ENPM661 -Planning of Autonomous Robot

Project - 02 – Read Me File

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Instructions to run the program:

1. Run Algorithm.py file.
2. Follow the instructions shown in the screen and enter the inputs accordingly.
3. Firstly, Astar Algorithm will execute and opens a GUI showing nodes exploration.
   a. Blue colored nodes – obstacles
   b. White colored nodes – Augmented obstacle space using minowski's sum
   c. Red line – shortest path
   d. Green – Neighbor nodes
   e. Yellow – Visited Nodes
4. Once it reaches goal program Ends. Press 'SPACE' key after the algorithm Finishes.
5. On the Terminal it will print the cost to reach the goal node using Astar Algorithm.
6. Secondly, Dijkstra Algorithm will execute and opens a GUI showing nodes exploration.
   a. Blue colored nodes – obstacles
   b. White colored nodes – Augmented obstacle space using minowski's sum
   c. Red line – shortest path
   d. Green – Neighbor nodes
   e. Cyan – Visited Nodes
7. Code will execute until all the available nodes are explored. Press 'SPACE' key after the algorithm Finishes exploring.
8. On the Terminal it will print the cost to reach the goal node using Dijkstra Algorithm.
9. After that all the Windows Closes.
10. You will get four files corresponding to each algorithm one for nodes explored and one for the shortest path,
    a. Nodes_Explored_Astar.txt
    b. NodesExplored_Dijkstra.txt
    c. Shortest_path_Astar.txt
    d. Shortest_path_Dijkstra.txt

For further insight, one can refer to the comments added with code. Files corresponding to explored nodes includes both the visited and neighbor nodes found, also there is no order or sequence to the nodes printed. Files related to shortest path is printed in a sequence starting from start node to goal node.

Note:

1. The inputs are in the normal x, y coordinate system i.e., all the input points lie in the first quadrant of cartesian co-ordinate system.
2. For point robot enter zero for radius and clearance when asked in terminal while running algorithm.py.