



TDD AI Assignment 2

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Changelog

Version	Date	Changes
1.0.0	XX/XX/20XX	Initial Setup

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Introduction

Rationale

In the project I am trying to accomplish 3 different NavMesh agents that go to different way points with different circumstances. I'm also needing to put in a door that the agents can go through and continue with their path. Issues I am facing are that 1 agent seems to be waiting at the moving door and stays there forever which I need to fix.

Background

No Background or historical context is needed to understand this document.

Terminology

No Special terminology used or needed.

Non-Goals

Some waypoint which are outside of the map aren't very popular to the agents until they get close enough to them.

Proposed Design

The design of the maze difficulty wise will be simple yet not too simple, One where the human eye can figure it out within seconds but still enough twists and corners for the AI to be showcased.

Software and Hardware Requirements

All that's required to edit the project is unity and the downloaded navmesh components. When the AI Preview is built a below average PC could run the final build of the project.

Gameplay

Gameplay Mechanics

Mechanic #1 – Agents moving to waypoints around the Maze.

There are 3 agents in the maze, and they are programmed to specifically find the best route to get to these deployed waypoints. Once a waypoint has been achieved and they have arrived they simply go to another waypoint.

Mechanic #2 – A door which automatically opens and closed.

There is a door in the maze which blocked the path for the agents and it programmed to move its Y axis position every second, Therefore constantly going up and down (Opening and closing) The agents wait until they can go through the path without blockage then continue on their way.

Mechanic #3 – Different Area Modifiers

Around the maze there are pits of water and fire. Certain agents will be unable to enter the water and fire or even both ultimately changing their way around the maze and having to ignore or find their way around a certain part.

Mechanic #4 – A gap between the maze.

On the outskirts of the maze there is a platform with a large gap. Agents can cross this by using the navmesh link I have implemented to get them to jump across the gap.

Controls

There are no controls within the project. The AI will move to its objectives automatically with a bird's eye camera view, so everything is visible.



System Architecture

/ If the design consists of a collaboration between multiple large-scale components, list those components here — or better, include a diagram [UML]. /

NavMesh Surface

This component creates a surface that will be detected as 'Walkable' to AI Agents. Any blocked areas will not be walkable. The height and width of what can be walkable can be changed in the agent type, Values changed there will effect the walkable surface.

NavMesh Link

This component creates a navigable link between 2 points. This can be a gap or obstacle and the agent will hop from the start point to the end point which can be adjusted.

NavMesh Modifier Volume.

NavMesh Modifier Volume marks a defined area as a certain type. The certain type can be set as walkable or non-walkable to certain types of agents. The area must be set manually and can be placed on flat ground or even large rooms and areas (eg. Lava room)