

Zach Janice, znj
PS5

The image of the map is provided in the same directory as this report.

The .yaml file corresponding to the map contains the following values, with what those values mean:

- `image: map_raw.pgm`
The image file to use for the map.
- `resolution: 0.050000`
The resolution of the map, translating to the size of each cell of the map in terms of the image.
- `origin: [-100.000000, -100.000000, 0.000000]`
The coordinates of the origin of the map, in order to mount a frame for the map correctly.
- `negate: 0`
Bit representation of whether or not the determination of occupied/free by darkness/lightness of a cell should be inverted. In this case, no (light=free).
- `occupied_thresh: 0.65`
The threshold of cell darkness by which to consider a cell occupied ($> .65$).
- `free_thresh: 0.196`
The threshold of cell darkness by which to consider a cell free ($< .196$).

The screenshots of the initial pose and each of the three poses, taken in respective order, are provided as image files in the same directory as this report. A separate text file of the relevant odometer readings is provided as well.

The coordinates of the map pertain solely to an (x, y) pair (the z coordinate is not used). Positive x is to the right, and positive y is up, as verified by the visited poses and their readings for x, y coordinates. Initially, the robot is facing to the right with a (z, w) orientation of (0, 1), suggesting that facing to the right is the 0 heading (x and y are not in use for orientation in this scenario). This was later verified in pose 2, where the robot was facing to the right with an odometer reading of about (0, 1) for (z, w).

By extrapolating from the initial pose, we can assume the bottom-left corner of the maze has coordinated of (0,0). As the robot as able to travel to about (14.3, 14.1) in pose 1, in the upper-right corner of the maze, it's fair to say - after accounting for the physical barrier of the robot and the wall - the upper-right corner of the maze lies at about (15, 15), and as such the dimensions of the maze are about 15 x 15.