Mobile Robot Programming (700.240, 21S)

ROS Navigation Stack

Assignment I

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My implementation goes as follows:

1. The robot will go to every valid node in the map. I split the map into 2 parts (Left Box & Right Box). Each box has its boundaries where the robot is searching inside these boundaries.
    a. The boundaries are initialized as a global variables in the beginning of the code.
    b. Then, I'm checking the validity of the node by using "check_next_point" method I implemented.
    c. It checks around this node by a vicinity of 25 pixels. If there is an obstacle there, this node will be considered as invalid node. Then robot will skip it and will keep on searching.

2. The step of my movement is 3 meters. If I made it less than 3 meters, it makes the robot movement unstable as of the 1.5 meters range we are checking our target point in.

3. The Robot is taken coordinates for 4 objects to find while navigating the map. If it found any of them, it will turn the object Boolean variable to be true and will print it in the Console. The implementation goes as follows:
    a. If the object becomes in range of 1.5 meter with the robot, the Boolean variable of the object will become true.
    b. If the object is not found, at the end of the searching, you will find a message in the console informing you with those objects that could not be found as they are in an invalid place.