### Technical Design Document Template

1.0 Revision History

<As you revise the document, list what was changed and when it was changed>

|  |  |
| --- | --- |
| Version | Description |
| 1.0 | Initial document |

2.0 Development Environment

2.1 Game Engine

Raylib

2.2 IDE

Visual Studio 2019

2.3 Source Control procedures

Git

2.4 Third Party Libraries

Raylib.dll

2.5 Other Software

N/A

3.0 Game Overview

3.1 Technical Goals

- 2D top-down perspective

- Utilise basic shapes and minor sprite work

- Have an Agent seek to a point

- Have an Agent flee from another agent

- Have an Agent that attacks other agents

- Have agents that harvest resources

- Allow the player to use resources to place down different nodes

3.2 Game Objects and Logic

- Helper agent: The player commands these agents to perform specific tasks

\* Harvester agent: This agent is used to seek harvest nodes and collect resources

\* Fighter agent: This agent will fight when other agents get attacked, you can even set paths for them to follow.

\* Builder agent: This agent creates nodes on the players command

- Enemy agent: They attack your Helper agents

- Harvest Node: This holds resources and can be destroyed when nodes are lost, Resources are harvested at a rate.

- Pile Node: Holds resources, resources are picked up instantly to the agents max inventory

3.3 Game Flow

The player is tasked to manage agents to harvest and collect resources. The player can select agents to tell them to seek nodes or even automate process using pathing. You have to keep your helpers alive by commanding them to harvest resources from harvest Nodes, and protect them from enemies

<description of what the player can do (actions) from the start menu to playing the game, through to hitting quit. Include how to win, how to lose, how the player is moved, and what programmer things might need to be considered>

4.0 Mechanics

<A list of the core game mechanics. I.e., what the player can do and how they achieve this, and what this triggers in the game. For example, shooting enemies is a core mechanic in an FPS>

5.0 Graphics

<Describe graphics features here. I.e., is your game top-down 2D? >

6.0 Artificial Intelligence

<Describe how AI works, i.e. state machine, fuzzy logic, GOAP. Describe the various behaviours and how they change behaviour, how do the ‘creatures’ in the game evaluate the world> <include diagrams/flowcharts showing decision making processes>

7.0 Physics

<if needed>

<What engine are you using, what features from it (spring? Colliders?) how will physics be handled for objects? (box or sphere collider for objects, capsule for player) need to record specific locations for any reason? Potential slowdowns and how to mitigate.>

8.0 Items

<List of items you can pick up that can affect the player, and what they will affect, like ‘picking up the hammer (refer collisions above) adds 5 to the players attack attribute’. Include details on how items influence gameplay or AI logic.>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Parameter | Parameter | Parameter | Description |
| Default | 6 | 6 | 6 |  |
| Weapon | 5 | 7 | 7 |  |
| Weapon | 8 | 5 | 5 |  |
| Weapon | 5 | Possible 10 | NA | text |
| Weapon |  |  |  |  |

9.0 Game Flow

9.1 ‘Mission’ / ‘Level’ structure

<Are all levels stored in memory? what data is saved across levels, are levels loaded synchronously to prevent pauses?>

9.2 Objectives

<What does the player try to accomplish on each level/mission? How is the players progress evaluated?>

10.0 Levels

<If any of the Levels require specific behaviours, describe those here>

11.0 Interface

11.1 Menu

<What are the menu options and what do they do?>

11.2 Camera

<Describe the camera, how it moves, perspective/orthographic, can it switch? How? Does it need to render-to-texture? does it prevent itself going through walls, use flowcharts to document behaviour>

11.3 Controls

<Keyboard, tablet touch/swipe/tilt, joystick, mouse etc. record double taps, multi touch, use mouse smoothing/ scale mouse for aiming etc.>

14.0 Asset List

<List all files needed, along with known attributes >

16.0 Technical Risks

<if you want your game to be a 1000 player pvp battle royale with 4k 120fps graphics, you need to say if this is doable and how you intend to do it>