Installation Guide

Motion Planning for Close Chain

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1 Introduction

This guide is for Open Motion Planning Library (OMPL) library only. Motion planning algorithms are already available in OMPL. It can be easily installed with Robot Operating System (ROS). Objective is that robot should be able to pass in environment be changing the configuration when it's possible. For changing configuration, robot must follow 2 constraints.First is self collision means links of the robot should overlap with each other.Second is joint should not be broken.Concept of joint and link are given below.Also installation instructions for ROS and OMPI are given.

2 Concept of links and joints

Each joint is connected to two links, an input link and an output link. Joint provides controlled relative movement between the input link and output link. For this project we will consider revolute joint only.



Figure 1: Close Chain Robot

3 ROS and OMPL Installation

Following link is for ROS installation. ROS have multiple distributions according to different versions of Linux.

1) Check Distribution: http://wiki.ros.org/Distributions

2) Installation Guide: http://www.ros.org/install/

3) OMPL Installation: http://ompl.kavrakilab.org/installation.html

4 Close Chain Robot

For getting background and the fundamental we will run omplapp.py which is under ompl/gui/ompl.py. OMPL contains set of environment and robots.However, for this project we will use close chain robot given in below link.Omplapp also provides visualization for different algorithms like PRM,RRT and many more.List is available in GUI.

Robot Model: https://drive.google.com/open?id=10hkmUiwNIfBEcbQNhBa4834ER9g0LES3

Environment Model: https://drive.google.com/open?id=1BBivz1bZeLqW7EuQPgAU42dcnuWdLN97