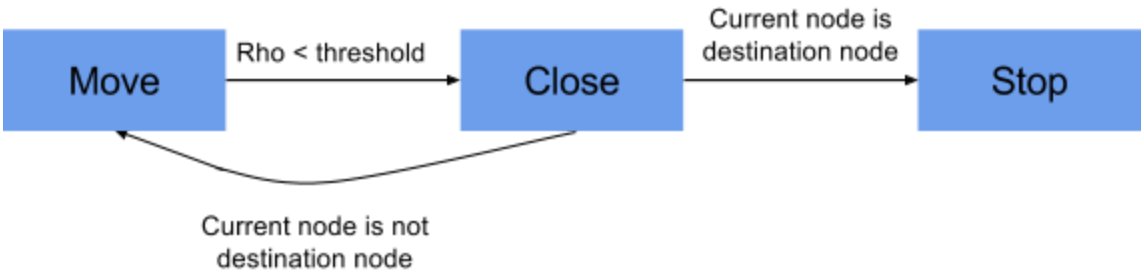
Lab 3.3 Write Up

Provide a write-up describing your approach including a picture of the state machine you implemented.



Answer the following questions:

(1) How did you chose the distance at which you pull the next waypoint? What happens if you do this too early or too late?

It allows Sparki to plan a path ahead of time to make smooth curves and still avoid obstacles in the way. If you pull it too early, Sparki will change it's path based on a node coming in the future, which could make the robot run into obstacles or take a slightly unexpected path. If you pull it too late, Sparki will not perform a smooth turn.

(2) What do you need to do should an unforeseen obstacle appear? Try to use tools/algorithms from previous exercises to solve this problem.

If Sparki detected an unexpected obstacle, we would update the 'nav' map of obstacles, rerun Dijkstra's to find the new shortest path to the destination node, and then run the rest of the code with Sparki's current node as the starting node. As long as there is an adjacent node with a cost less than 99 (in our case), there is a valid path to the destination node.