

Robotics - Motion Planning Workshop – Spring 2016

Implementation of a motion planning scheme:

- NF1 Navigation Function.

Setup:

- Discrete 2D workspace, free or occupied cells.
- Point robot that can move up, down, left and right to the next cell.
- Unit cost to move from one cell to the next.
- C/C++ programming under Linux.

Things should be kept simple, no fancy graphics, simple data structures (2D arrays).

To be handed over:

ONE tar/zipped file sent at thierry.fraichard@inria.fr with subject “TP Navigation” and containing:

1. ONE main file.
2. Makefile.
3. Pdf document describing your data structures/algorithms in pseudo code. Please include an analysis of the complexity of your Navigation Function computation algorithm. Include also a user manual for your code (how to compile it, how to use it).

Do not forget to put your name(s) in mail, main & pdf.

Deadline: Sunday May 22 2016.

User interface:

1. Display workspace.
2. Ask user for goal.
3. Display navigation function.
4. Ask user for start.
5. Display solution path.

Define an “interesting” workspace (irregular obstacles, multiple connected components) and be sure to handle special cases (ill-chosen start/goal, lack of solution, etc.)