Write Up

Programming Assignment 2

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Info About the Game

This is a Unity game of inverse tag. It utilizes all pathfinding movements and other behaviors specified in the assignment description, namely:

- -Dijkstra (A8 null heuristic)
- -A*
- -A* Cluster Heuristic.
- -Steering Arrive
- -Kinematic Arrive
- Align

Additional features:

- When two Chasers combine, they become “Super Saiyan”. They fuse, grow, gain increased movement speed, and glow yellow.
- If a chaser is behind another chaser, it will gain a small speed up in order to fuse with his partner.
- There are different types of Flanking which can be performed by chasers:
    - Normal flanking: Chaser2 always flanks
    - Strong flanking: The furthest Chaser will flank.
- When the Runner finds a node where it believes is far enough from the chasers, it will stay and hide (typically in a corner).

The different players in the inverse freeze tag game are marked as such:

- The Chaser NPCs are red.
- The Runner NPC is cyan.

The NPC character models seen on screen can be switched between:

- Basic (default) NPCs, who are cylinders with noses indicating their movement direction
- Robot NPCs which have walking and running animations.

The BASIC NPCs are enabled by default, but to play with robots:

- -Disable all basic NPCs in the hierarchy,
- -enable all Robots NPCs in the hierarchy.

--CONTROLS--

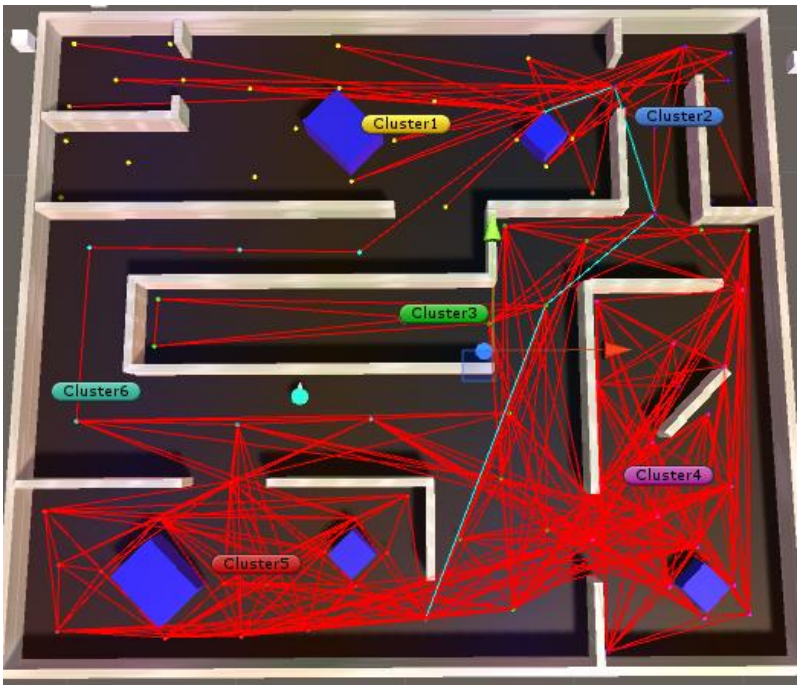
- Press ‘1’ to toggle Dijkstra.
- Press ‘2’ to toggle A*.
- Press ‘3’ to toggle A* Cluster.

- Press ‘5’ to toggle between flanking modes.
- Press ‘SPACE’ to reset the game.

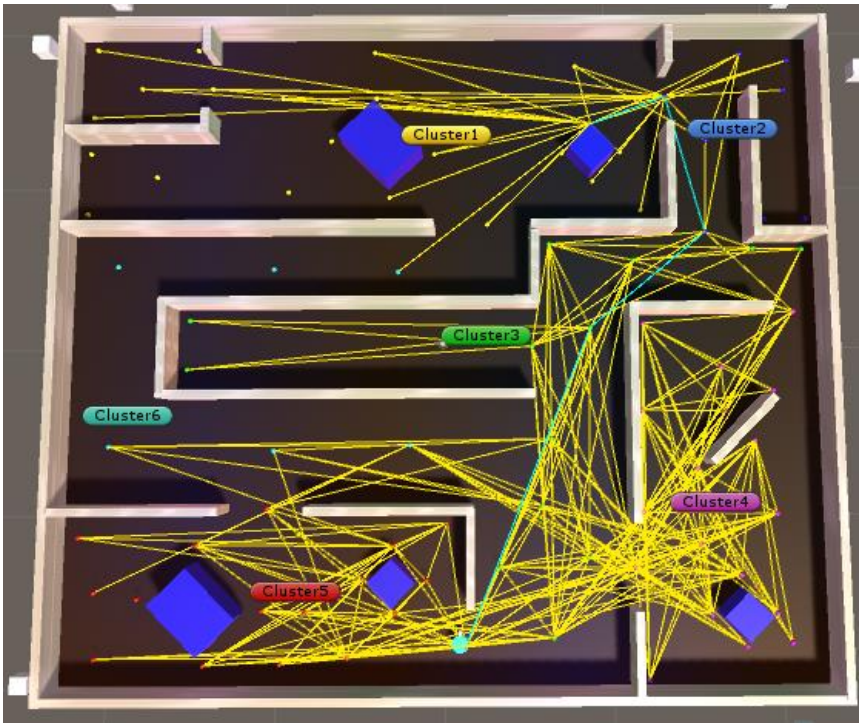
Diagrams and Screen Shots

The Cyan line indicates the shortest path list.

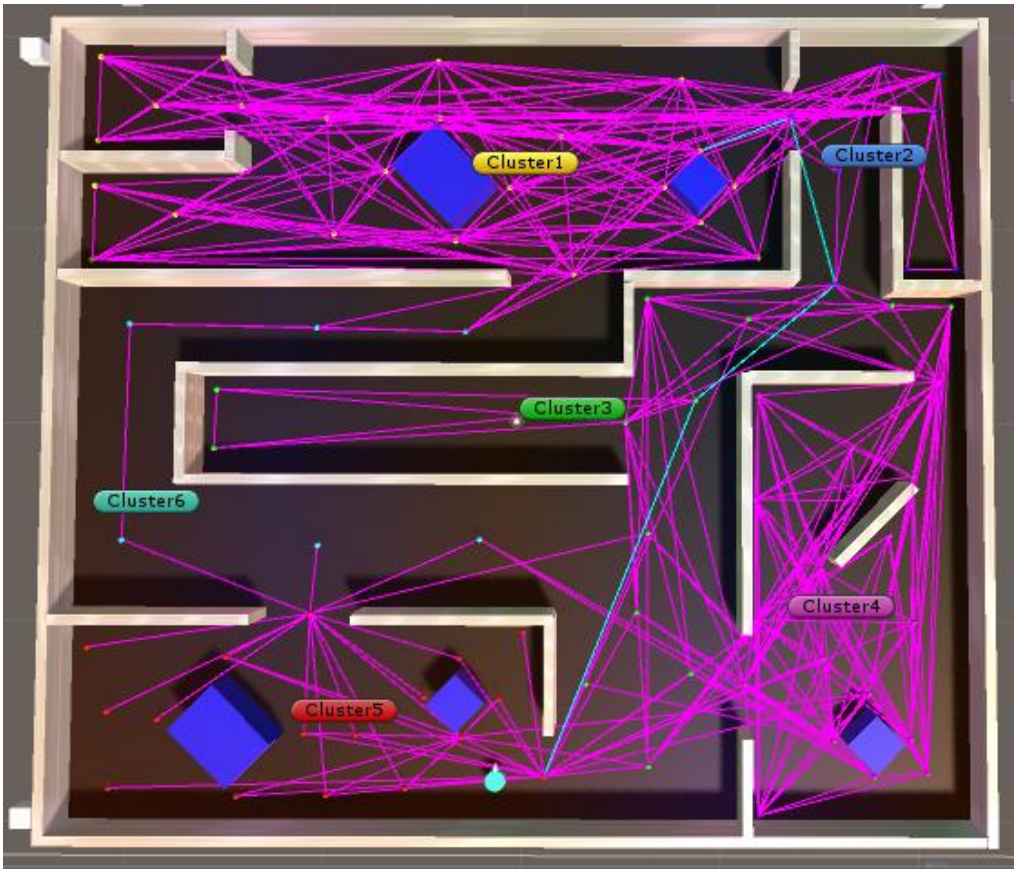
Dijkstra Fill:



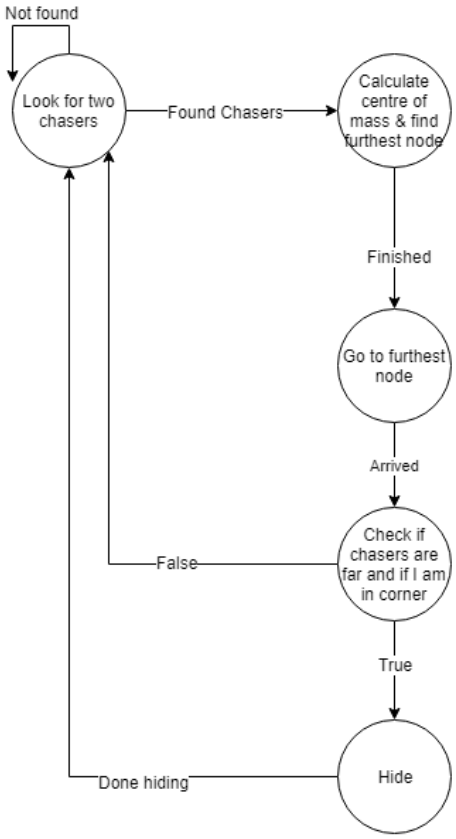
A* Fill:



Cluster Fill for lookUpTable:



FSM for the Runner:



Behaviour Tree: