64 not monitored
/rrbot/joint_mid_top_position_controller/pid/parameter... dynamic_reconfigure/ConfigDesc... not monitored
/rrbot/joint_mid_top_position_controller/pid/parameter... dynamic_reconfigure/Config not monitored
Gazebo
World Insert
Scene
Physics
Models
ground_plane
rrbot
base_link
mid_link
top_link
left_gripper
right_gripper
fixed
joint_base_mid
joint_mid_top
left_gripper_joint
right_gripper_joint
Lights
Property Value

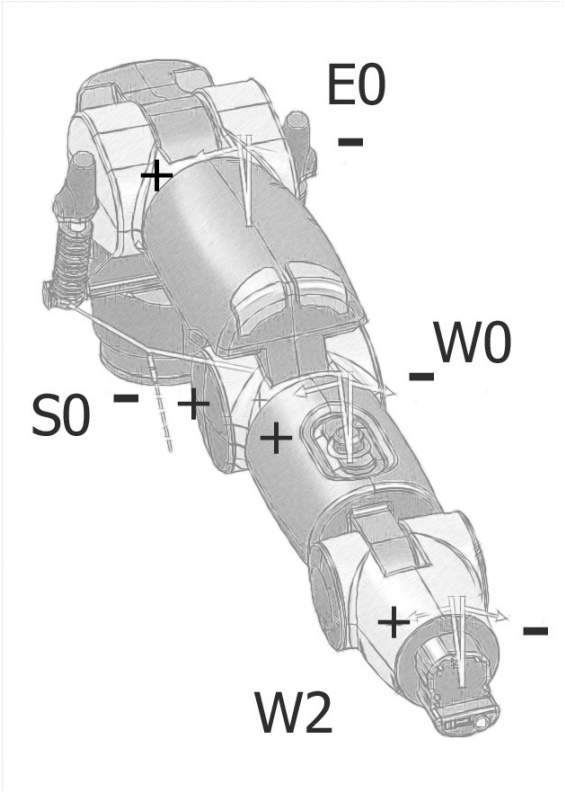
Chapter 6 - Wobbling Robot Arms Using Joint Control

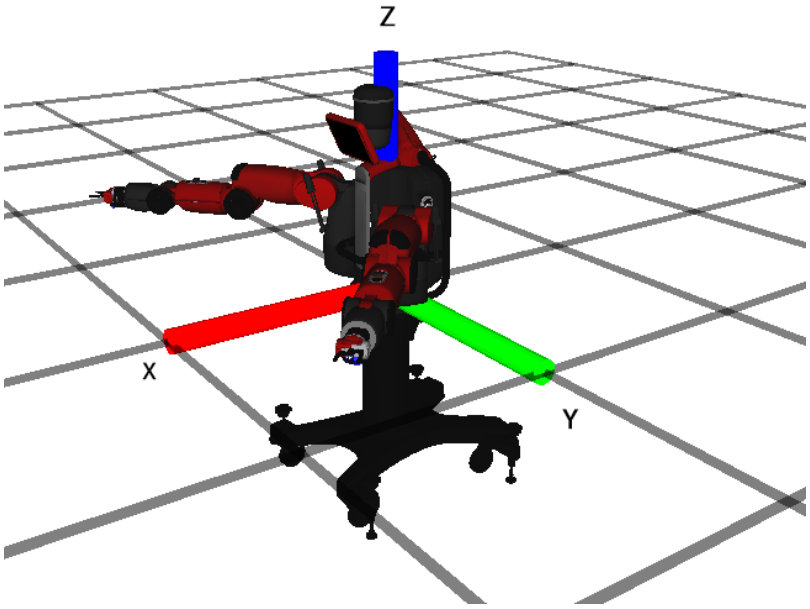
baxter
rethink robotics

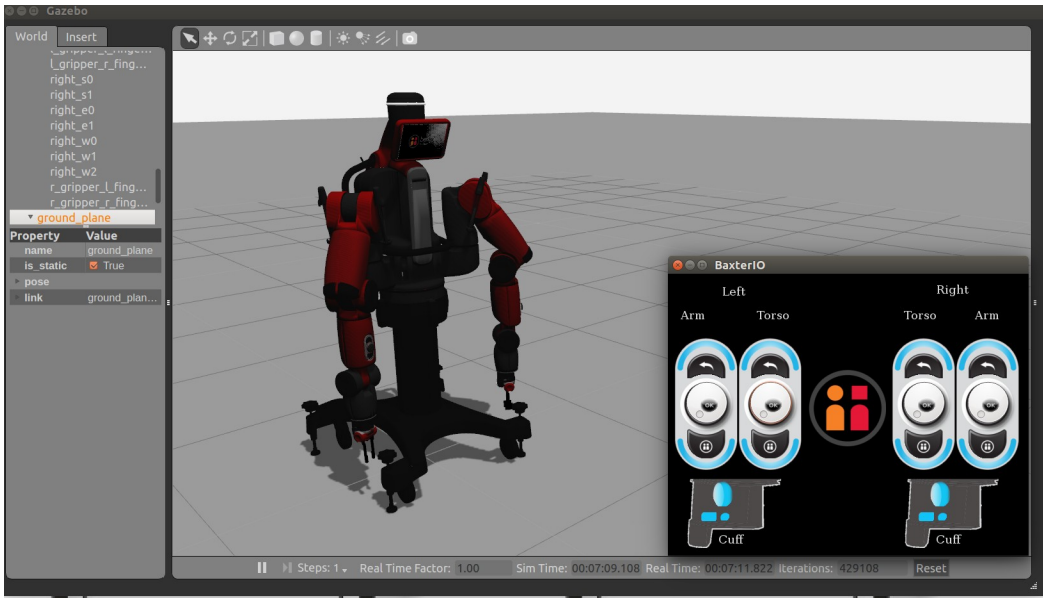


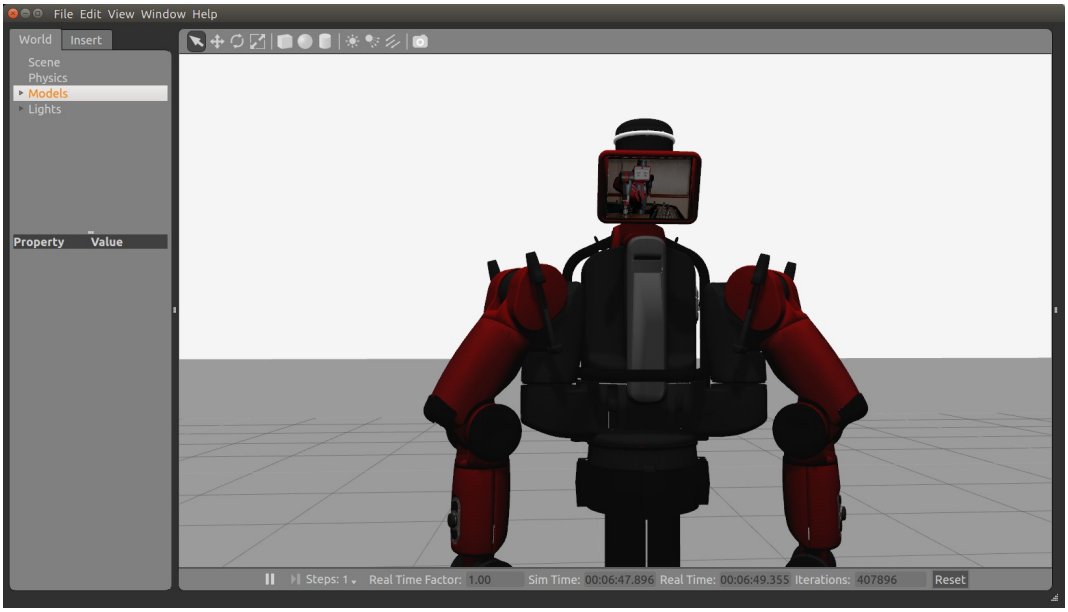

E1
E0
W0
S1
W1
S0
W2

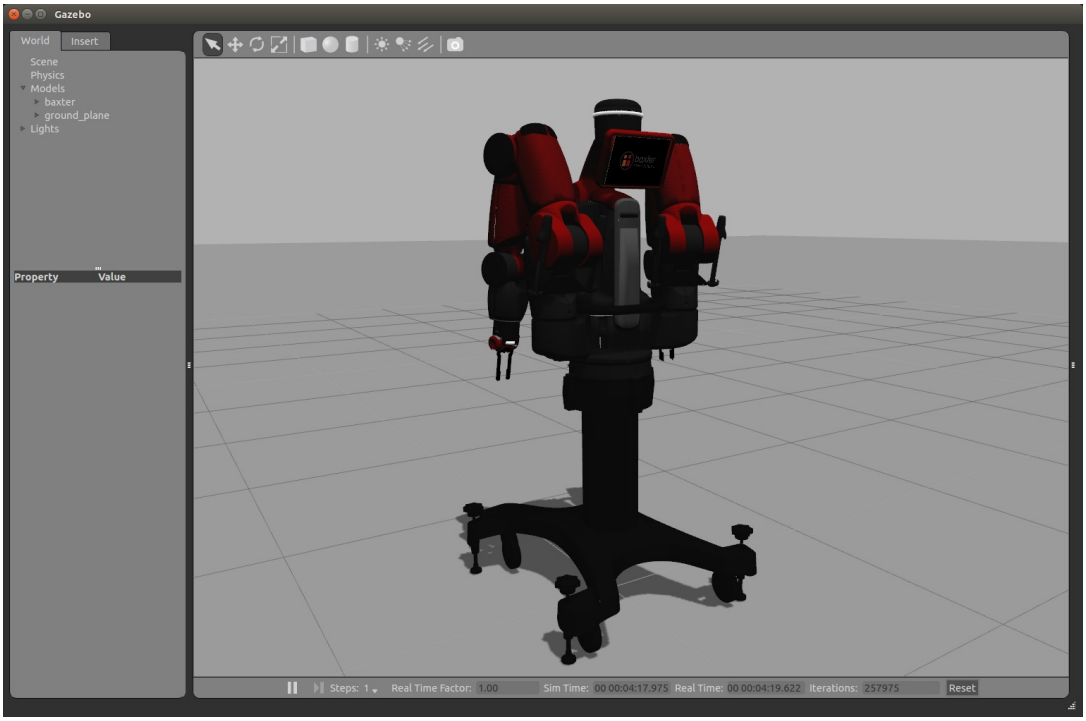

S1
-
+
E1
-
+
W1
-
+


E0
-
+
W0
-
S0
-
+
+
+
-
W2


Z
X
Y

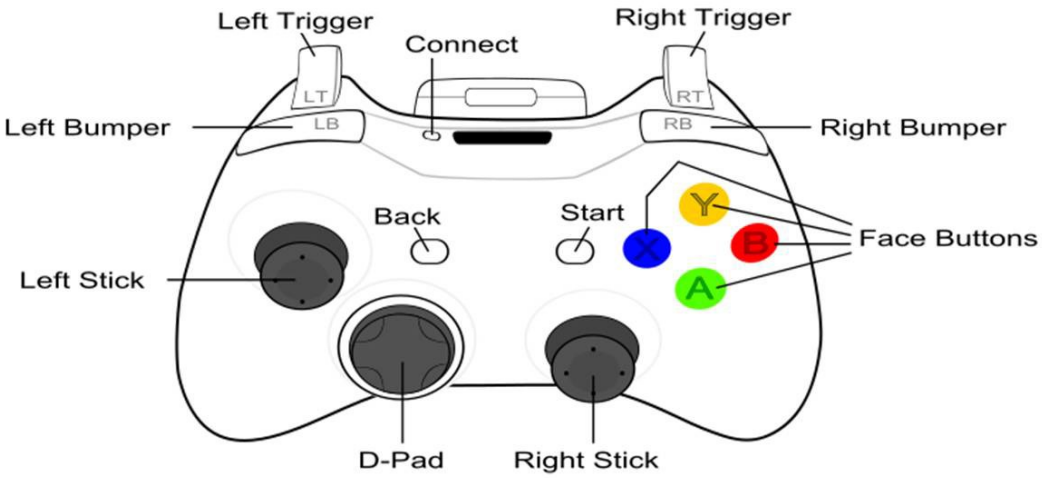

Gazebo
World
Insert
right_s0
right_s1
right_e0
right_e1
right_w0
right_w1
right_w2
r_gripper_l_fing...
r_gripper_r_fing...
ground_plane
Property
Value
name
ground_plane
is_static
True
pose
link
BaxterIO
Left
Right
Arm
Torso
Torso
Arm
Cuff
Cuff
Steps: 1
Real Time Factor: 1.00
Sim Time: 00:07:09.108
Real Time: 00:07:11.822
Iterations: 429108
Reset

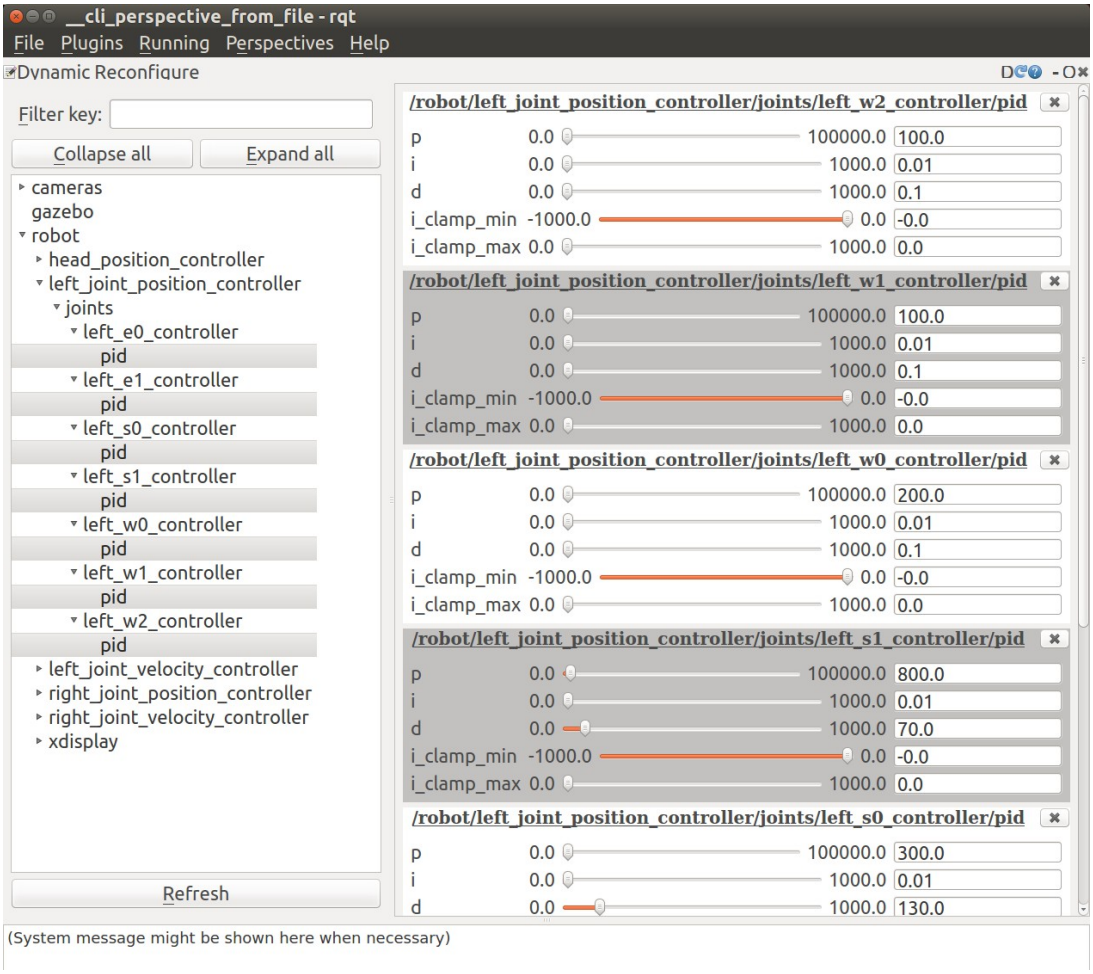

File Edit View Window Help
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 00:06:47.896
Real Time: 00:06:49.355
Iterations: 407896
Reset

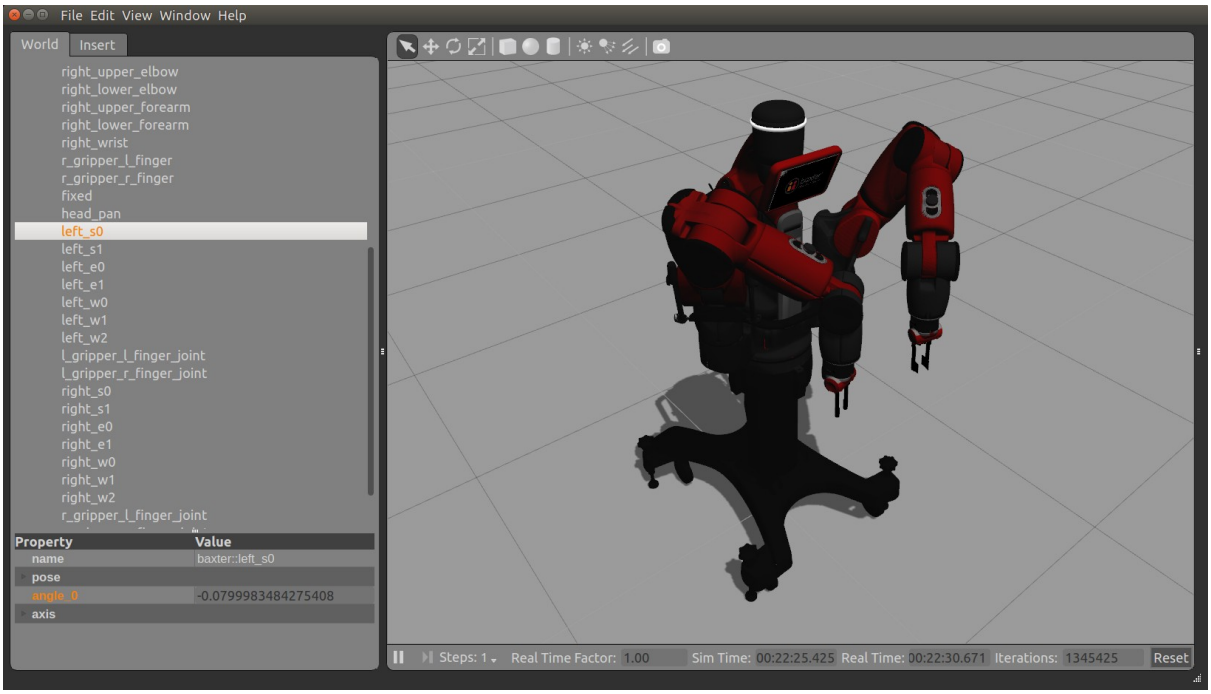

Gazebo
World
Insert
Scene
Physics
Models
baxter
ground_plane
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 00 00:04:17.975
Real Time: 00 00:04:19.622
Iterations: 257975
Reset

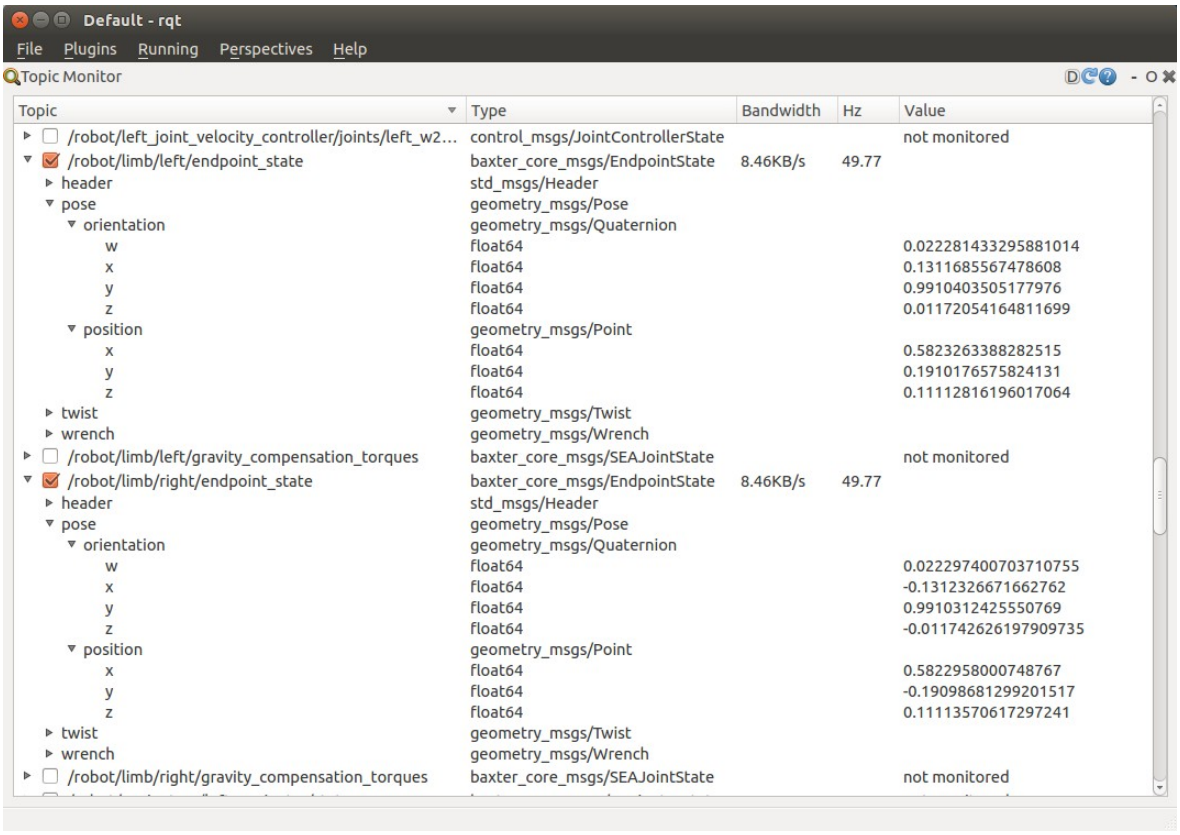
File Edit View Window Help
World
Insert
l_gripper_r_fing...
right_s0
right_s1
right_e0
right_e1
right_w0
right_w1
right_w2
r_gripper_l_fing...
r_gripper_r_fing...
ground_plane
Property
Value
name
ground_plane
is_static
True
pose
link
ground_plan...
Steps: 1
Real Time Factor: 1.00
Sim Time: 00:19:58.760
Real Time: 00:20:02.958
Iterations: 1198760
Reset

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 00 00:49:53.473
Real Time: 00 00:50:01.941
Iterations: 2993473
Reset

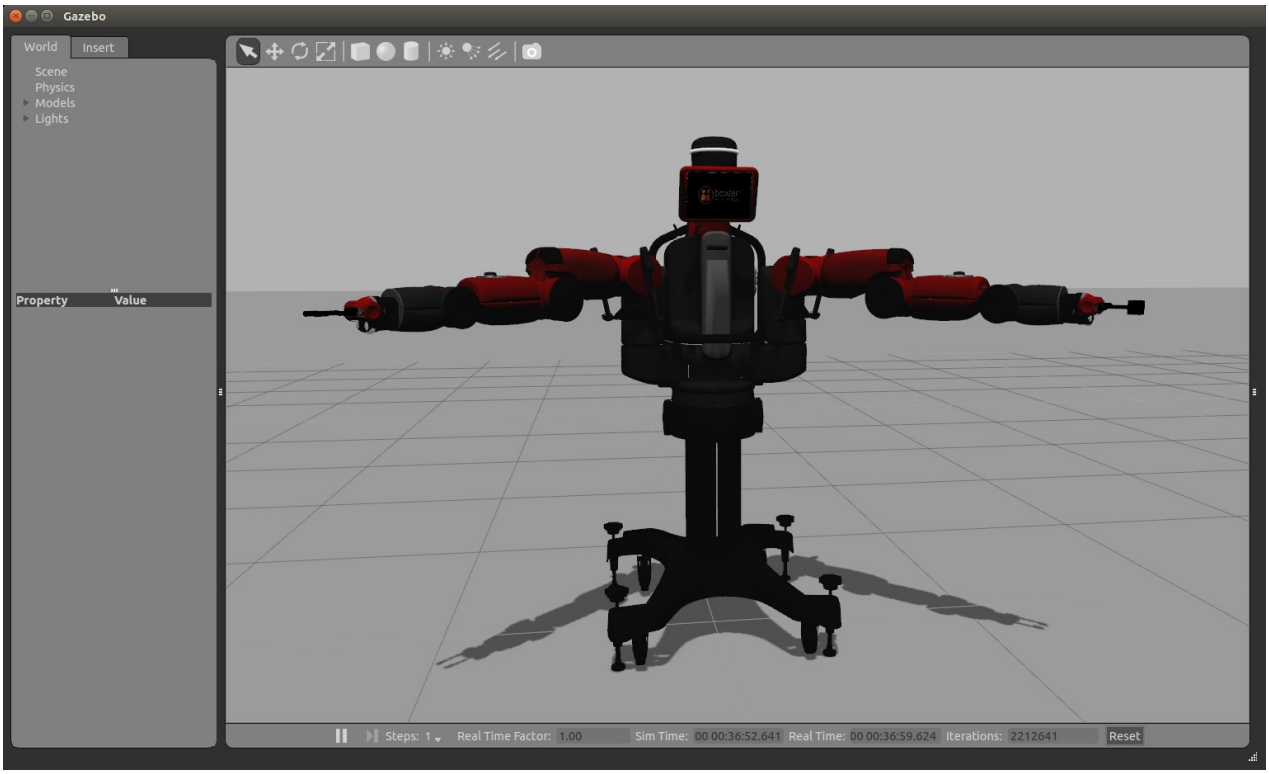

Left Trigger
Right Trigger
Connect
LT
RT
Left Bumper
LB
RB
Right Bumper
Back
Start
Y
X
B
A
Face Buttons
Left Stick
D-Pad
Right Stick

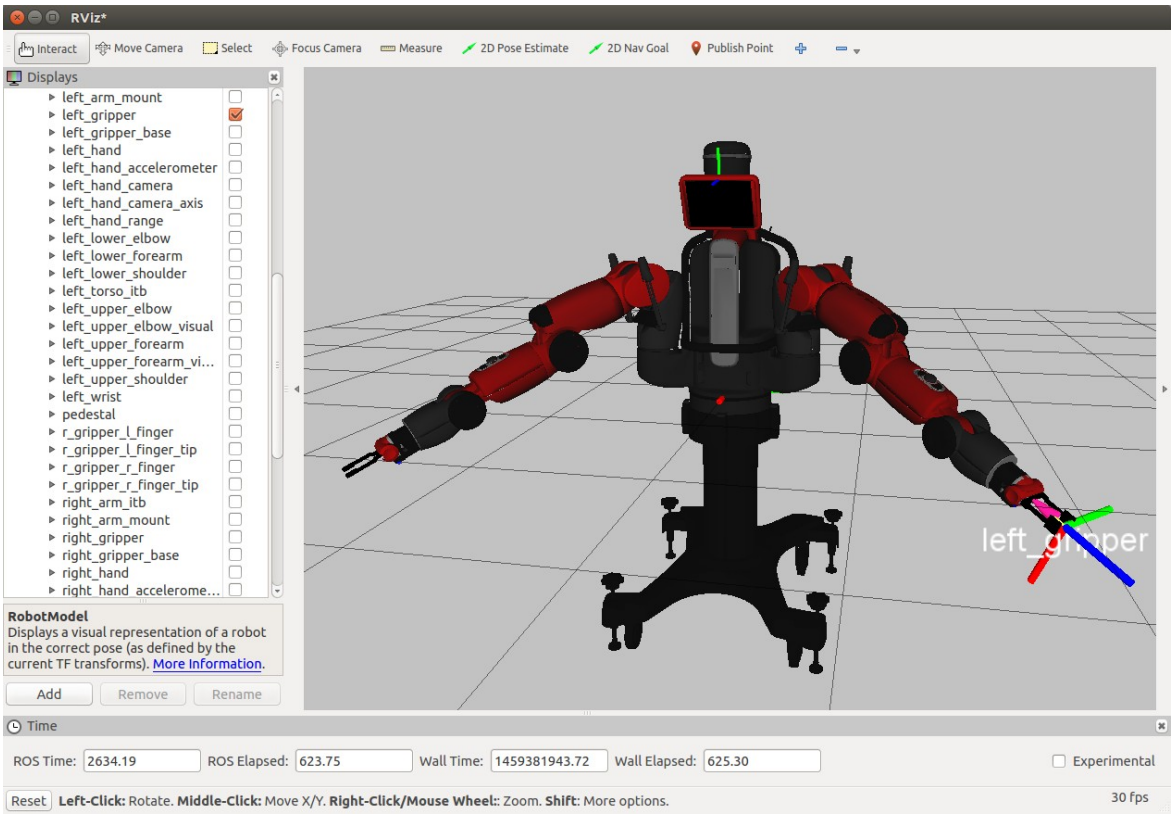

__cli_perspective_from_file - rqt
File Plugins Running Perspectives Help
Dynamic Reconfigure
Filter key:
Collapse all
Expand all
cameras
gazebo
robot
head_position_controller
left_joint_position_controller
joints
left_e0_controller
pid
left_e1_controller
pid
left_s0_controller
pid
left_s1_controller
pid
left_w0_controller
pid
left_w1_controller
pid
left_w2_controller
pid
left_joint_velocity_controller
right_joint_position_controller
right_joint_velocity_controller
xdisplay
Refresh
/robot/left_joint_position_controller/joints/left_w2_controller/pid
p 0.0 100000.0 100.0
i 0.0 1000.0 0.01
d 0.0 1000.0 0.1
i_clamp_min -1000.0 0.0 -0.0
i_clamp_max 0.0 1000.0 0.0
/robot/left_joint_position_controller/joints/left_w1_controller/pid
p 0.0 100000.0 100.0
i 0.0 1000.0 0.01
d 0.0 1000.0 0.1
i_clamp_min -1000.0 0.0 -0.0
i_clamp_max 0.0 1000.0 0.0
/robot/left_joint_position_controller/joints/left_w0_controller/pid
p 0.0 100000.0 200.0
i 0.0 1000.0 0.01
d 0.0 1000.0 0.1
i_clamp_min -1000.0 0.0 -0.0
i_clamp_max 0.0 1000.0 0.0
/robot/left_joint_position_controller/joints/left_s1_controller/pid
p 0.0 100000.0 800.0
i 0.0 1000.0 0.01
d 0.0 1000.0 70.0
i_clamp_min -1000.0 0.0 -0.0
i_clamp_max 0.0 1000.0 0.0
/robot/left_joint_position_controller/joints/left_s0_controller/pid
p 0.0 100000.0 300.0
i 0.0 1000.0 0.01
d 0.0 1000.0 130.0
(System message might be shown here when necessary)

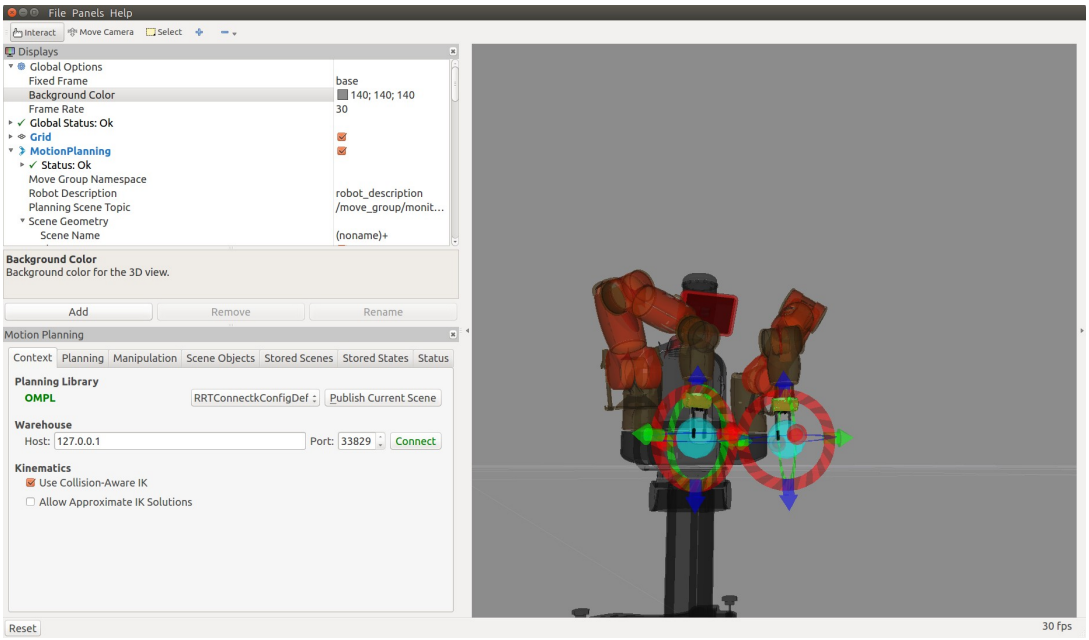

File Edit View Window Help
World
Insert
right_upper_elbow
right_lower_elbow
right_upper_forearm
right_lower_forearm
right_wrist
r_gripper_l_finger
r_gripper_r_finger
fixed
head_pan
left_s0
left_s1
left_e0
left_e1
left_w0
left_w1
left_w2
l_gripper_l_finger_joint
l_gripper_r_finger_joint
right_s0
right_s1
right_e0
right_e1
right_w0
right_w1
right_w2
r_gripper_l_finger_joint
Property
Value
name
baxter::left_s0
pose
angle_0
-0.0799983484275408
axis
Steps: 1
Real Time Factor: 1.00
Sim Time: 00:22:25.425
Real Time: 00:22:30.671
Iterations: 1345425
Reset

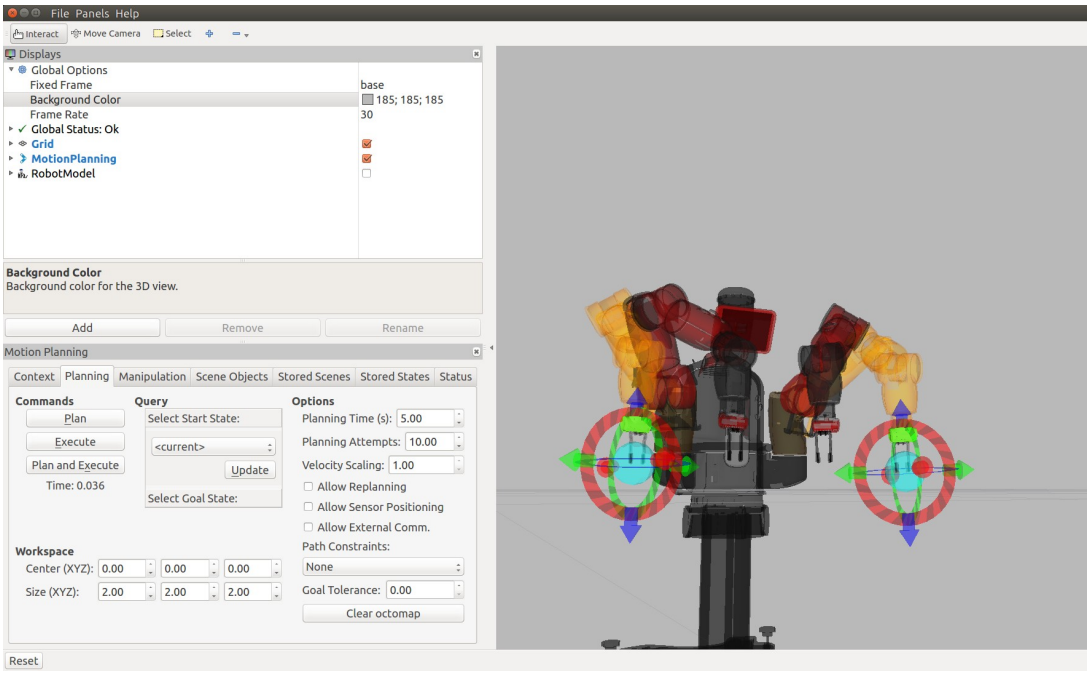


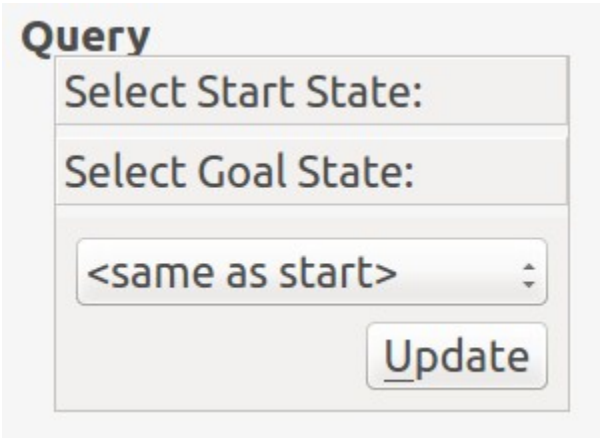
Topic	Type	Bandwidth	Hz	Value
/robot/left_joint_velocity_controller/joints/left_w2...	control_msgs/JointControllerState			not monitored
/robot/limb/left/endpoint_state	baxter_core_msgs/EndpointState	8.46KB/s	49.77	
header	std_msgs/Header			
pose	geometry_msgs/Pose			
orientation	geometry_msgs/Quaternion			
w	float64			0.022281433295881014
x	float64			0.1311685567478608
y	float64			0.9910403505177976
z	float64			0.01172054164811699
position	geometry_msgs/Point			
x	float64			0.5823263388282515
y	float64			0.1910176575824131
z	float64			0.11112816196017064
twist	geometry_msgs/Twist			
wrench	geometry_msgs/Wrench			
/robot/limb/left/gravity_compensation_torques	baxter_core_msgs/SEAJointState			not monitored
/robot/limb/right/endpoint_state	baxter_core_msgs/EndpointState	8.46KB/s	49.77	
header	std_msgs/Header			
pose	geometry_msgs/Pose			
orientation	geometry_msgs/Quaternion			
w	float64			0.022297400703710755
x	float64			-0.1312326671662762
y	float64			0.9910312425550769
z	float64			-0.011742626197909735
position	geometry_msgs/Point			
x	float64			0.5822958000748767
y	float64			-0.19098681299201517
z	float64			0.11113570617297241
twist	geometry_msgs/Twist			
wrench	geometry_msgs/Wrench			
/robot/limb/right/gravity_compensation_torques	baxter_core_msgs/SEAJointState			not monitored

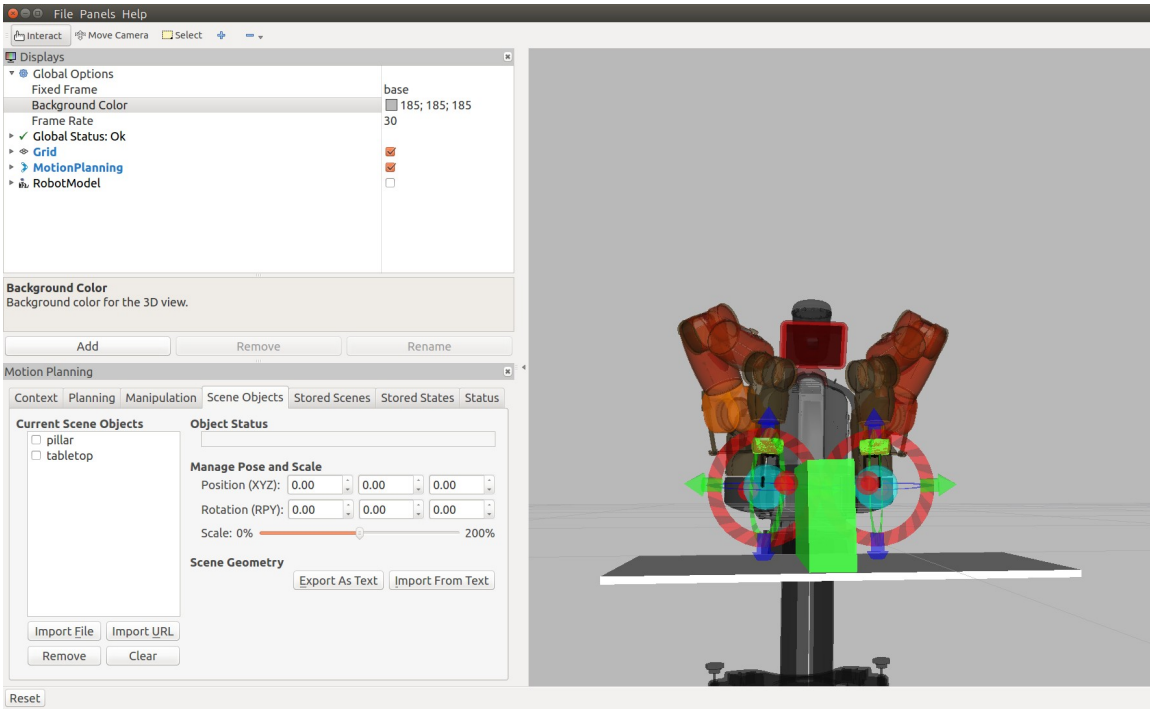

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 1.00
Sim Time: 00 00:36:52.641
Real Time: 00 00:36:59.624
Iterations: 2212641
Reset

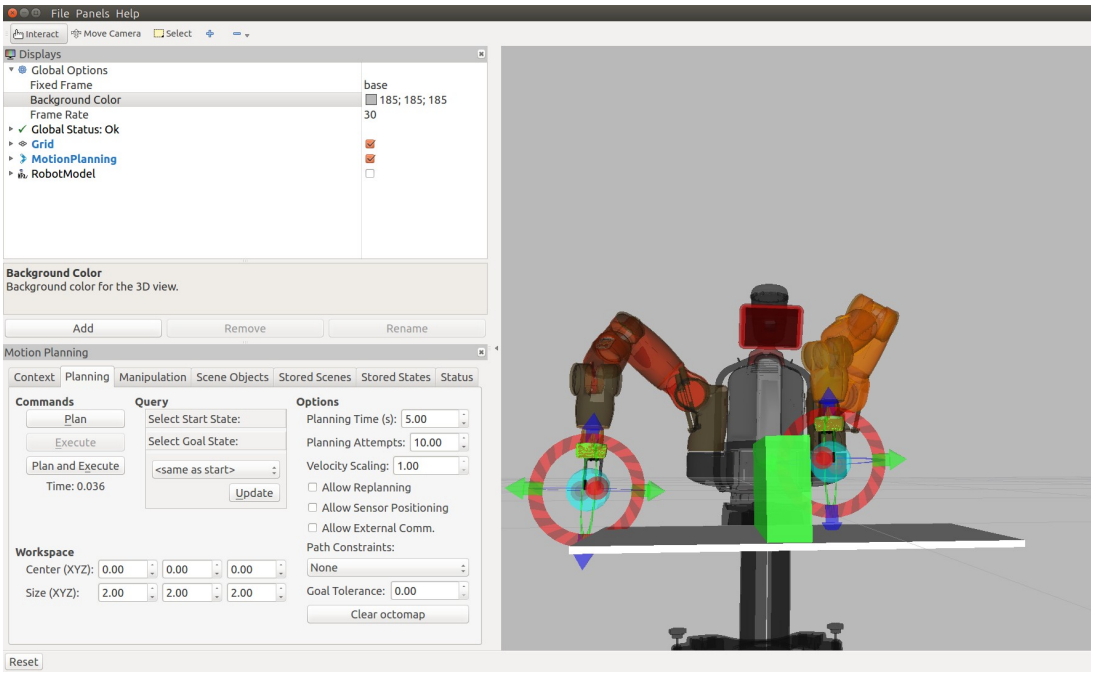

RViz*
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
Displays
left_arm_mount
left_gripper
left_gripper_base
left_hand
left_hand_accelerometer
left_hand_camera
left_hand_camera_axis
left_hand_range
left_lower_elbow
left_lower_forearm
left_lower_shoulder
left_torso_itb
left_upper_elbow
left_upper_elbow_visual
left_upper_forearm
left_upper_forearm_vi...
left_upper_shoulder
left_wrist
pedestal
r_gripper_l_finger
r_gripper_l_finger_tip
r_gripper_r_finger
r_gripper_r_finger_tip
right_arm_itb
right_arm_mount
right_gripper
right_gripper_base
right_hand
right_hand_accelerome...
RobotModel
Displays a visual representation of a robot in the correct pose (as defined by the current TF transforms). More Information.
Add
Remove
Rename
left_gripper
Time
ROS Time: 2634.19
ROS Elapsed: 623.75
Wall Time: 1459381943.72
Wall Elapsed: 625.30
Experimental
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
30 fps

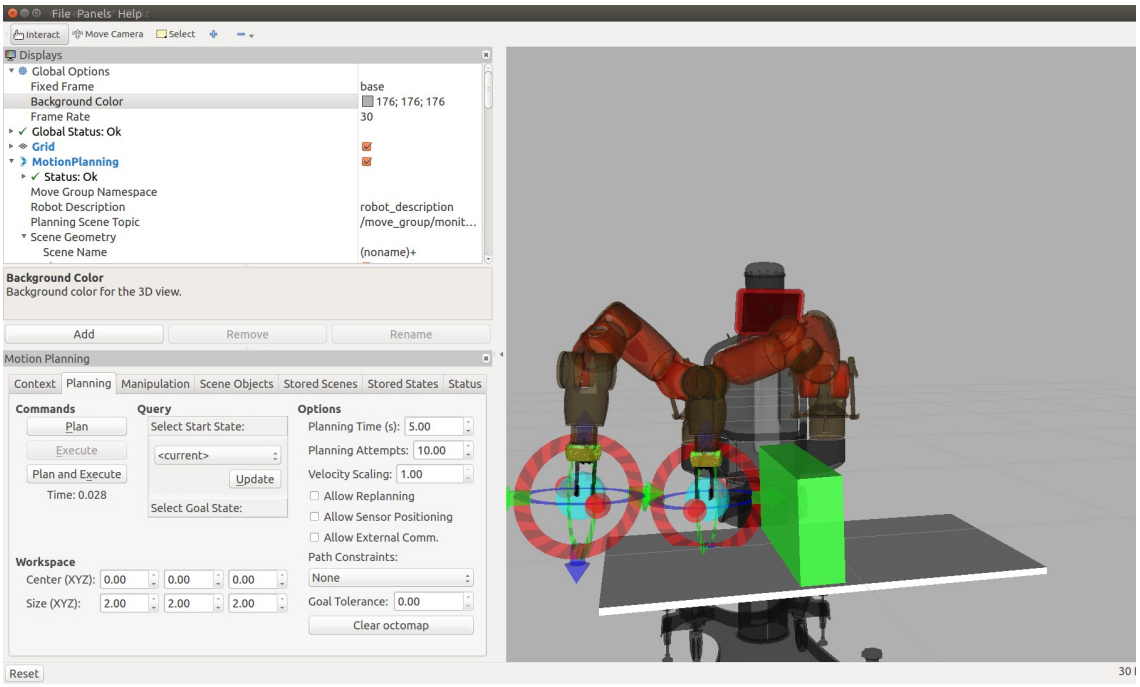

File Panels Help
Interact
Move Camera
Select
Displays
Global Options
Fixed Frame
base
Background Color
140; 140; 140
Frame Rate
30
Global Status: Ok
Grid
MotionPlanning
Status: Ok
Move Group Namespace
Robot Description
robot_description
Planning Scene Topic
/move_group/monit…
Scene Geometry
Scene Name
(noname)+
Background Color
Background color for the 3D view.
Add
Remove
Rename
Motion Planning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Status
Planning Library
OMPL
RRTConnectkConfigDef
Publish Current Scene
Warehouse
Host:
127.0.0.1
Port:
33829
Connect
Kinematics
Use Collision-Aware IK
Allow Approximate IK Solutions
Reset
30 fps

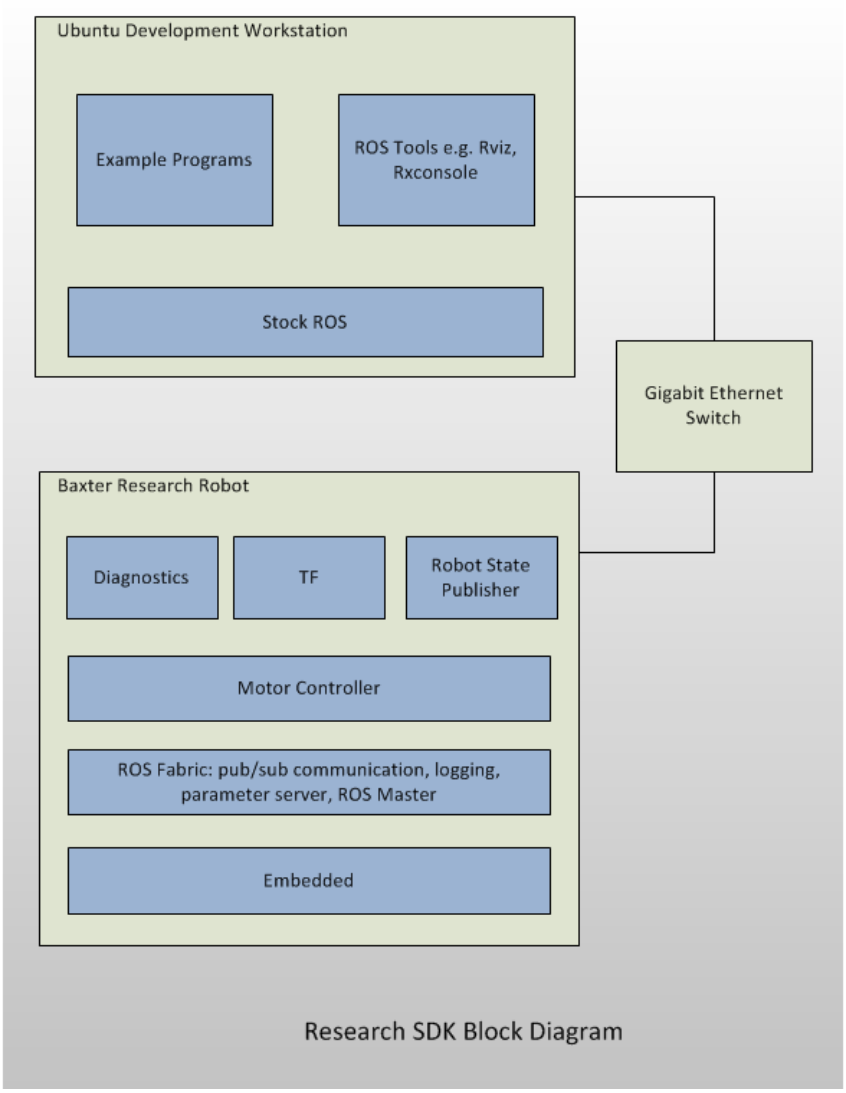

File Panels Help
Interact
Move Camera
Select
Displays
Global Options
Fixed Frame
base
Background Color
185; 185; 185
Frame Rate
30
Global Status: Ok
Grid
MotionPlanning
RobotModel
Background Color
Background color for the 3D view.
Add
Remove
Rename
Motion Planning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Status
Commands
Plan
Execute
Plan and Execute
Time: 0.036
Query
Select Start State:
<current>
Update
Select Goal State:
Options
Planning Time (s): 5.00
Planning Attempts: 10.00
Velocity Scaling: 1.00
Allow Replanning
Allow Sensor Positioning
Allow External Comm.
Path Constraints:
None
Goal Tolerance: 0.00
Clear octomap
Workspace
Center (XYZ): 0.00 0.00 0.00
Size (XYZ): 2.00 2.00 2.00
Reset


Query
Select Start State:
Select Goal State:
<same as start>
Update

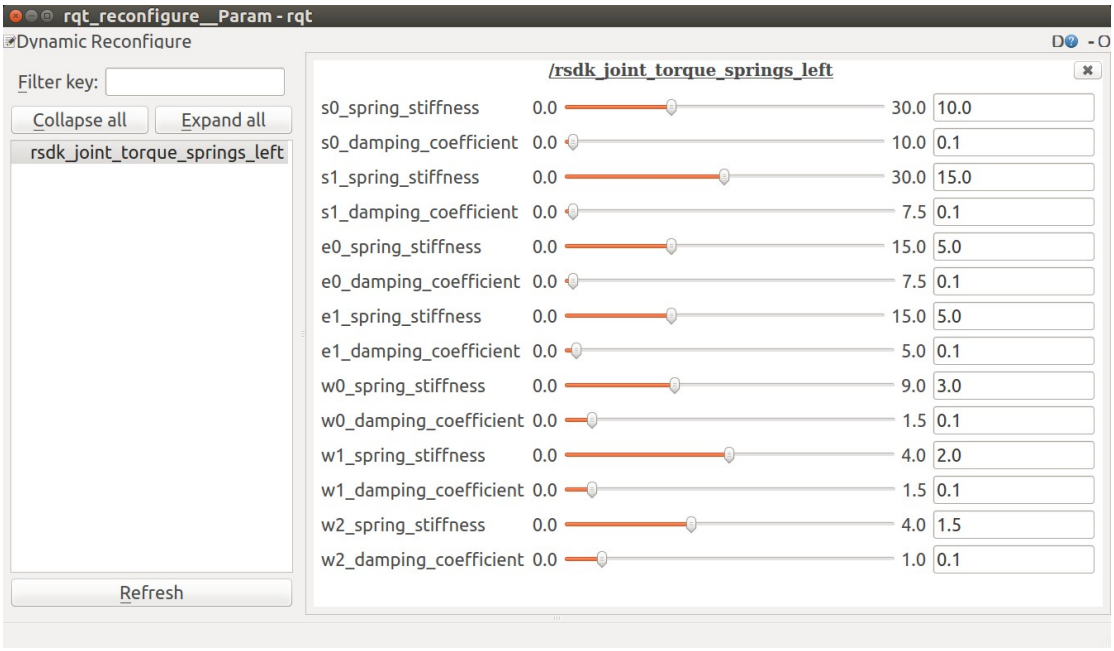

File Panels Help
Interact
Move Camera
Select
Displays
Global Options
Fixed Frame
base
Background Color
185; 185; 185
Frame Rate
30
Global Status: Ok
Grid
MotionPlanning
RobotModel
Background Color
Background color for the 3D view.
Add
Remove
Rename
Motion Planning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Status
Current Scene Objects
pillar
tabletop
Import File
Import URL
Remove
Clear
Object Status
Manage Pose and Scale
Position (XYZ):
0.00
0.00
0.00
Rotation (RPY):
0.00
0.00
0.00
Scale: 0%
200%
Scene Geometry
Export As Text
Import From Text
Reset


File Panels Help
Interact
Move Camera
Select
Displays
Global Options
Fixed Frame
base
Background Color
185; 185; 185
Frame Rate
30
Global Status: Ok
Grid
MotionPlanning
RobotModel
Background Color
Background color for the 3D view.
Add
Remove
Rename
Motion Planning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Status
Commands
Plan
Execute
Plan and Execute
Time: 0.036
Query
Select Start State:
Select Goal State:
<same as start>
Update
Options
Planning Time (s): 5.00
Planning Attempts: 10.00
Velocity Scaling: 1.00
Allow Replanning
Allow Sensor Positioning
Allow External Comm.
Path Constraints:
None
Goal Tolerance: 0.00
Clear octomap
Workspace
Center (XYZ): 0.00 0.00 0.00
Size (XYZ): 2.00 2.00 2.00
Reset

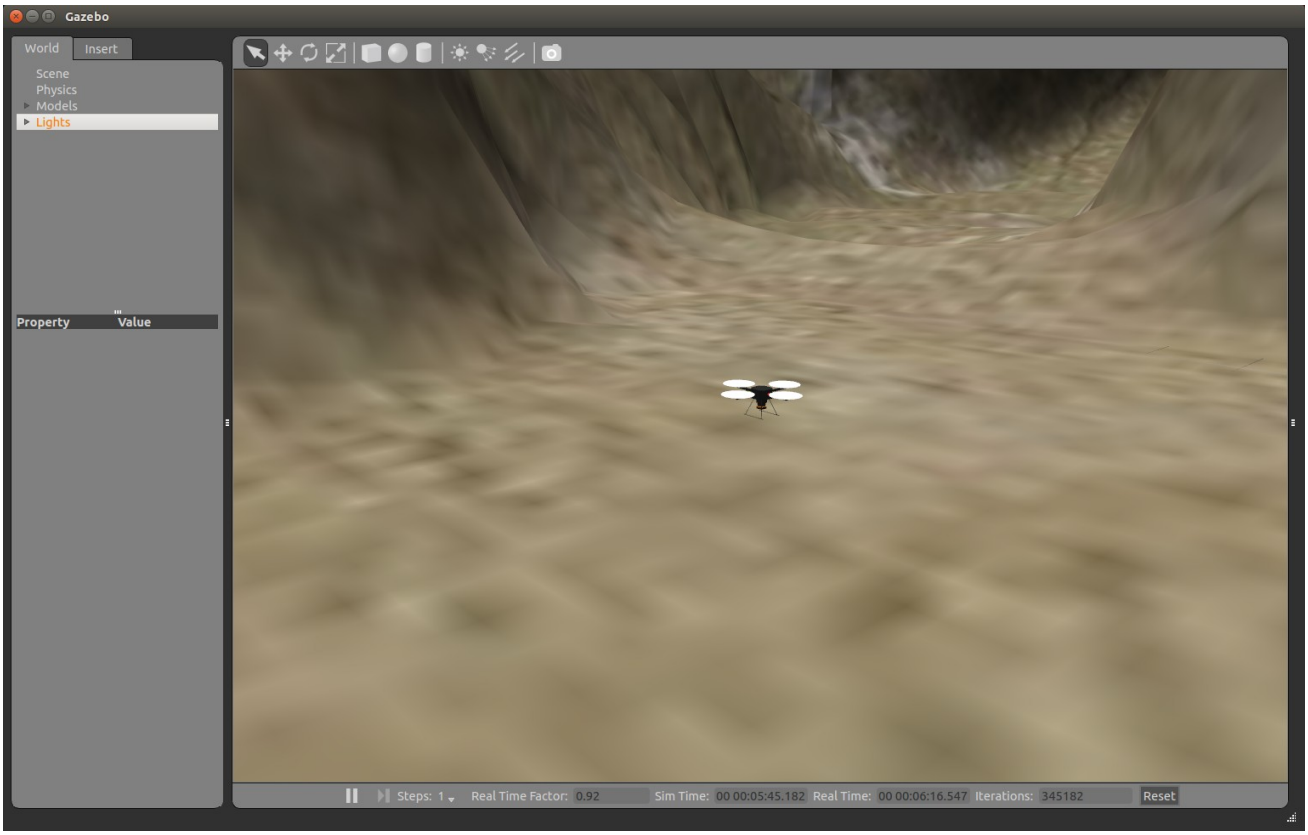

File Panels Help
Interact
Move Camera
Select
Displays
Global Options
Fixed Frame
base
Background Color
176; 176; 176
Frame Rate
30
Global Status: Ok
Grid
MotionPlanning
Status: Ok
Move Group Namespace
Robot Description
robot_description
Planning Scene Topic
/move_group/monit…
Scene Geometry
Scene Name
(noname)+
Background Color
Background color for the 3D view.
Add
Remove
Rename
Motion Planning
Context
Planning
Manipulation
Scene Objects
Stored Scenes
Stored States
Status
Commands
Plan
Execute
Plan and Execute
Time: 0.028
Query
Select Start State:
<current>
Update
Select Goal State:
Options
Planning Time (s): 5.00
Planning Attempts: 10.00
Velocity Scaling: 1.00
Allow Replanning
Allow Sensor Positioning
Allow External Comm.
Path Constraints:
None
Goal Tolerance: 0.00
Clear octomap
Workspace
Center (XYZ): 0.00 0.00 0.00
Size (XYZ): 2.00 2.00 2.00
Reset

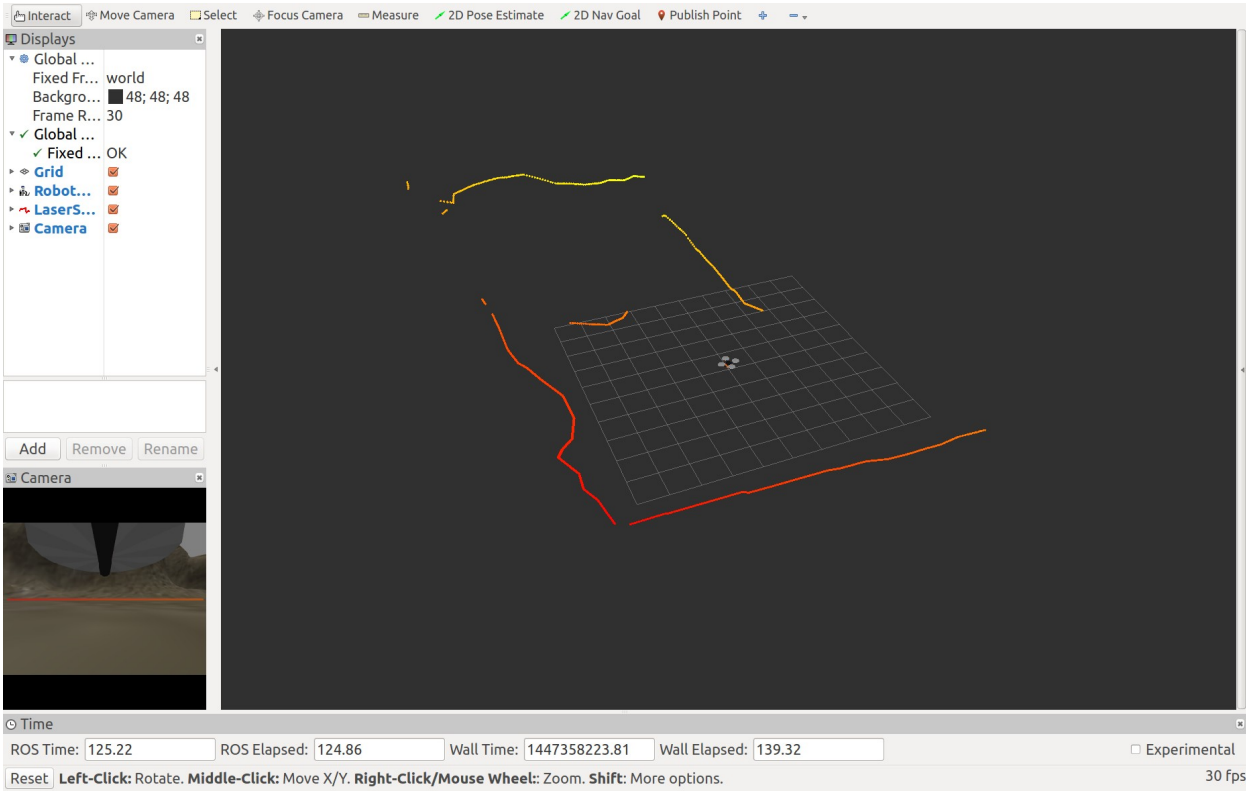


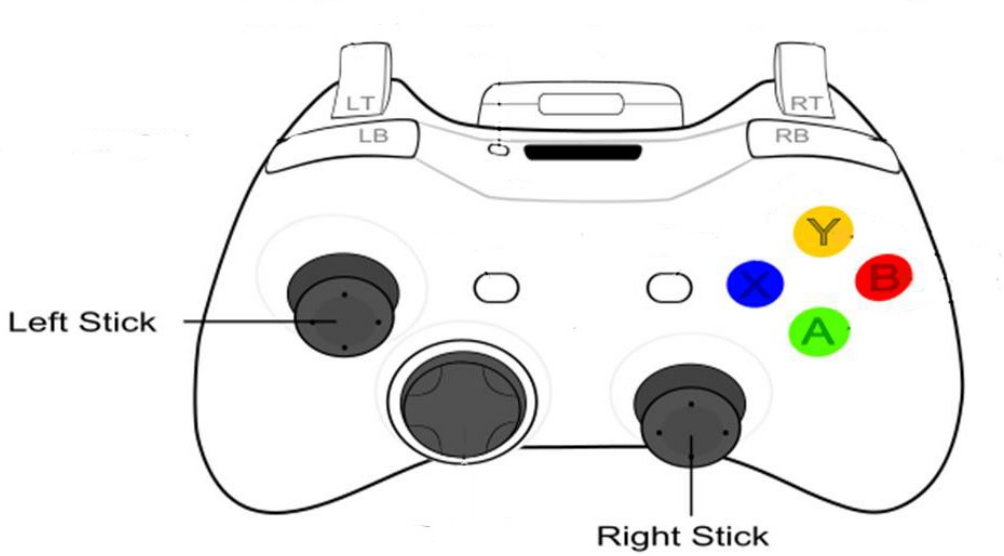
Research SDK Block Diagram

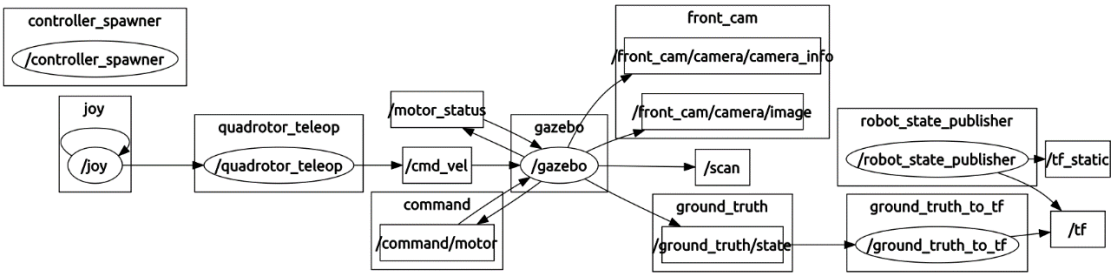

rqt_reconfigure__Param - rqt
Dynamic Reconfigure
Filter key:
Collapse all
Expand all
rsdk_joint_torque_springs_left
Refresh
/rsdk_joint_torque_springs_left
s0_spring_stiffness 0.0 30.0 10.0
s0_damping_coefficient 0.0 10.0 0.1
s1_spring_stiffness 0.0 30.0 15.0
s1_damping_coefficient 0.0 7.5 0.1
e0_spring_stiffness 0.0 15.0 5.0
e0_damping_coefficient 0.0 7.5 0.1
e1_spring_stiffness 0.0 15.0 5.0
e1_damping_coefficient 0.0 5.0 0.1
w0_spring_stiffness 0.0 9.0 3.0
w0_damping_coefficient 0.0 1.5 0.1
w1_spring_stiffness 0.0 4.0 2.0
w1_damping_coefficient 0.0 1.5 0.1
w2_spring_stiffness 0.0 4.0 1.5
w2_damping_coefficient 0.0 1.0 0.1

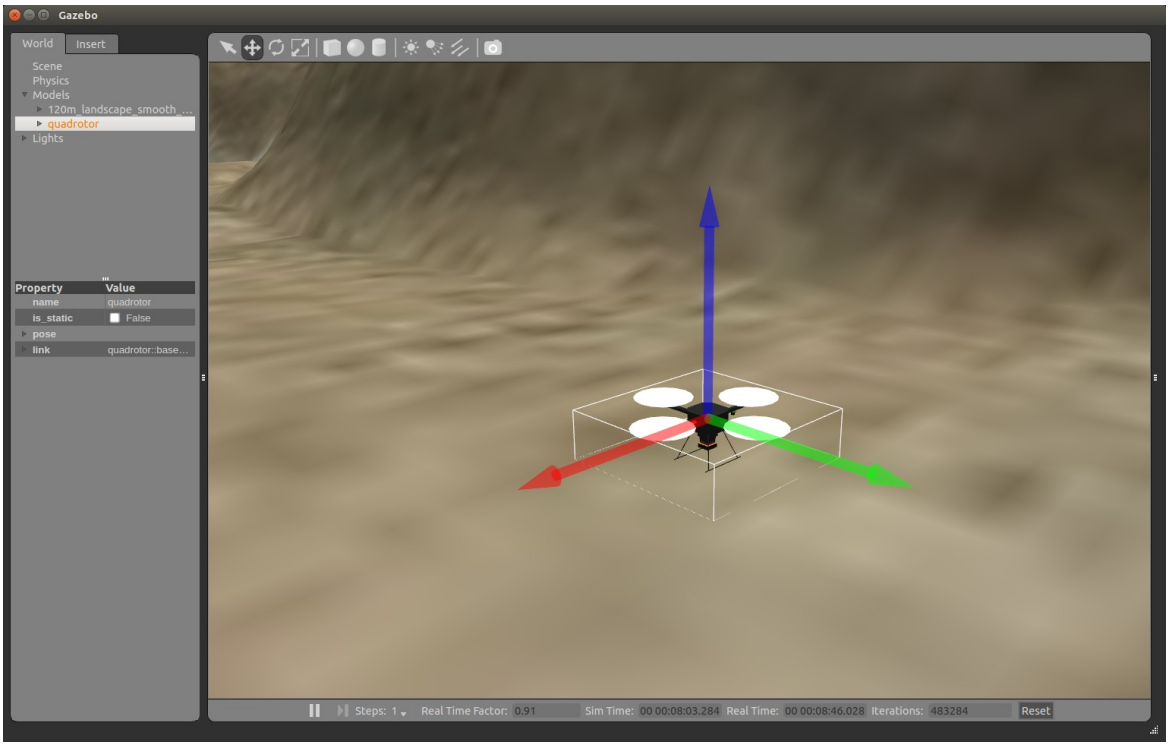
Chapter 7 - Making a Robot Fly

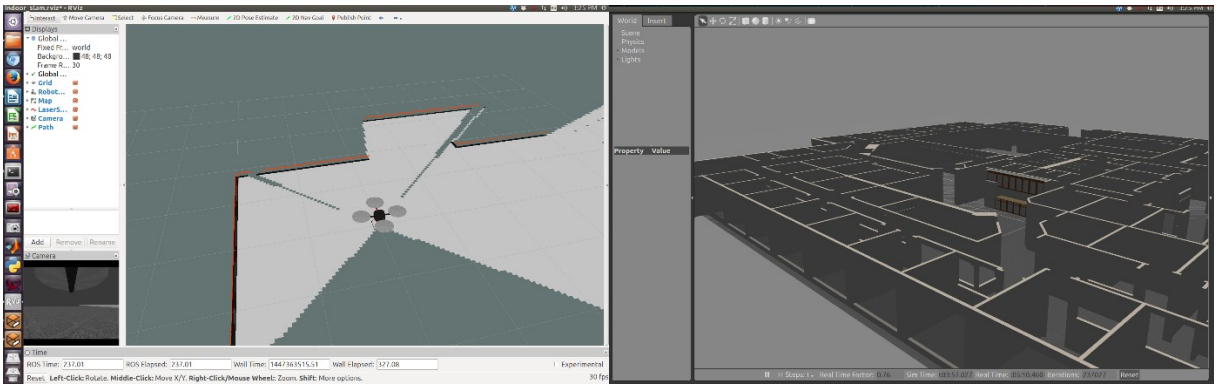

Gazebo
World
Insert
Scene
Physics
Models
Lights
Property
Value
Steps: 1
Real Time Factor: 0.92
Sim Time: 00 00:05:45.182
Real Time: 00 00:06:16.547
Iterations: 345182
Reset

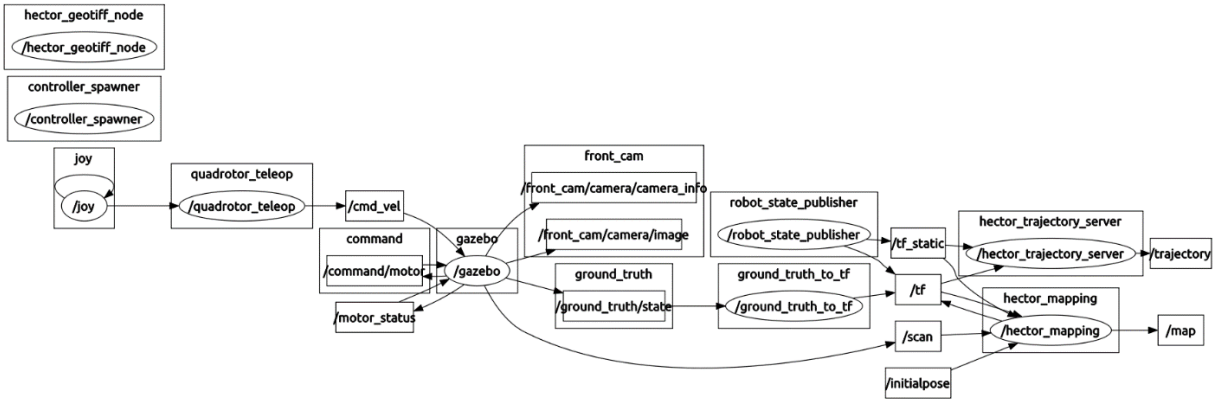

Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
Displays
Global ...
Fixed Fr... world
Backgro... 48; 48; 48
Frame R... 30
Global ...
Fixed ... OK
Grid
Robot...
LaserS...
Camera
Add
Remove
Rename
Camera
Time
ROS Time: 125.22
ROS Elapsed: 124.86
Wall Time: 1447358223.81
Wall Elapsed: 139.32
Experimental
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
30 fps

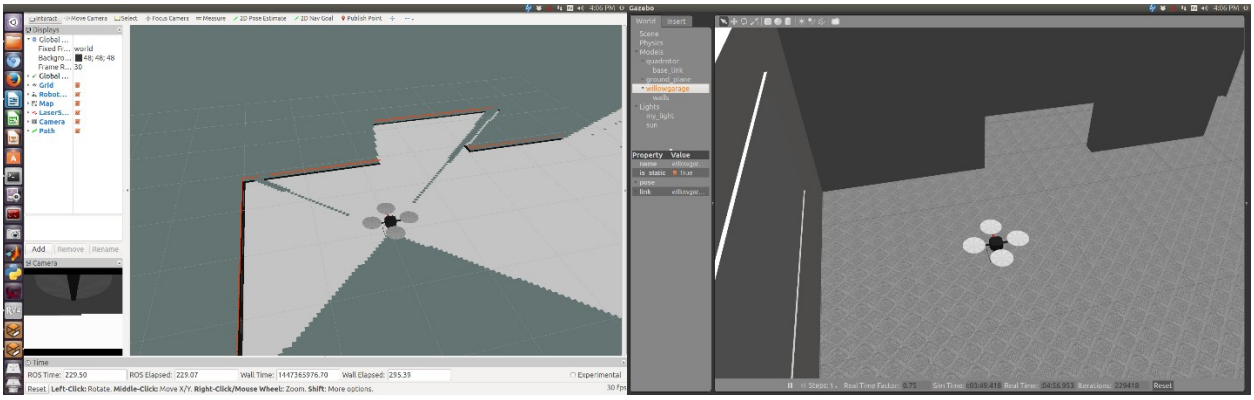

LT
RT
LB
RB
Y
X
B
A
Left Stick
Right Stick

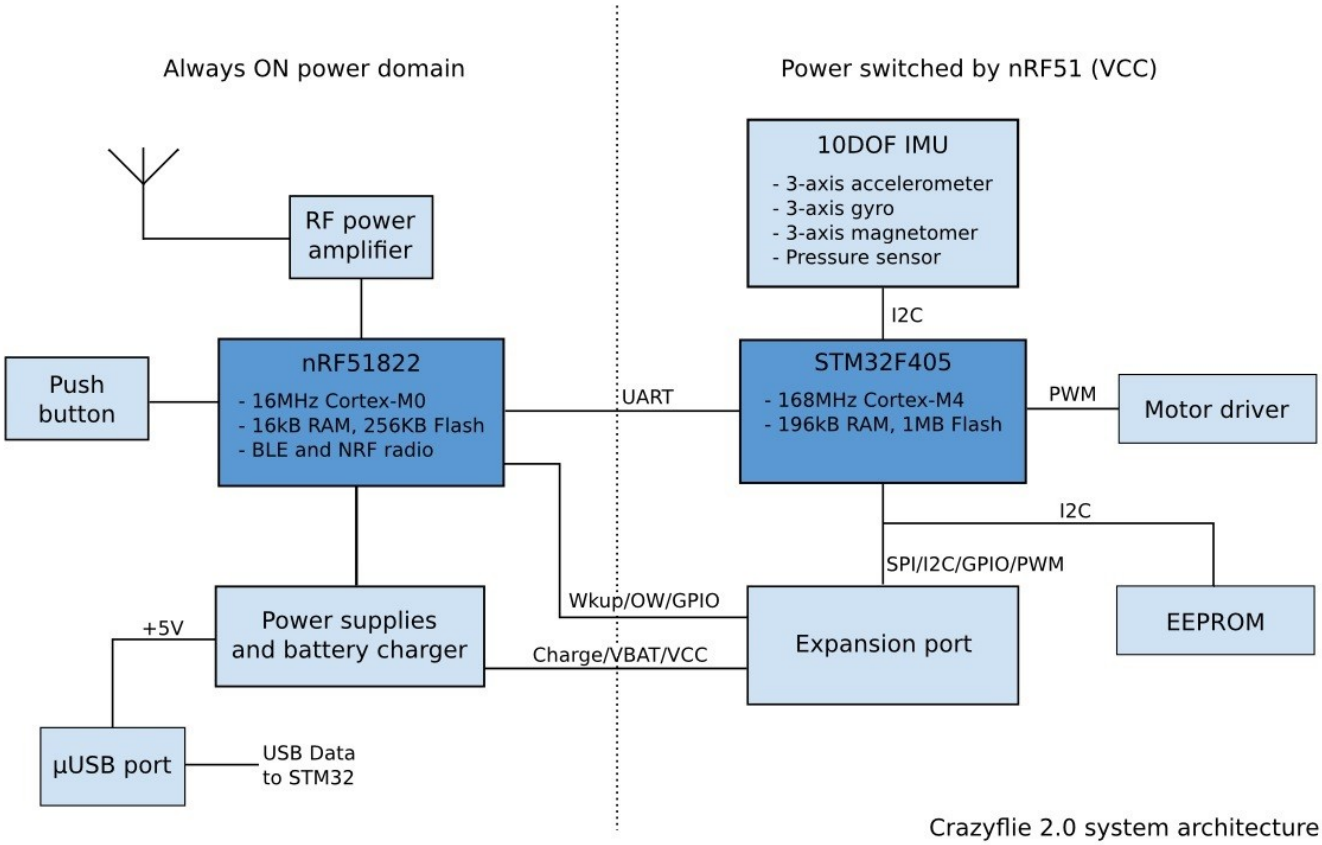

controller_spawner
/controller_spawner
joy
/joy
quadrotor_teleop
/quadrotor_teleop
/motor_status
/cmd_vel
gazebo
/gazebo
front_cam
/front_cam/camera/camera_info
/front_cam/camera/image
/scan
command
/command/motor
ground_truth
/ground_truth/state
robot_state_publisher
/robot_state_publisher
/tf_static
ground_truth_to_tf
/ground_truth_to_tf
/tf


Gazebo
World
Insert
Scene
Physics
Models
120m_landscape_smooth_...
quadrotor
Lights
Property
Value
name
quadrotor
is_static
False
pose
link
quadrotor::base...
Steps: 1
Real Time Factor: 0.91
Sim Time: 00 00:08:03.284
Real Time: 00 00:08:46.028
Iterations: 483284
Reset

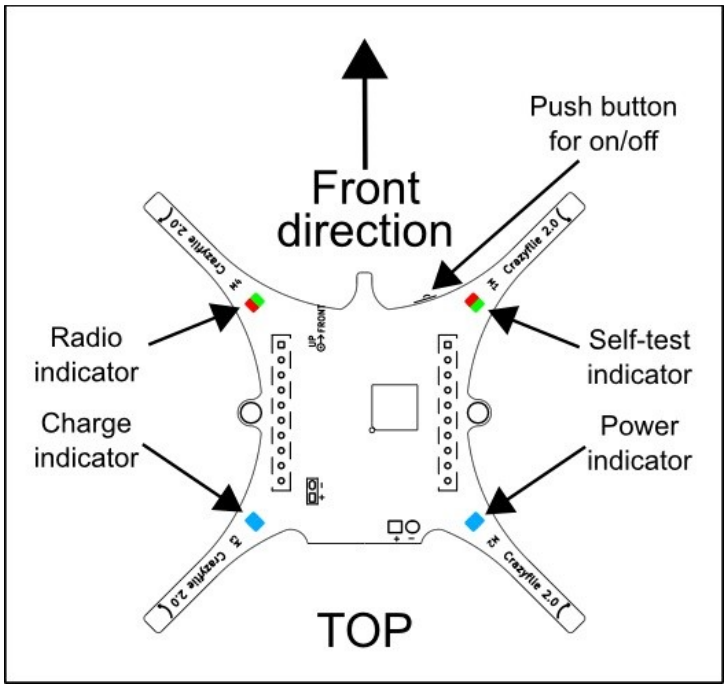


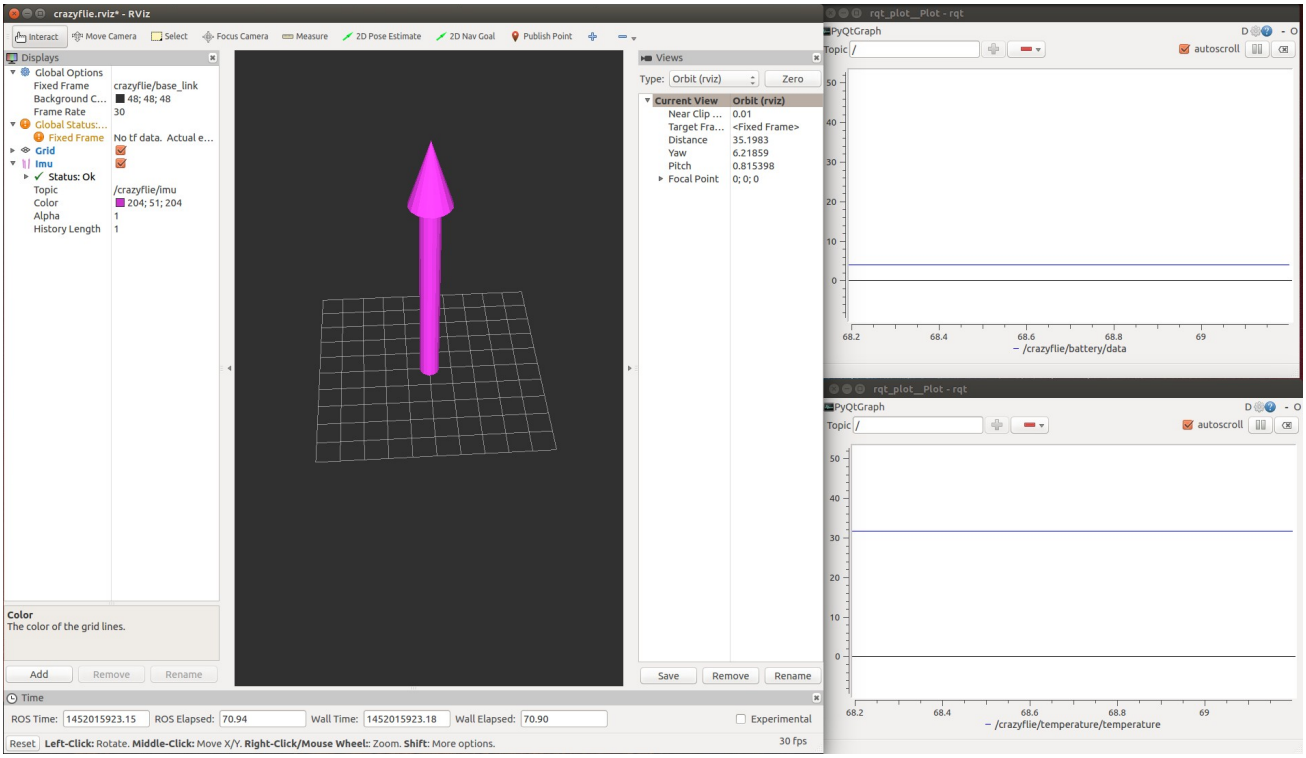

hector_geotiff_node
/hector_geotiff_node
controller_spawner
/controller_spawner
joy
/joy
quadrotor_teleop
/quadrotor_teleop
/cmd_vel
command
/command/motor
/motor_status
gazebo
/gazebo
front_cam
/front_cam/camera/camera_info
/front_cam/camera/image
ground_truth
/ground_truth/state
robot_state_publisher
/robot_state_publisher
ground_truth_to_tf
/ground_truth_to_tf
/tf_static
/tf
/scan
/initialpose
hector_trajectory_server
/hector_trajectory_server
/trajectory
hector_mapping
/hector_mapping
/map

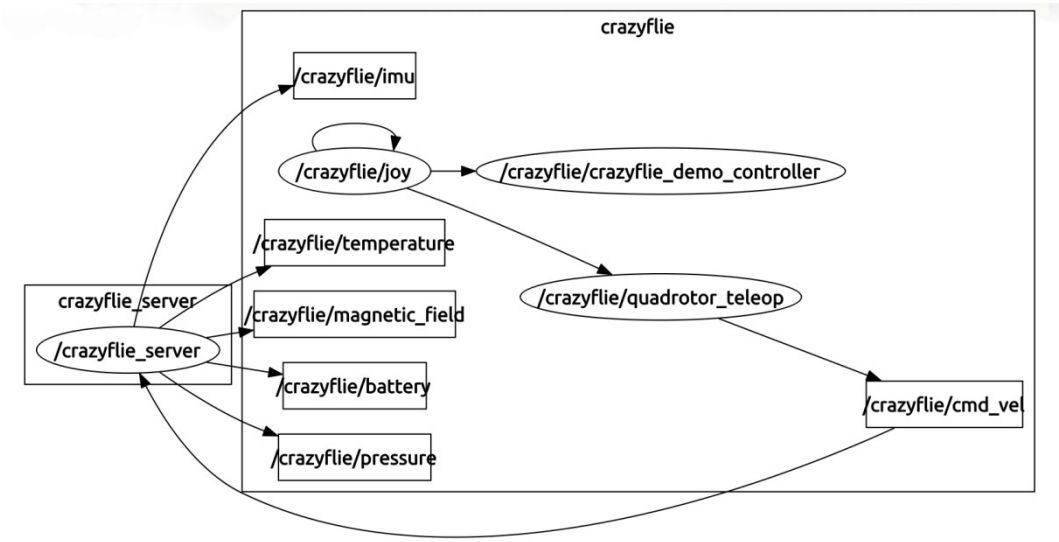


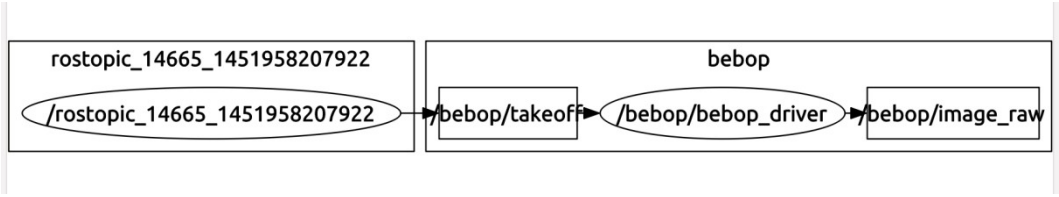


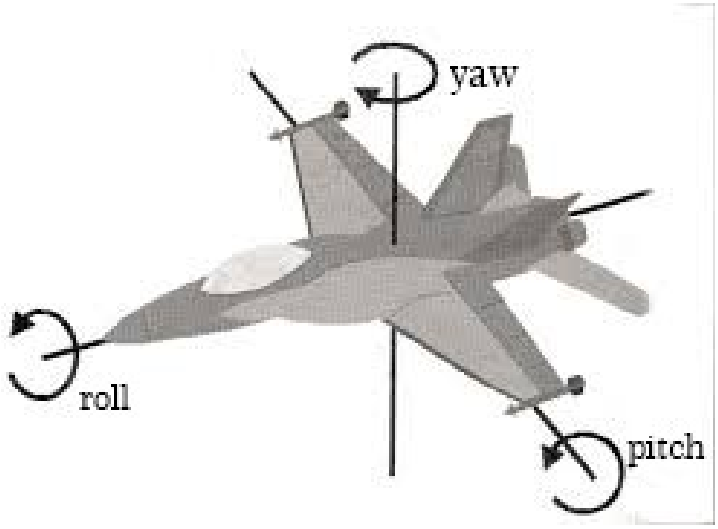
Crazyflie 2.0 system architecture

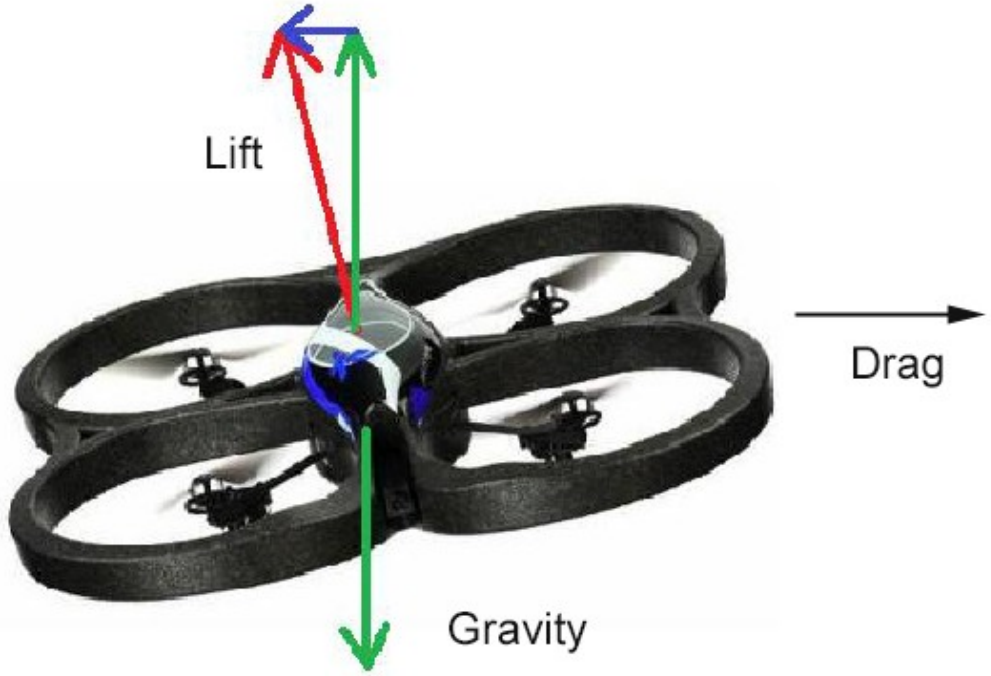

Front
direction
Push button
for on/off
Radio
indicator
Charge
indicator
Self-test
indicator
Power
indicator
TOP


crazyflie.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
Displays
Global Options
Fixed Frame
crazyflie/base_link
Background C...
48; 48; 48
Frame Rate
30
Global Status:...
Fixed Frame
No tf data. Actual e...
Grid
Imu
Status: Ok
Topic
/crazyflie/imu
Color
204; 51; 204
Alpha
1
History Length
1
Color
The color of the grid lines.
Add
Remove
Rename
Views
Type:
Orbit (rviz)
Zero
Current View
Orbit (rviz)
Near Clip ...
0.01
Target Fra...
<Fixed Frame>
Distance
35.1983
Yaw
6.21859
Pitch
0.815398
Focal Point
0; 0; 0
Save
Remove
Rename
Time
ROS Time:
1452015923.15
ROS Elapsed:
70.94
Wall Time:
1452015923.18
Wall Elapsed:
70.90
Experimental
Reset
Left-Click: Rotate. Middle-Click: Move X/Y. Right-Click/Mouse Wheel:: Zoom. Shift: More options.
30 fps
rqt_plot__Plot - rqt
PyQtGraph
Topic
/
autoscroll
/crazyflie/battery/data
rqt_plot__Plot - rqt
PyQtGraph
Topic
/
autoscroll
/crazyflie/temperature/temperature

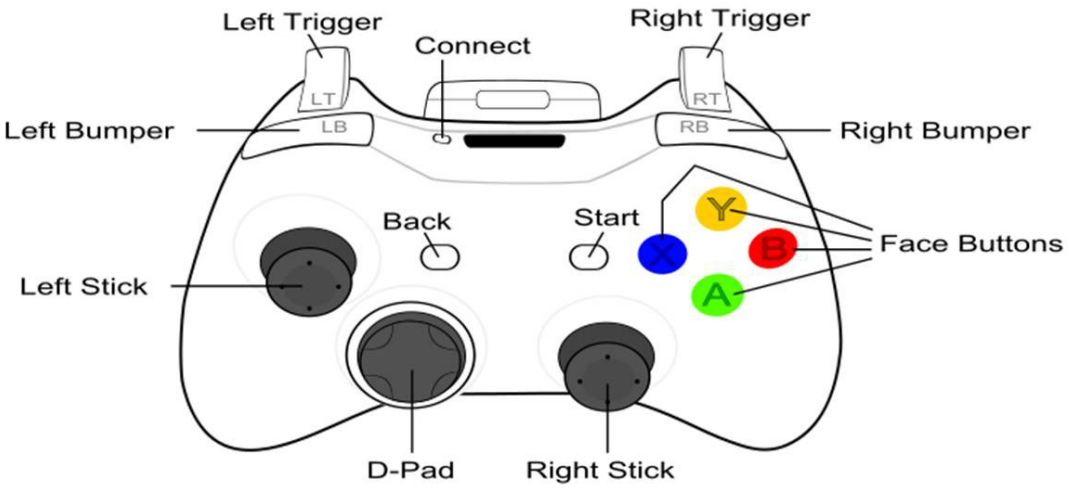

crazyflie
/crazyflie/imu
/crazyflie/joy
/crazyflie/crazyflie_demo_controller
/crazyflie/temperature
crazyflie_server
/crazyflie/magnetic_field
/crazyflie/quadrotor_teleop
/crazyflie_server
/crazyflie/battery
/crazyflie/cmd_vel
/crazyflie/pressure

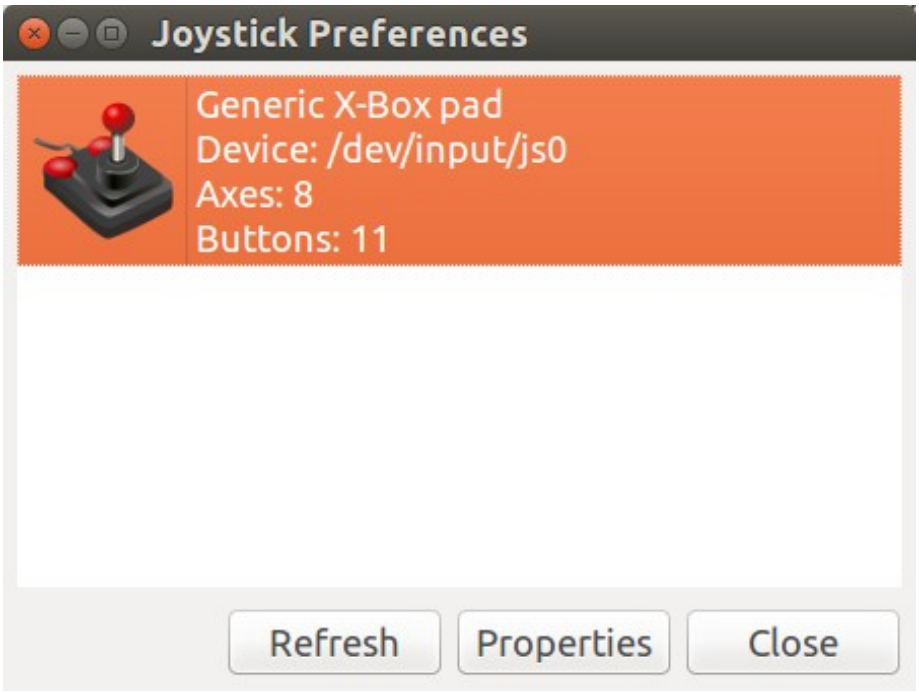

rostopic_14665_1451958207922
/rostopic_14665_1451958207922
bebop
/bebop/takeoff
/bebop/bebop_driver
/bebop/image_raw

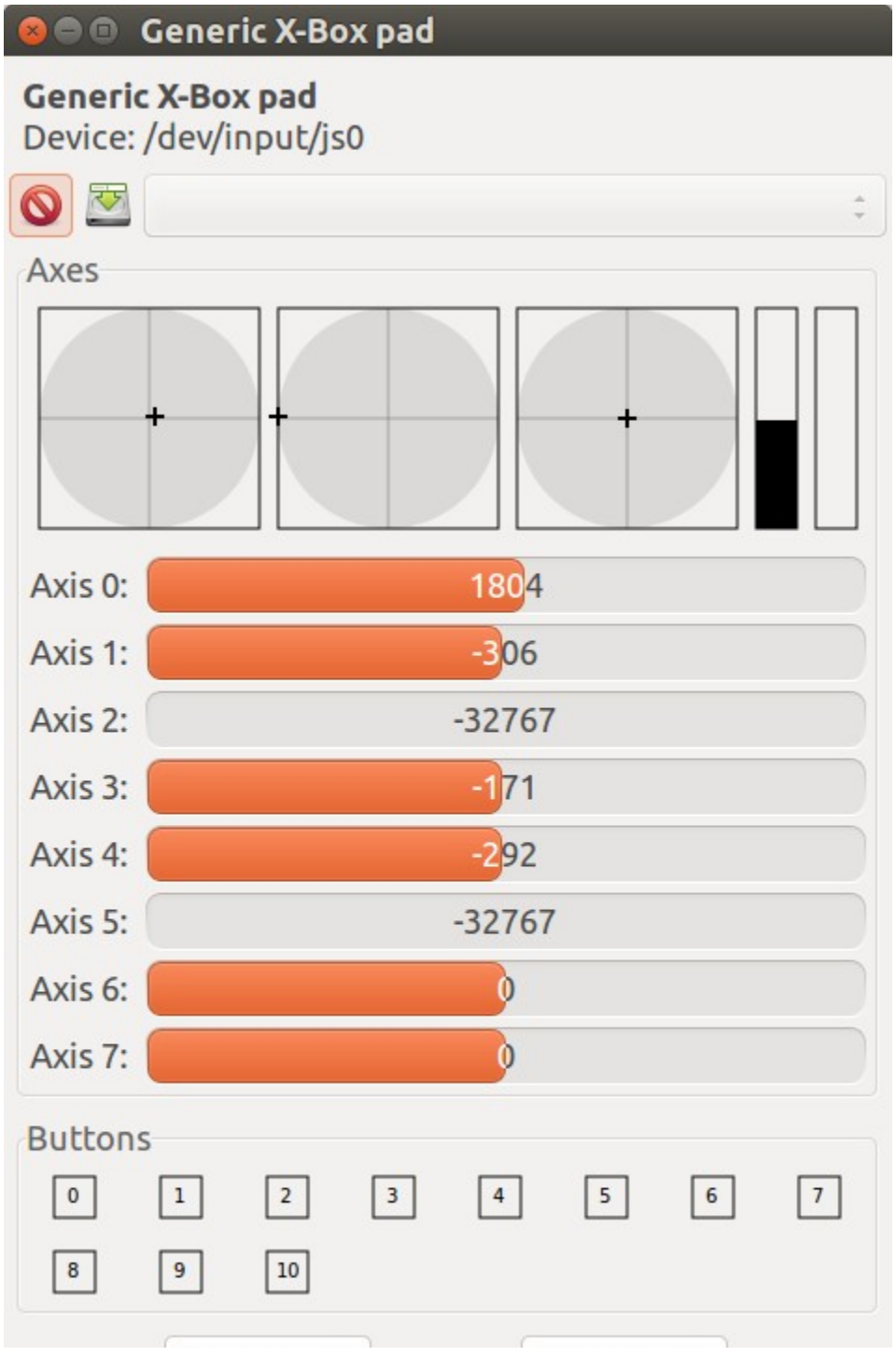

yaw
roll
pitch

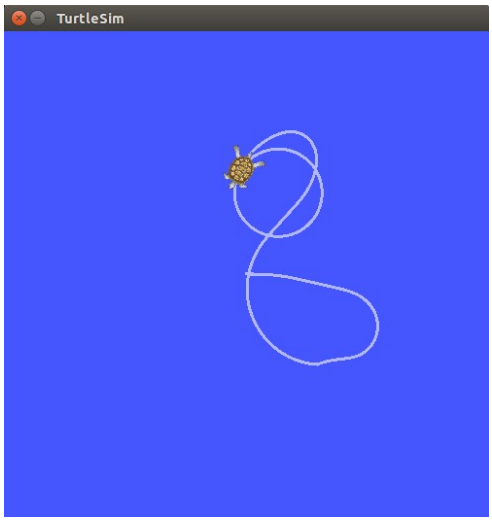

Lift
Drag
Gravity

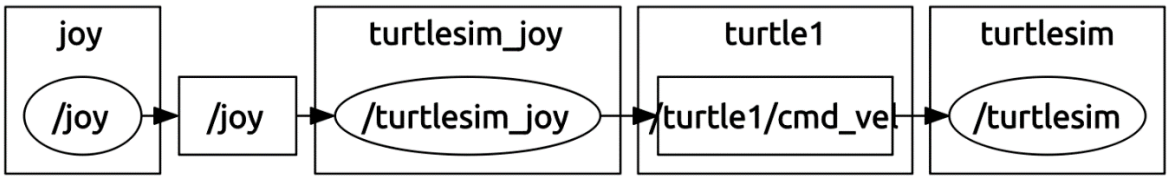
Chapter 8 - Controlling Your Robots with External Devices

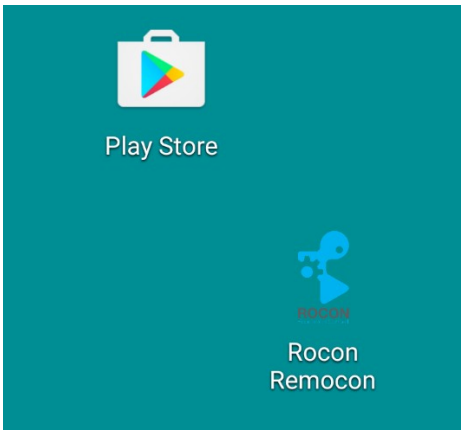


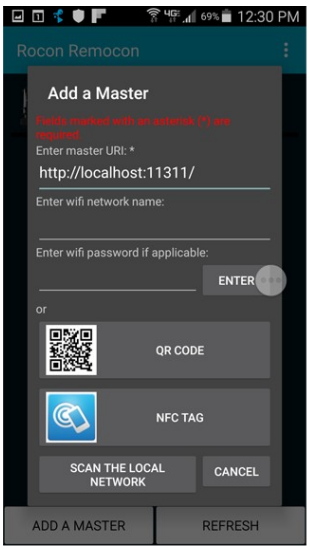

Joystick Preferences
Generic X-Box pad
Device: /dev/input/js0
Axes: 8
Buttons: 11
Refresh
Properties
Close

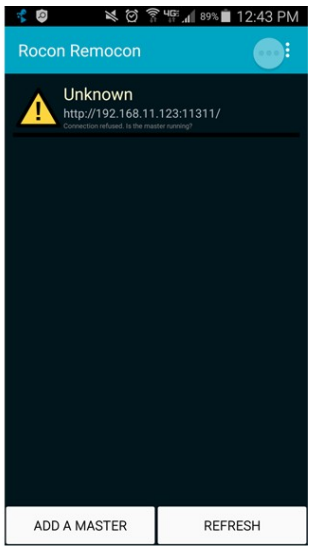

Generic X-Box pad
Generic X-Box pad
Device: /dev/input/js0
Axes
Axis 0: 1804
Axis 1: -306
Axis 2: -32767
Axis 3: -171
Axis 4: -292
Axis 5: -32767
Axis 6: 0
Axis 7: 0
Buttons
0
1
2
3
4
5
6
7
8
9
10

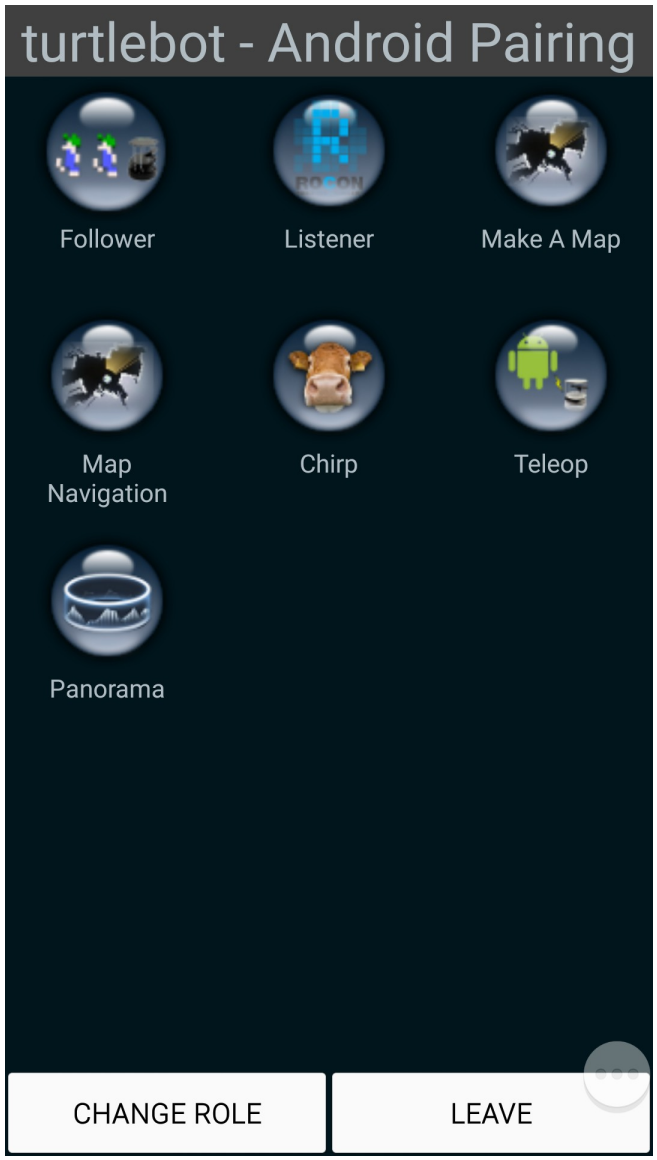

TurtleSim

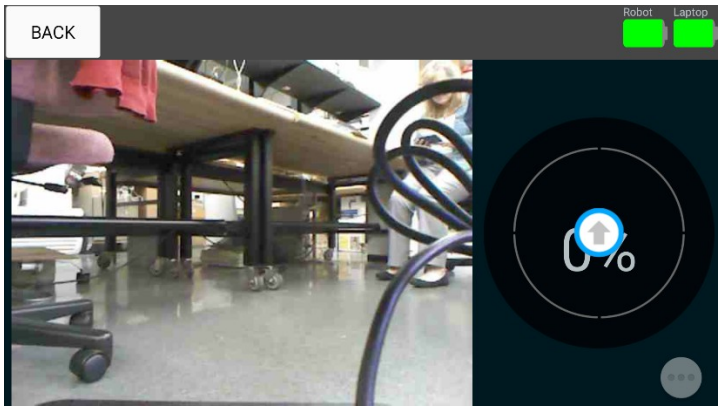

joy
/joy
/joy
turtlesim_joy
/turtlesim_joy
turtle1
/turtle1/cmd_vel
turtlesim
/turtlesim

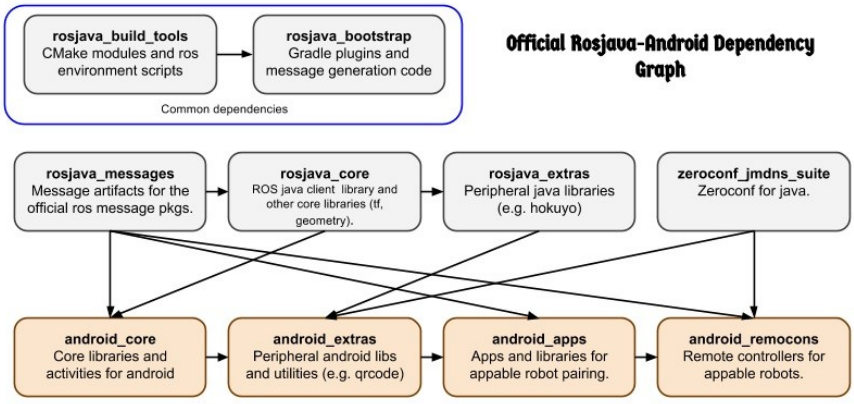

Play Store
Rocon
Remocon

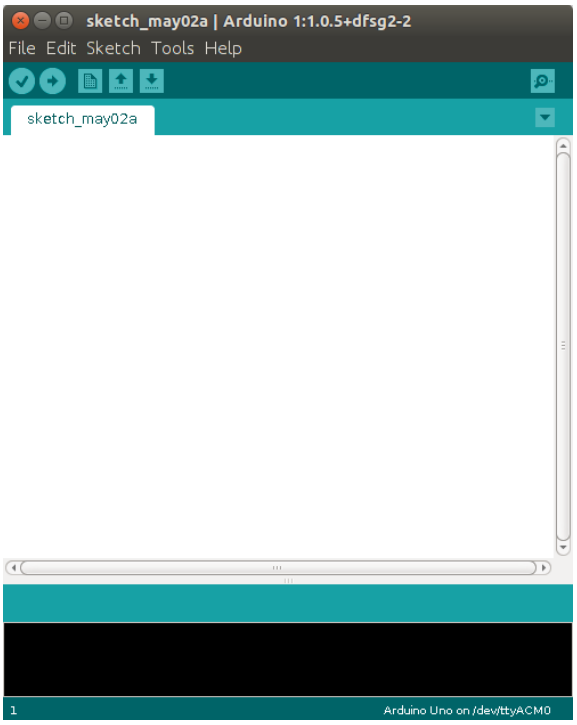

12:30 PM
Rocon Remocon
Add a Master
Fields marked with an asterisk (*) are required.
Enter master URI: *
http://localhost:11311/
Enter wifi network name:
Enter wifi password if applicable:
ENTER
or
QR CODE
NFC TAG
SCAN THE LOCAL NETWORK
CANCEL
ADD A MASTER
REFRESH

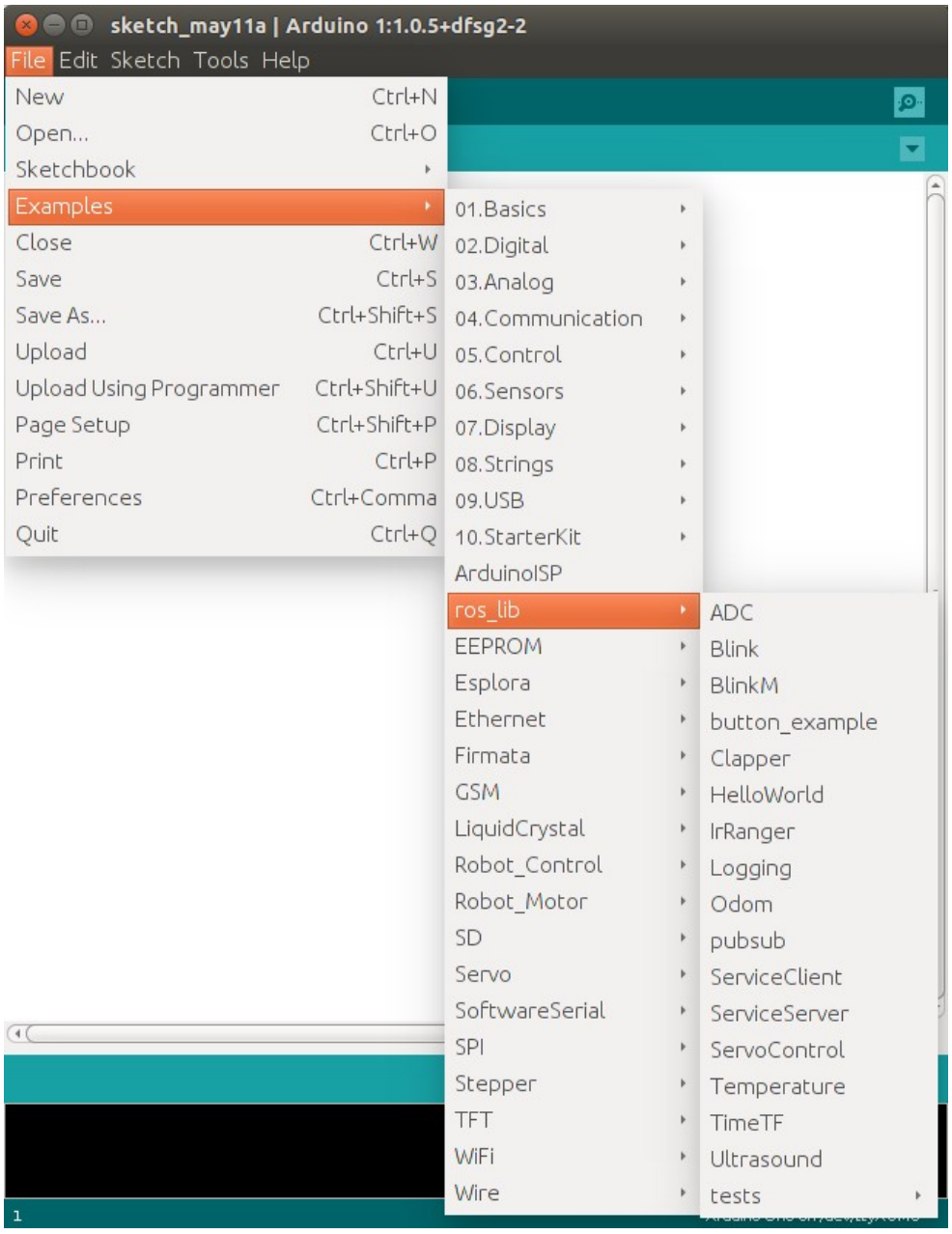

12:43 PM
Rocon Remocon
Unknown
http://192.168.11.123:11311/
Connection refused. Is the master running?
ADD A MASTER
REFRESH

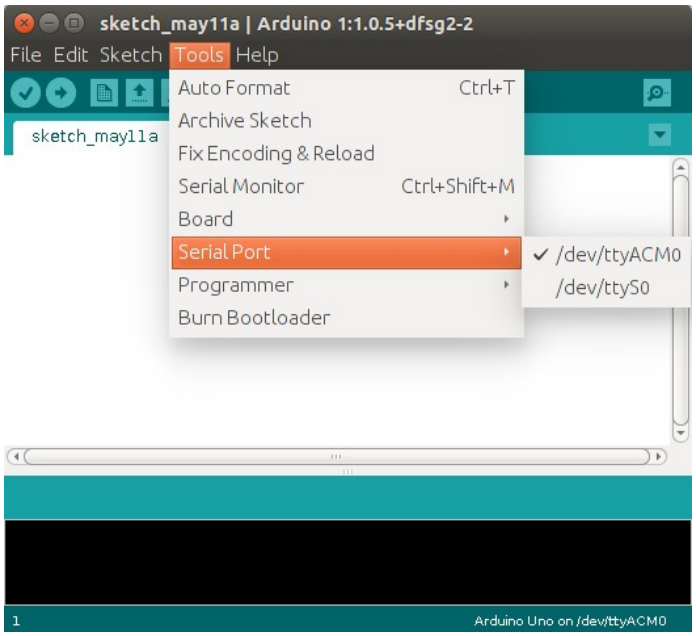

turtlebot - Android Pairing
Follower
Listener
Make A Map
Map Navigation
Chirp
Teleop
Panorama
CHANGE ROLE
LEAVE

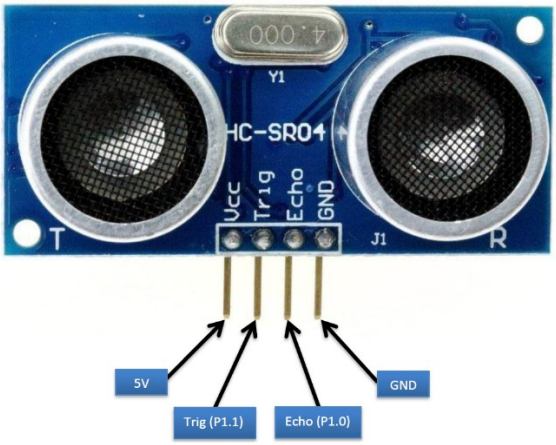

BACK
Robot
Laptop
0%

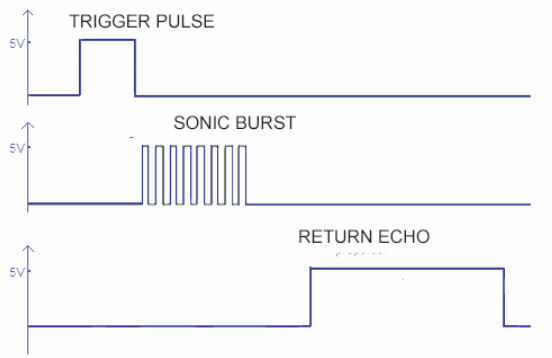

rosjava_build_tools
CMake modules and ros environment scripts
rosjava_bootstrap
Gradle plugins and message generation code
Common dependencies
Official Rosjava-Android Dependency Graph
rosjava_messages
Message artifacts for the official ros message pkgs.
rosjava_core
ROS java client library and other core libraries (tf, geometry).
rosjava_extras
Peripheral java libraries (e.g. hokuyo)
zeroconf_jmdns_suite
Zeroconf for java.
android_core
Core libraries and activities for android
android_extras
Peripheral android libs and utilities (e.g. qrcode)
android_apps
Apps and libraries for appable robot pairing.
android_remocons
Remote controllers for appable robots.

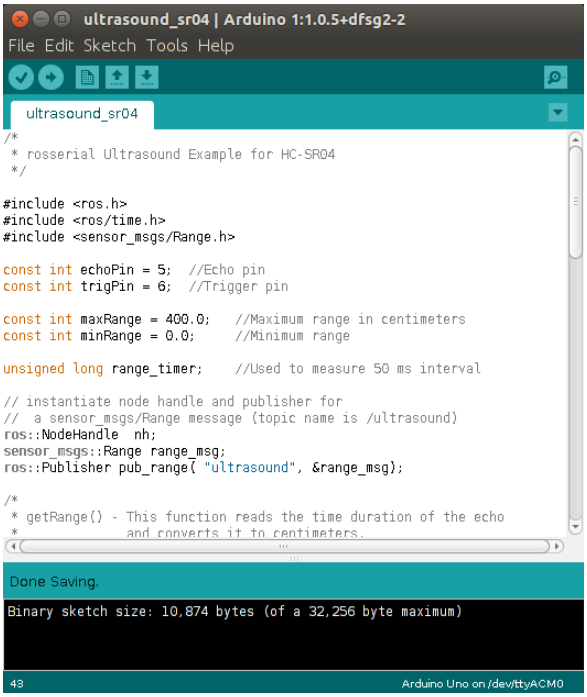

sketch_may02a | Arduino 1:1.0.5+dfsg2-2
File Edit Sketch Tools Help
sketch_may02a
1
Arduino Uno on /dev/ttyACM0

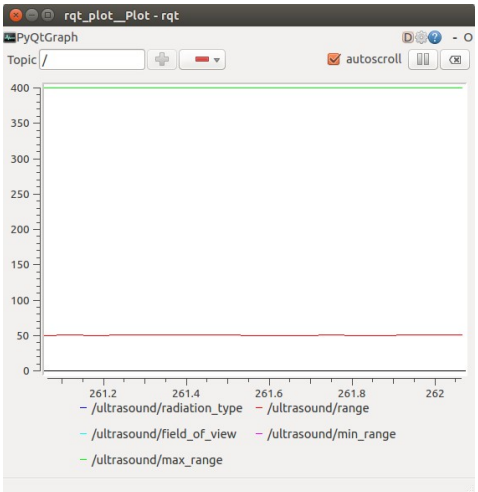

sketch_may11a | Arduino 1:1.0.5+dfsg2-2
File Edit Sketch Tools Help
New Ctrl+N
Open... Ctrl+O
Sketchbook
Examples
Close Ctrl+W
Save Ctrl+S
Save As... Ctrl+Shift+S
Upload Ctrl+U
Upload Using Programmer Ctrl+Shift+U
Page Setup Ctrl+Shift+P
Print Ctrl+P
Preferences Ctrl+Comma
Quit Ctrl+Q
01.Basics
02.Digital
03.Analog
04.Communication
05.Control
06.Sensors
07.Display
08.Strings
09.USB
10.StarterKit
ArduinoISP
ros_lib
EEPROM
Esplora
Ethernet
Firmata
GSM
LiquidCrystal
Robot_Control
Robot_Motor
SD
Servo
SoftwareSerial
SPI
Stepper
TFT
WiFi
Wire
ADC
Blink
BlinkM
button_example
Clapper
HelloWorld
IrRanger
Logging
Odom
pubsub
ServiceClient
ServiceServer
ServoControl
Temperature
TimeTF
Ultrasound
tests
1


sketch_may11a | Arduino 1:1.0.5+dfsg2-2
File Edit Sketch Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Serial Monitor Ctrl+Shift+M
Board
Serial Port
Programmer
Burn Bootloader
/dev/ttyACM0
/dev/ttyS0
sketch_may11a
1
Arduino Uno on /dev/ttyACM0


Y1
HC-SR04
Vcc
Trig
Echo
GND
T
J1
R
5V
Trig (P1.1)
Echo (P1.0)
GND


TRIGGER PULSE
5V
SONIC BURST
5V
RETURN ECHO
5V


ultrasound_sr04 | Arduino 1:1.0.5+dfsg2-2
File Edit Sketch Tools Help
ultrasound_sr04
/*
 * rosserial Ultrasound Example for HC-SR04
 */
#include <ros.h>
#include <ros/time.h>
#include <sensor_msgs/Range.h>
const int echoPin = 5; //Echo pin
const int trigPin = 6; //Trigger pin
const int maxRange = 400.0;   //Maximum range in centimeters
const int minRange = 0.0;   //Minimum range
unsigned long range_timer;   //Used to measure 50 ms interval
// instantiate node handle and publisher for
// a sensor_msgs/Range message (topic name is /ultrasound)
ros::NodeHandle nh;
sensor_msgs::Range range_msg;
ros::Publisher pub_range("ultrasound", &range_msg);
/*
 * getRange() - This function reads the time duration of the echo
 *   and converts it to centimeters.
Done Saving.
Binary sketch size: 10,874 bytes (of a 32,256 byte maximum)
43
Arduino Uno on /dev/ttyACM0

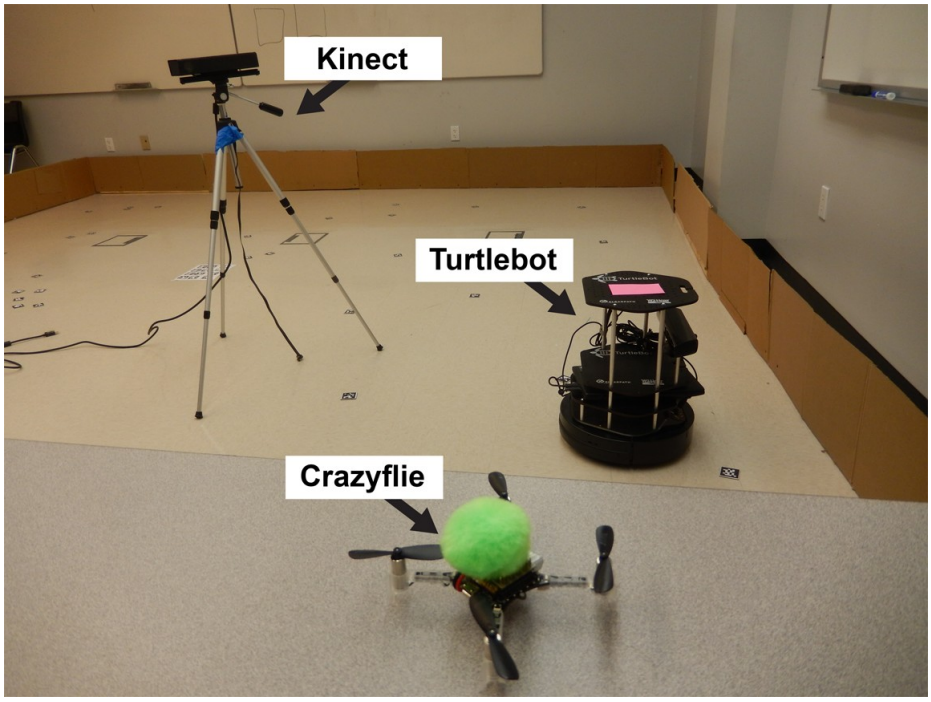

rqt_plot__Plot - rqt
PyQtGraph
Topic /
autoscroll
400
350
300
250
200
150
100
50
0
261.2
261.4
261.6
261.8
262
/ultrasound/radiation_type
/ultrasound/range
/ultrasound/field_of_view
/ultrasound/min_range
/ultrasound/max_range

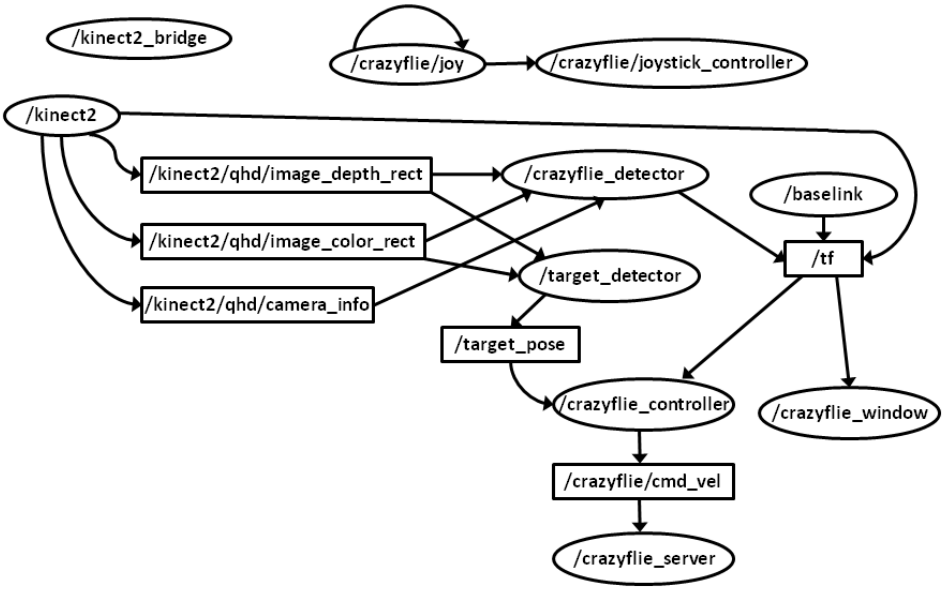
$$Distance = \ 343\frac{m}{s} * 100\frac{cm}{m} * \frac{10^{-6}\,s}{\mu s} * Time(\mu s)/2$$

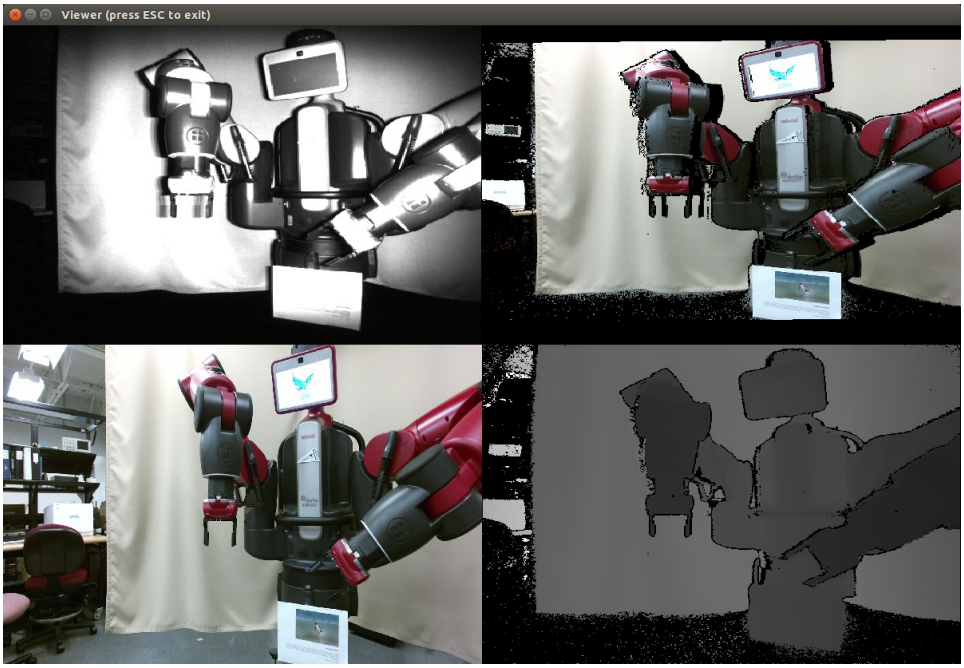
$$= \ Time(\mu s)/58.3$$

$$Distance = Velocity * Time/2$$

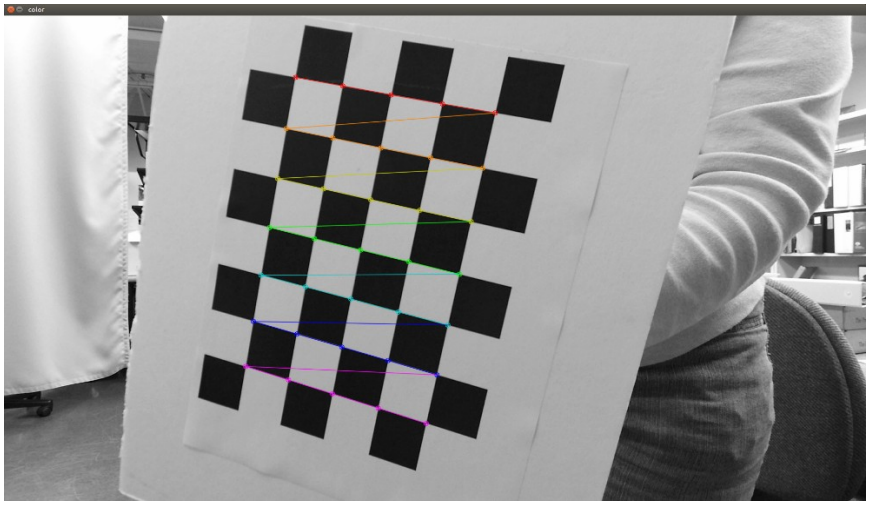
Chapter 9 - Flying a Mission with Crazyflie

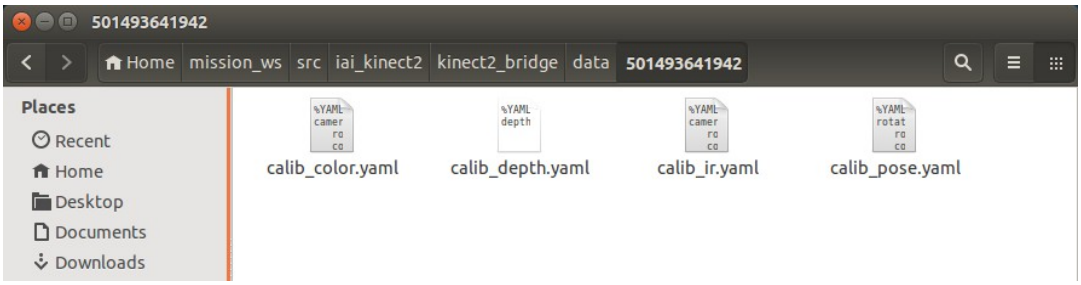


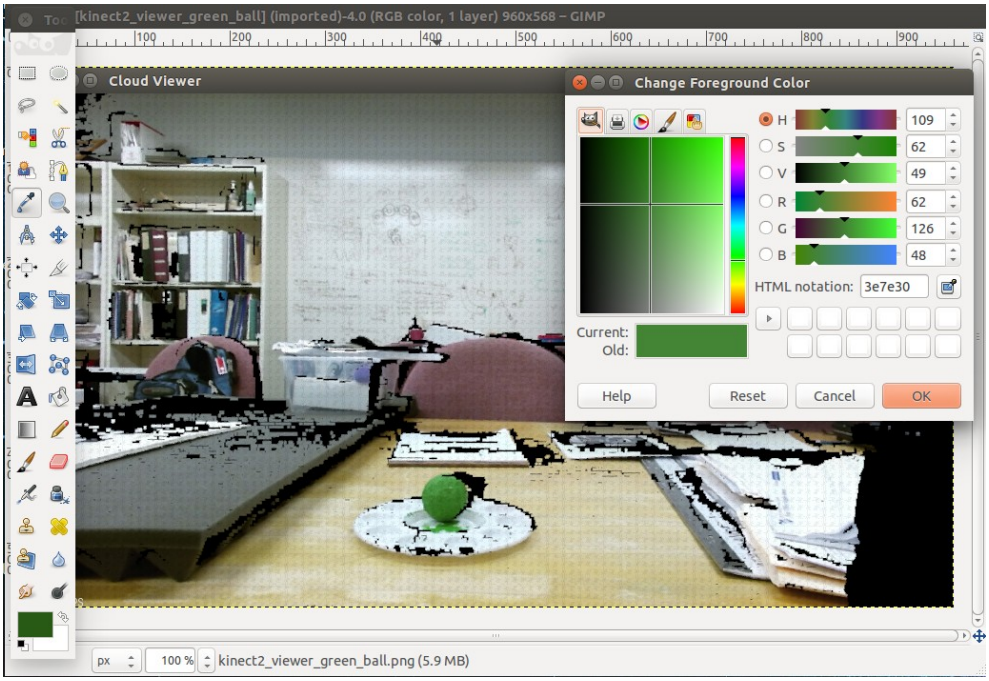

/kinect2_bridge
/crazyflie/joy
/crazyflie/joystick_controller
/kinect2
/kinect2/qhd/image_depth_rect
/crazyflie_detector
/baselink
/kinect2/qhd/image_color_rect
/tf
/target_detector
/kinect2/qhd/camera_info
/target_pose
/crazyflie_controller
/crazyflie_window
/crazyflie/cmd_vel
/crazyflie_server

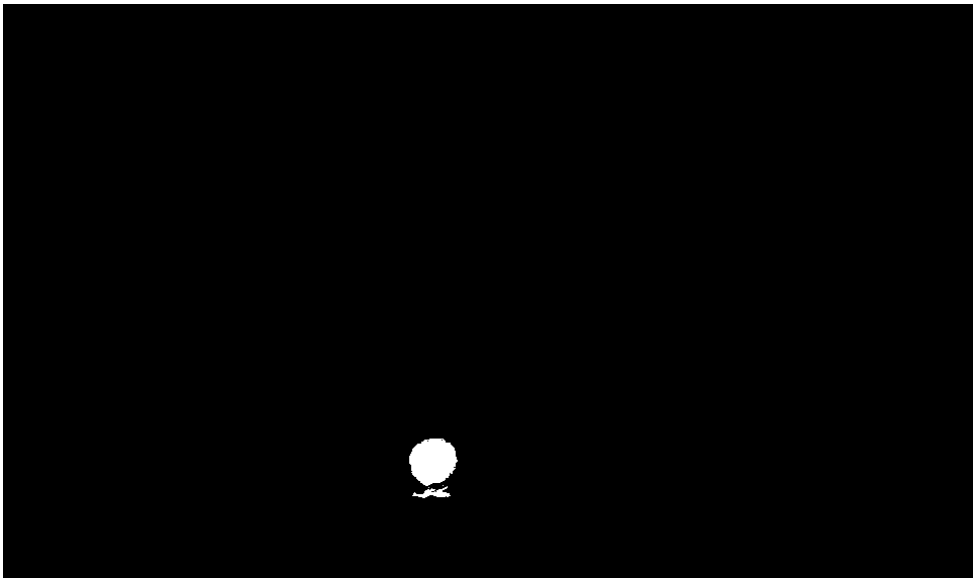

Viewer (press ESC to exit)

Cloud Viewer
baxter
40.5 FPS

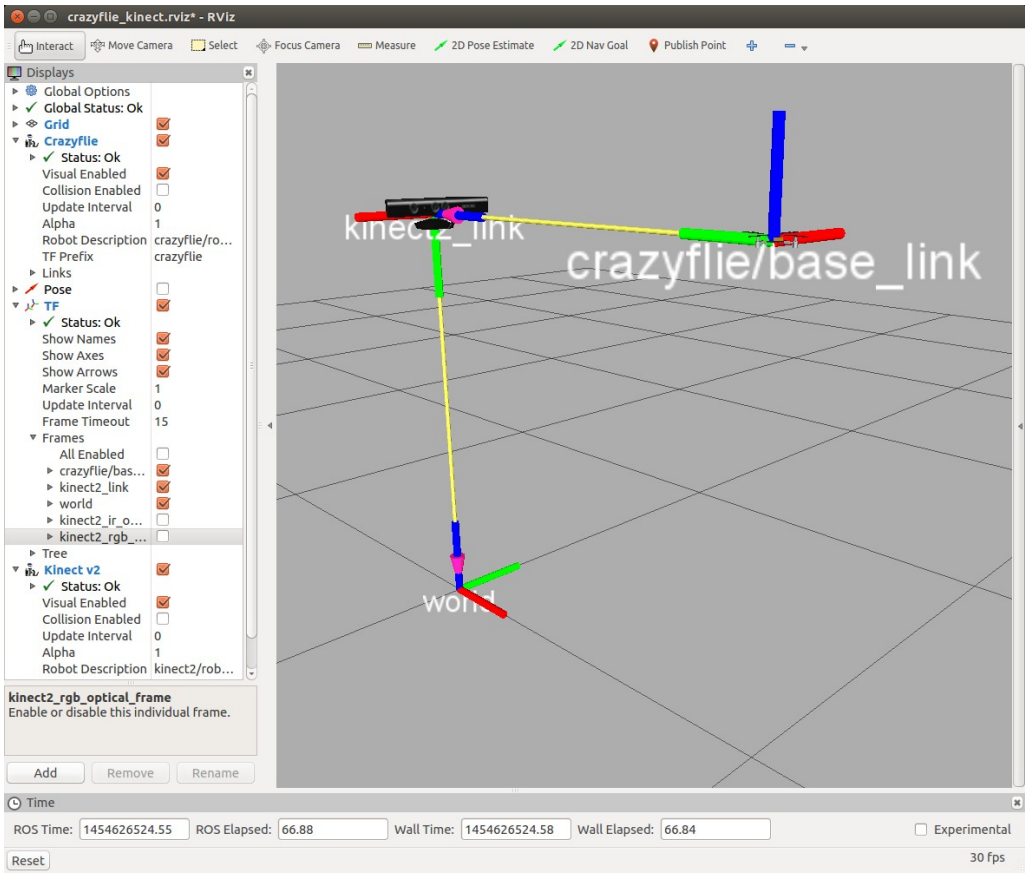

color

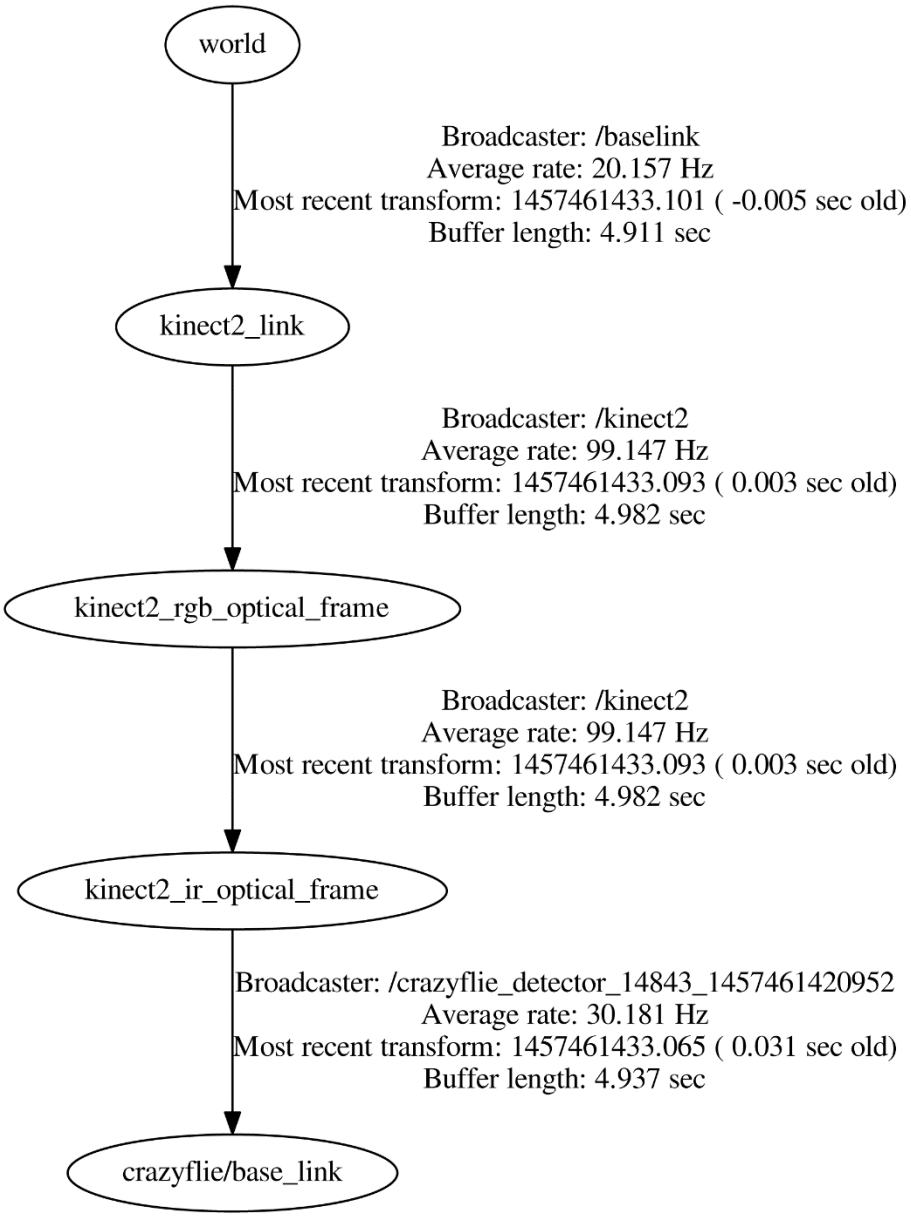

501493641942
Home
mission_ws
src
iai_kinect2
kinect2_bridge
data
501493641942
Places
Recent
Home
Desktop
Documents
Downloads
calib_color.yaml
calib_depth.yaml
calib_ir.yaml
calib_pose.yaml

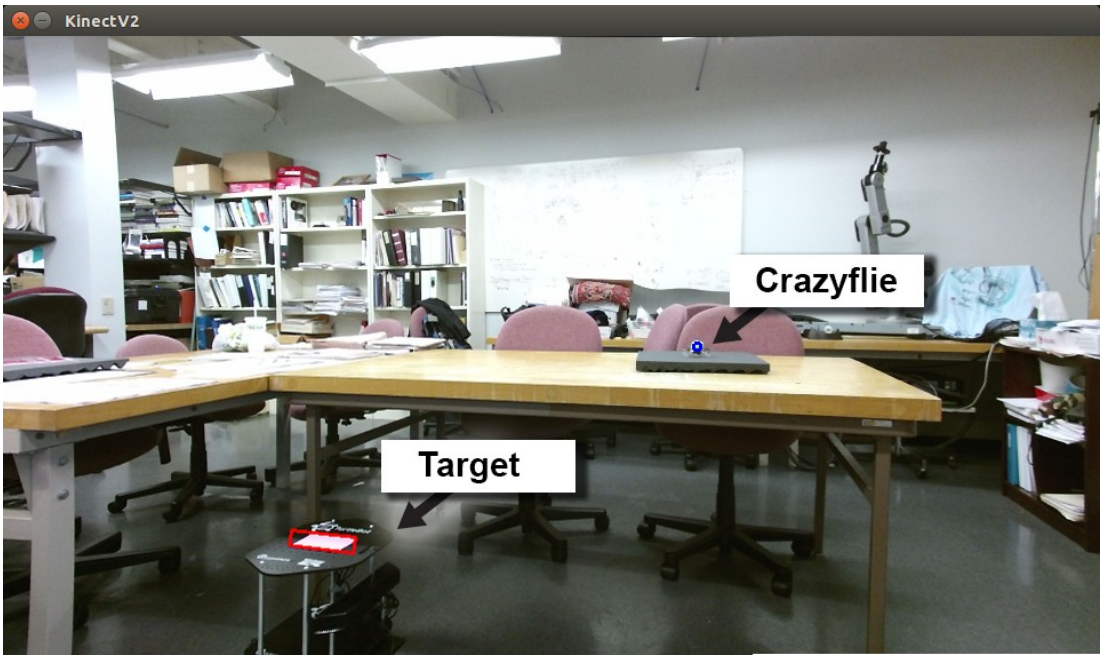
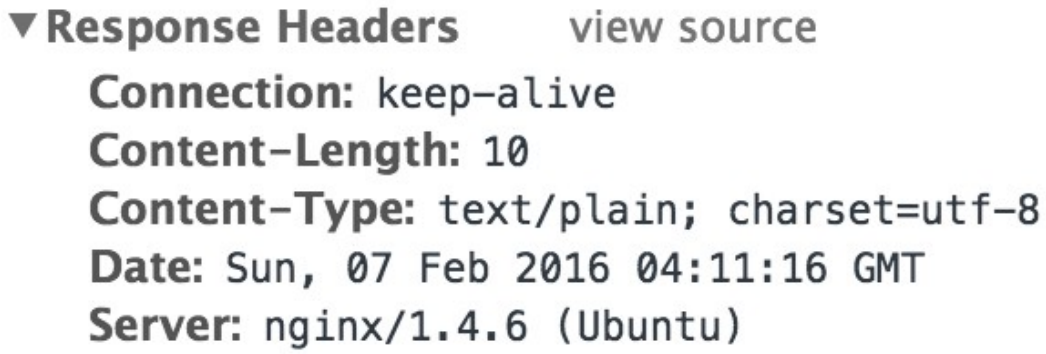

[kinect2_viewer_green_ball] (imported)-4.0 (RGB color, 1 layer) 960x568 – GIMP
Cloud Viewer
Change Foreground Color
H
S
V
R
G
B
109
62
49
62
126
48
HTML notation:
3e7e30
Current:
Old:
Help
Reset
Cancel
OK
px
100 %
kinect2_viewer_green_ball.png (5.9 MB)



KinectV2


crazyflie_kinect.rviz* - RViz
Interact
Move Camera
Select
Focus Camera
Measure
2D Pose Estimate
2D Nav Goal
Publish Point
Displays
Global Options
Global Status: Ok
Grid
Crazyflie
Status: Ok
Visual Enabled
Collision Enabled
Update Interval 0
Alpha 1
Robot Description crazyflie/ro…
TF Prefix crazyflie
Links
Pose
TF
Status: Ok
Show Names
Show Axes
Show Arrows
Marker Scale 1
Update Interval 0
Frame Timeout 15
Frames
All Enabled
crazyflie/bas…
kinect2_link
world
kinect2_ir_o…
kinect2_rgb_…
Tree
Kinect v2
Status: Ok
Visual Enabled
Collision Enabled
Update Interval 0
Alpha 1
Robot Description kinect2/rob…
kinect2_rgb_optical_frame
Enable or disable this individual frame.
Add
Remove
Rename
crazyflie/base_link
world
Time
ROS Time: 1454626524.55
ROS Elapsed: 66.88
Wall Time: 1454626524.58
Wall Elapsed: 66.84
Experimental
Reset
30 fps


world
Broadcaster: /baselink
Average rate: 20.157 Hz
Most recent transform: 1457461433.101 (-0.005 sec old)
Buffer length: 4.911 sec
kinect2_link
Broadcaster: /kinect2
Average rate: 99.147 Hz
Most recent transform: 1457461433.093 (0.003 sec old)
Buffer length: 4.982 sec
kinect2_rgb_optical_frame
Broadcaster: /kinect2
Average rate: 99.147 Hz
Most recent transform: 1457461433.093 (0.003 sec old)
Buffer length: 4.982 sec
kinect2_ir_optical_frame
Broadcaster: /crazyflie_detector_14843_1457461420952
Average rate: 30.181 Hz
Most recent transform: 1457461433.065 (0.031 sec old)
Buffer length: 4.937 sec
crazyflie/base_link


KinectV2
Crazyflie
Target

Chapter 10 - Extending Your ROS Abilities