

Project Intelligent Robotics

Assignment #4

On this Assignment, you will get to know the PR2 robot and the simulation Gazebo.

Task 4.1 Run Gazebo with the simulation of the PR2 and the lab.: Use the commands from the lecture page:

```
https://tams-www.informatik.uni-hamburg.de/lectures/2015ss/projekt/ir/index.php?content=02-inhalt
```

This is the navigation stack created by the RACE-project. It requires ROS Fuerte. However, we are going to use Hydro, Indigo or higher in the next semesters. Currently, there is no setup for the TAMS environment on the newer versions. Use the given navigation and simulation stack to become familiar with the environment, and then create your own package on Hydro/Indigo with the existing map data. We will use this as a basis for the rest of the project.

4.1.1: Try out what you can do. Move the robot around. Add a new table and remove it.

4.1.2: Visualize the collision model.

Task 4.2 Start the visualization tool RVIZ:

4.2.1: Start the visualization tool RVIZ. You should now see the PR2, a map and data from many sensors. Deactivate and activate different sensor data to get familiar with the sensors of the PR2.

Task 4.3 Adapt your listener node from assignment 2 to read the data from the base laser scanner from the PR2:

Task 4.4 Write a program which uses the navigation stack to move the PR2 in Gazebo.: Use the movebase actionlib. Documentation can be found at the ROS-wiki:

```
http://wiki.ros.org/pr2\_navigation  
http://wiki.ros.org/navigation
```

Task 4.5 Create a launch file for your program from task 4.4.:

```
http://wiki.ros.org/roslaunch/XML
```

Task 4.6 Use the MoveIt! package to move the PR2 arms around in the simulation.: Note that the MoveIt! package is not available for Fuerte!

```
http://wiki.ros.org/moveit
```