Robotics

Assignment 4

by

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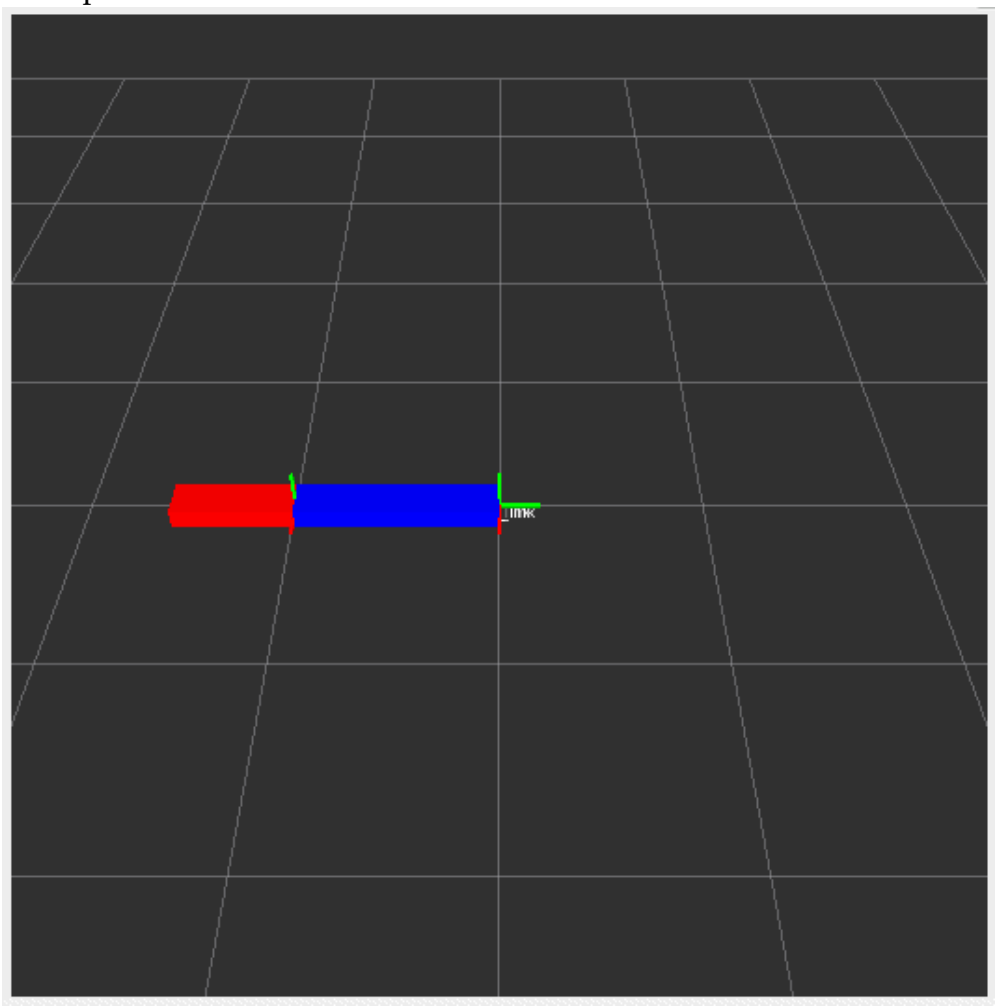
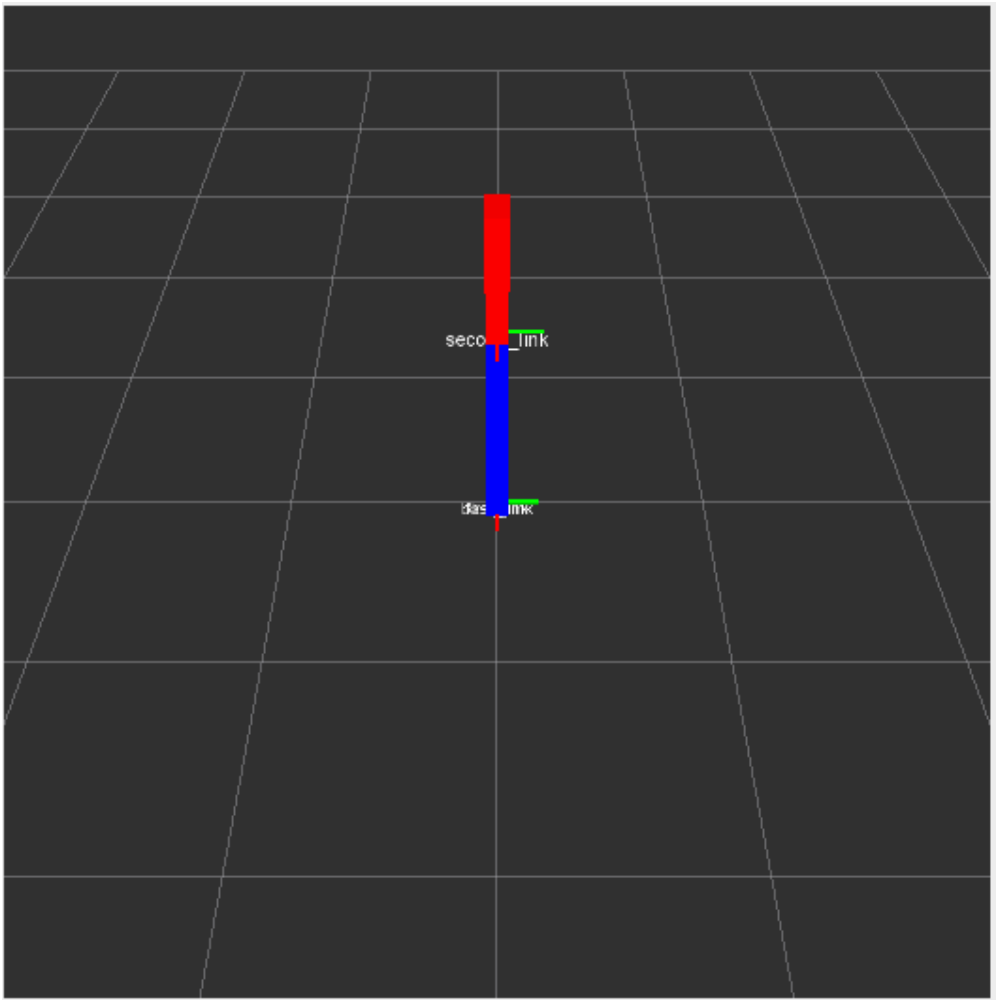
1.1 Task 1

For input 1:



For input 2:



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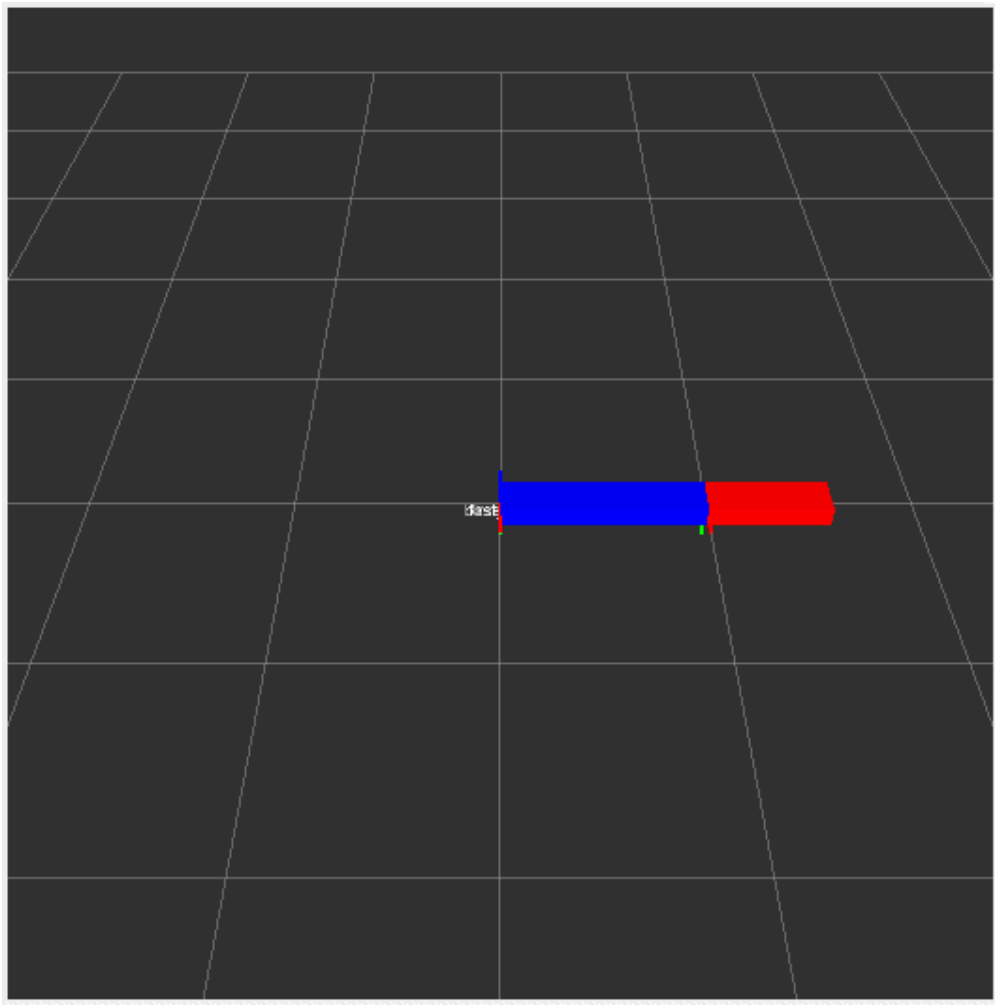
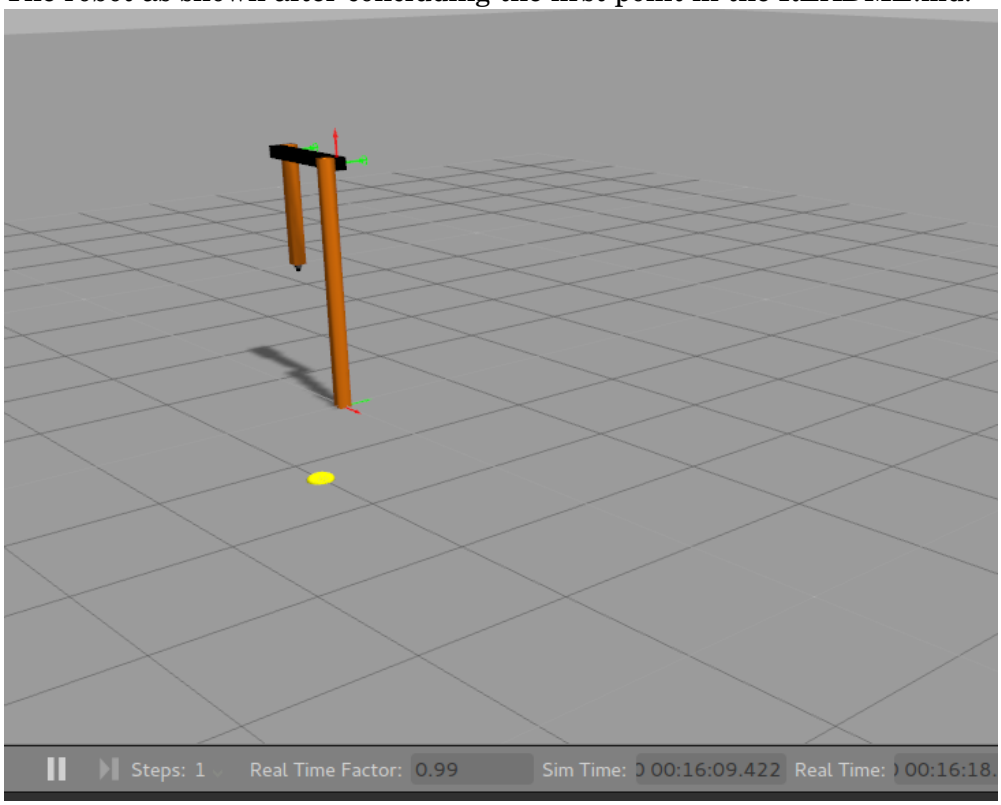
For input 3:



1.2 Task 2

1.2.1 a

The robot as shown after concluding the first point in the README.md:



We are not able to select 'Joint trajectory controller' as it is no option in the Robot Tools. Our best guess is, it has to with the rrbot_hw-package not compiling due to errors, as shown below. Unfortunately we have no clue on how to rectify this error so, we can not change the robots joints.

```
-- beginner_tutorials: 1 messages, 1 services
-- +++ processing catkin package: 'rrbot_hw'
-- ==> add_subdirectory(rrbot/rrbot_hw)
CMake Error at /opt/ros/indigo/share/catkin/cmake/catkinConfig.cmake:75 (find_pa
ckage):
  Could not find a package configuration file provided by
  "hardware_interface" with any of the following names:

    hardware_interfaceConfig.cmake
    hardware_interface-config.cmake

  Add the installation prefix of "hardware_interface" to CMAKE_PREFIX_PATH or
  set "hardware_interface_DIR" to a directory containing one of the above
  files.  If "hardware_interface" provides a separate development package or
  SDK, be sure it has been installed.
Call Stack (most recent call first):
  rrbot/rrbot_hw/CMakeLists.txt:7 (find_package)


-- Configuring incomplete, errors occurred!
See also "/home/doufu/workspaces/robotics/Robotik/ros/build/CMakeFiles/CMakeOutp
ut.log".
See also "/home/doufu/workspaces/robotics/Robotik/ros/build/CMakeFiles/CMakeErro
r.log".
make: *** [cmake_check_build_system] Error 1
Invoking "make cmake_check_build_system" failed
```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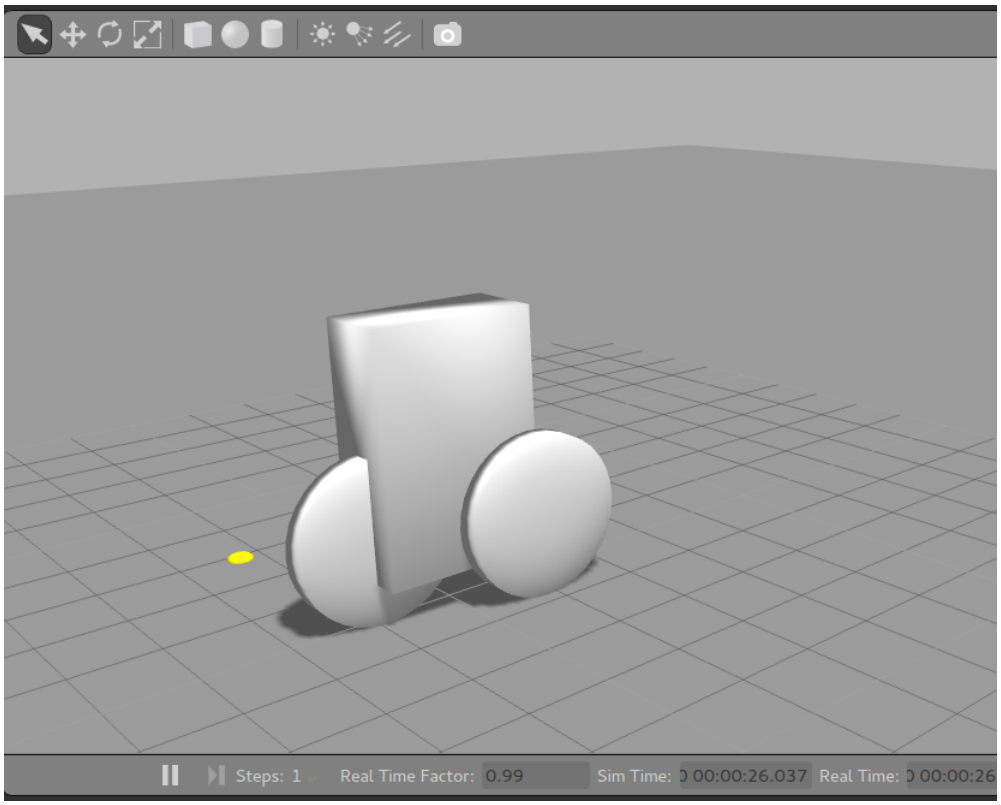
```
ERROR: cannot launch node of type [controller_manager/spawner]: controller_manager
ROS path [0]=/opt/ros/indigo/share/ros
ROS path [1]=/home/doufu/workspaces/ros/src
ROS path [2]=/home/doufu/workspaces/robotics/Robotik/ros/src
ROS path [3]=/opt/ros/indigo/share
ROS path [4]=/opt/ros/indigo/stacks
Gazebo multi-robot simulator, version 2.2.3
Copyright (C) 2012-2014 Open Source Robotics Foundation.
Released under the Apache 2 License.
http://gazebosim.org

Msg Waiting for master
Msg Connected to gazebo master @ http://127.0.0.1:11345
Msg Publicized address: 192.168.0.103
[ INFO] [1447703713.034499344]: Finished loading Gazebo ROS API Plugin.
[ INFO] [1447703713.049424603]: waitForService: Service [/gazebo/set_physics_properties] has not been advertised, waiting...
Msg Waiting for master
Msg Connected to gazebo master @ http://127.0.0.1:11345
Msg Publicized address: 192.168.0.103
spawn_model script started
[INFO] [WallTime: 1447703713.414476] [0.000000] Loading model xml from ros parameter
[INFO] [WallTime: 1447703713.426803] [0.000000] Waiting for service /gazebo/spawn_urdf_model
[INFO] [WallTime: 1447703713.436958] [0.000000] Calling service /gazebo/spawn_urdf_model
[ INFO] [1447703713.956413577, 0.001000000]: Camera Plugin (robotNamespace = single_rrbot), Info: Using the 'robotNamespace' param: 'single_rrbot'
[INFO] [WallTime: 1447703713.967615] [0.001000] Spawn status: SpawnModel: Successfully spawned model
[ INFO] [1447703714.084895889, 0.001000000]: Camera Plugin (ns = single_rrbot)  <tf_prefix_>, set to "single_rrbot"
[ INFO] [1447703714.095392794, 0.001000000]: Laser Plugin (robotNamespace = single_rrbot), Info: Using the 'robotNamespace' param: 'single_rrbot'
[ INFO] [1447703714.095776597, 0.001000000]: Starting GazeboRosLaser Plugin (ns = single_rrbot)!
Error [Plugin.hh:156] Failed to load plugin librrbot_hw_sim_plugin.so: librrbot_hw_sim_plugin.so: cannot open shared object file: No such file or dire
ctory
```

1.2.2 b



1.2.3 Task 3

Fixed-Angles: $-90°$ in Y-axis and then $90°$ in X-axis.
ZYX-Euler-Angles: $(-90°, 0°, 90°)$.
ZYZ-Euler-Angles: $(0°, -90°, -90°)$.