Search Based Agent

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1. INTRODUCTION

This paper is about the artificial intelligence agent that I coded and designed for the Maeden environment. The Maeden environment is a maze where an agent tries to find its way around obstacles such as walls, doors, and boulders to reach its way to its goal = cheese. The agent can only see two rows on either side of it, five rows ahead of it, and 1 row behind it. The agent I created is supposed to be able to explore an arbitrarily created Maeden world, solve any obstacles in its way, and collect the cheese.

2. APPROACH

The first thing that I thought about when I started to work on this agent, I thought about creating a world map of whatever the agent could see. So the first task I set out to complete was to add everything my agent saw to a global map. After that I thought I would be able to find any obstacles and their solutions in the larger map and have the agent navigate its way around to the cheese.

3. EXPERIMENTS

I initially thought that I might be able to complete this project without the global map of the environment. It would work in a similar way to my reactive agent, in that it would search the sensory information, except that it would this time be able to remember and stack moves. I wanted to be able to calculate a path to a certain item in the sensory information and then do them in succession. I hoped that I could then extrapolate that and after creating the global map, I would be able to use that path calculation from the sensory info on the global map scale.

I was able to create the global map, but I ran into a few problems when creating the search algorithm. I was going to calculate the path and place each movement onto a stack. From there the agent would find out if the cheese was blocked by anything, and then find and solve the obstacle.

4. RESULTS

Up front, my agent doesn't work very well right now. I could not get my global map and search functions to play nicely together. I do have hope that my methods could eventually work, given that I exhaust more resources on it. I feel that I may have gotten close, but in the end I had to modify my reactive agent to supplement parts of the search algorithm.

5. CONCLUSIONS

This project was very hard. Just thinking about solutions was one of the harder things to do. Implementing them was even harder. It was quite possibly the hardest project I have taken up so far in college. I was really hoping to be able to complete it, but in the end I wasn't able to make it work. I want to come back to it very soon.

6. REFERENCES

[1] Russell, Stuart J. (Stuart Jonathan), and Peter Norvig. *Artificial Intelligence a Modern Approach/ Stuart Russell ; Peter Norvig*. New Jersey: Prentice Hall, 2003. Print.