

RBE 550 Standard Search Algorithms Implementation Documentation

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I. INTRODUCTION

This document accompanies my homework 2 submission. It is designed to explain my thought process when developing my code. It will also explain the implementation of two different algorithms: Probabilistic RoadMaps (PRM) and Rapidly-Exploring Random Tree (RRT). PRM will be implemented with 4 different sampling methods, while RRT will also be implemented with another variant (RRT*).

II. GENERAL CODE SETUP

III. PROBABILISTIC ROADMAPS (PRM)

A. *The 4 Sampling Methods*

- 1) *Uniform Sampling:*
- 2) *Random Sampling:*
- 3) *Gaussian Sampling:*
- 4) *Bridge Sampling:*

B. *Search Method:*

C. *Results*

- 1) *Uniform Sampling:*
- 2) *Random Sampling:*
- 3) *Gaussian Sampling:*
- 4) *Bridge Sampling:*

IV. RAPIDLY-EXPLORING RANDOM TREE (RRT)

A. *General RRT*

- 1) *Results:*

B. *RRT**

- 1) *Results:*