**AI: Final Project Robot Maze Navigation**

**Wallie 2.0 Design Document**

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**Project Overview:**

Is a particular search algorithm employed as the foundation for your solution

**Section 2:**

How is the state in the search space defined

How is the next state chosen

What happens when a dead-end is reached

Is a particular algorithm employed as the foundation for your solution (?repeated)

What are the advantages of your approach

What are the disadvantages

**Section 3:**

High level entities: groups of objects that constitute major constructs of design. Ex controller object, set of behavior objects. Makes sense to include block diagram to illustrate relationships between objects. (ex uml) explain in a few sentences what each entity does. Describe reasoning for defining entities in your diagram and what their roles are.

**Section 4:**

Describe low level design for each entity: where individual object and relationships are defined.

Define:

Describe in a paragraph how the object is used, and what function it serves. Ex show the interface, describe thought process for defining the object as you did, list benefits and risk if an object provides an encapsulation describe in a sentence why the encapsulation adds value. Give diagrams meaning with description.

Configuration if the object needs special configuration or initialization.

**Section 5:**

Benefits, assumptions, risks/issues. List 5-6 top benefits of the design, all known risks/issues and all assumptions. May rehash, important so the reader doesn’t need to read the entire doc to understand benefits, assumptions, risks/issues.

**Section 6:**

Future: what changes would you make given time to work on this project (bug fixes, optimizations, changes in design, etc. Explain why they should be made and how the project would benefit.

1. Notes:
   1. Robot navigates towards unknown marked goal.
   2. Learns max to find optimal way back to the starting point.
   3. Robot given a starting point, and final destination point, no other knowledge other than information gathered during navigation.
   4. Ability to navigate & memory as a map
   5. Recognize intersection and mark branches already explored, when you reach a place you have already located take an unvisited branch.
   6. Robot starts somewhere between (0,0 and 1,3)
   7. Goal cell is white, within (3,0) and (4,7)
2. Goal: Develop a strategy and implement the corresponding algorithm so robot will make its way back to start without making a wrong turn.
   1. Robot begins at center of start cell.
   2. Must use atleast 2 different types of sensors.
   3. Play song @ goal.
3. Presentation describing how you solved the problem and lessons learned. Demo robot.
4. Extras:
   1. Sound corrections
      1. Ex clap hands to tell the robot it is headed in the wrong direction
   2. Remote commands using Bluetooth.