

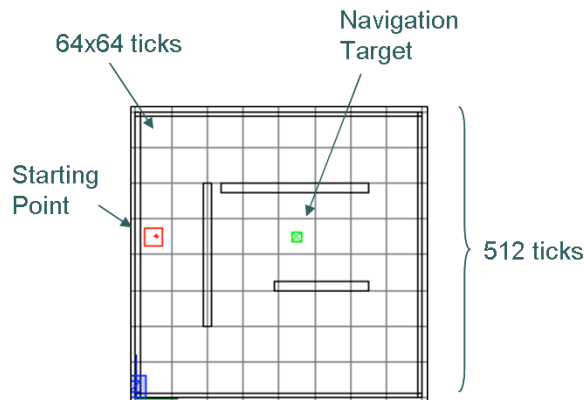
The Shortest Path to the Disk

Programming Assignment #3
CSC 481 – Spring '15

Problem Statement

Your quagent will be placed in a room with obstacles and internal walls (the 'Obstacle Room'). In the room, at the global coordinates (288,288,128), you will find a rotating disk (data 288,288,128). If you are using the quagent.config file that came with the system you can simply uncomment the relevant lines in the files to see the disk (you should also delete previously inserted statements, if any).

The goal is to develop a Java program based on the A* algorithm which searches for the shortest path between the quagent spawn point and the rotating disk and then plans the quagents commands necessary to move the quagent from the spawn point to the disk. Given that this is a searching and planning algorithm you can assume that your quagent brain has complete knowledge of its environment. The following map is a layout of the 'Obstacle Room' given in 64x64 tick tiles.



For your own program you should probably choose 32x32 or 16x16 tick tiles to be able to compute smoother paths.

Deliverables

- (1) a document describing how you implemented the A* algorithm (major data structures, algorithm trade-offs, assumptions about the global knowledge etc)
- (2) your Java source code

Submitting your Project

Submit your work via Sakai by **Monday March 9th 11:30pm.**

Grading

- 20% - A* implementation report
- 10% - structure of the code/implementation of the A* algorithm
- 70% - correct execution of the program