

Computer Engineering Project

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Softwares used:

* Ubunto 18.04
* Oracle VM VirtualBox Manager
* Visual Studio Code 1.73.1
* Roboticstoolbox

Steer

Robot and map printed

Input

Check for obstacles

True

False

Reach target

Move forward

How it works

The code runs, asking for 6 input values (start x, start y, start theta, target x, target y, end theta). A list of obstacles is printed and a list of points creating the path for the robot. The map is then printed in a scale of 50 (100 by 100) with a number of random obstacles printed. The robot is then printed in the start location. then moves towards the input-ed target location on the map.

The map is divided into 4 sections and depending on the robot’s start and end location one of 16 combinations previously planned using 4 target points is chosen to help the robot navigate through the map easily.

When the sensor detects an obstacle the robot turns around the obstacles preventing any collisions then the robot continues to move towards the final target location until the final target location is reached then the robot stops.

Further improvements

* Allowing the robot to detect further obstacles to know which side of an obstacle to choose making it easier for the robot to navigate through the map.
* Finding a way to increase the speed and make the robot stay on the path.