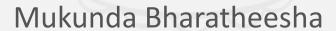
4.3.1

Movelt! Setup Assistant - Part1



Movelt! Setup Assistant

First setup your ROS environment and launch the setup assistant.

- \$ source \$HOME/hrwros ws/devel/setup.bash
- \$ roslaunch moveit_setup_assistant setup_assistant.launch

This gives a graphical interface where you will need to perform the following steps:

- Click on Create New Moveit Configuration Package
- Add the URDF file path of the Robot Model
- Browse to \$HOME/hrwros_ws/src/hrwros_support/urdf/hrwros.xacro or add the full path to that file (i.e. replacing \$HOME by the actual folder name)
- Click on Load Files to load the model

On the right side, a graphical view of the factory will be provided

The TurtleBot will no be seen on your display as we will not use Movelt to control it

Function explanation

<u>Self-Collision Checking</u> (left pane) here we set up information regarding what pairs of robot links should be checked for collision.

This saves execution time:

Set the Sampling Density to High and Click on Generate Collision Matrix.

MoveIt checks Self-Collision by sampling random joint values and checking if the configuration collides

This is done using the collision geometry of the URDF files. This process provides a list of link pairs that can be disabled because the can never collide with each other.

Function explanation

<u>Virtual joints</u> are an optional step to give Movelt a fixed reference in our world this is handy for robot arms on mobile platforms:

Define that our URDF is a fixed reference point with respect to *robot1_base_link*. The same needs to be done for *robot2_base_link*.

Function explanation

<u>Planning Groups</u> indicate a set of links and joints for which we intend to plan motions using Movelt We want to do this for our two robot arms:

- Add Group
 - Give the group a name
 - Kinematic Solver: trac_ik_kinematics_plugin/TRAC_IKKinematicsPlugin
 - Group Default Planner: RRTConnect
 - Add Kinematic Chain
 - Start: robot1_base_link
 - End: vacuum_gripper1_suction_cup

This needs to be done for any number of robots we would like to control with Movelt.