

Cody Nichoson

ME 449

November 22, 2021

Final Project - Milestone 2

Summary

The code for this milestone consists of a single TrajectoryGenerator function that takes in the various inputs given in the project specifications. Within the function, the logic primarily revolves around the ScrewTrajectory function from the Modern Robotics library. This function is called one time for every segment of the overall path that the end-effector follows. In this case, there are eight trajectory segments that make up the entire motion. These function calls are given a starting configuration, an ending configuration, and some parameters that determine how the resulting trajectories are divided into discrete points. The starting and ending configurations are determined for each sub-trajectory using the various initialized transformation matrices and some customized matrices. After each function call, the resulting trajectory is broken up into a list of lists in the same format as the .csv file that will eventually be read by CoppeliaSim. These lists are then appended together and ultimately saved as one large .csv file.

How to Run the Solution

Fortunately, not much is required to run this solution and retrieve the desired .csv file for the end-effector trajectory. All that is required is to simply run the code in a text editor or in a terminal window. The resulting .csv file will then be saved in the working directory as 'milestone2.csv'.