Path planning with Moving Obstacles using RT-RRT*

CS 5335 Project Milestone

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Simulator setup

We will be using Pybullet as our simulator for this project.
We have installed and setup Pybullet simulator.
For our project we need to configure environments and scenarios with static and dynamic obstacles.
Using the examples from the Pybullet documentation we were able to create a 3-D environment with static obstacles.
We are still working on integrating dynamic obstacles having a fixed path in our environment.
For our Robot and obstacle representation we will be using URDF files. We have modified some of the example files provided by Pybullet to create a urdf file for our obstacles and currently used the r2d2 file for the robot.

Algorithms

We have implemented the basic RRT* algorithm in Python for a 2-D environment without using any simulator. We will be extending the same algorithm to incorporate dynamic environments using Pybullet.

We are also looking at the path planning library built on Pybullet (Pybullet-planning) which has implementations of standard motion planning algorithms like RRT.We plan on using some of these algorithms for our baseline comparisons.