

Game Engines

Project 3: Pathfinding

For this project I started by reading an article on the web titled *A* Pathfinding for Beginners*¹ for a text on how the algorithm proceeds but then I based the implementation pretty much verbosely on the pseudocode in the Wikipedia entry for the A* algorithm², along with supporting functions.

The implementation can be run by opening the index.html file in a recent browser (I've tried Chrome and Firefox) and pressing the Start button. The chasing agent is represented by the letter C and the goal or target is represented by T.

When the target is moving the run can end without the target being reached when the open set becomes empty (line 145 in pathfinding.js), but the run can also end where the target has been reached. It could be worth looking at the D* algorithm³ for this case.

The target moves randomly one step at a time horizontally, vertically or diagonally, except when it's the next neighbor to the chasing agent (C), then it tries to choose a move that results in it not being the chaser's next neighbor, which is not always possible (when the target is on the grid's perimeter - see the last condition in the do...while loop at line 198). It's possible to have the target fixed in it's starting position by unchecking the checkbox (*Target (T) wanders and tries to avoid*) in the interface.

¹ <http://www.policyalmanac.org/games/aStarTutorial.htm>

² http://en.wikipedia.org/wiki/A*_search_algorithm#Pseudocode

³ <http://idm-lab.org/bib/abstracts/papers/aamas10a.pdf> (<http://gamedev.stackexchange.com/a/14527>)