

GALWAY MAYO INSTITUTE OF TECHNOLOGY, DUBLIN  
RD CAMPUS

BSc (HONOURS) IN SOFTWARE DEVELOPMENT

**Mobile Applications 3 Development Diary**

*Tomás O'Malley(G00361128)*

Module Lecturer : Dr Damien Costello  
Department of Computer Science

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# Chapter 1

## Introduction

Hello and welcome to my Development Diary for the Module Mobile Applications Development @ Galway Mayo Institute of Technology. My name is Tomas and in my final year in the Bachelors Honours in software Development. For the 5 credit module, it is compulsory to submit a 3D game decided during week 7. The Design Document I received from a fellow teammate was for a 3D rail shooter. In this Diary, I will document all the design choices/structures and the behaviors of the game. I developed the game using a sprint development approach adding each cornerstone through my GitHub. All work is submitted to my GitHub and the link can be found below.

- <https://github.com/OmalleyTomas98/FinalYearMobileApp3>

## Chapter 2

# Design Document

During week 7 our year were issued the Design Documenation we will implement in our game.The document design I was issued was a 3D Rail shooter game . Example sof common rail shooters are Starfox and where ail shooter the player control is limited to directing where to fire a virtual gun or move their avatar around the screen; the player does not control the path their avatar takes from the start to the end (although they may be able to pause that movement).I had to implement the Design Doc created by William Vida from my college year. William provided a very basic overview of the type of game he had in mind. Overall the game revolves around you controlling the main charcater and where they shoot.The game isnt a free roam but the camera movement is set to move with the character.Here is a list of the characteristics of the game .

- **Game Type** : 3D Rail Shooter
- **Menu** : Consists of main and sub menu system for high scores and multiplayer
- **Controls** : User aims using the mouse
- **Enemies** : Spawn in waves and get stronger after each wave
- **Rewards** : User receives points for each kill
- **GameTypes** : User can play traditional or multiplayer

## Chapter 3

# Tools/Resources

Underneath a list of the various tools used during development of my 3D game

- **Enviroment** - Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Inc.'s Worldwide Developers Conference as a Mac OS X-exclusive game engine. As of 2018, the engine had been extended to support more than 25 platforms. Wikipedia
- **Documentation** - LaTeX is a software system for document preparation. When writing, the writer uses plain text as opposed to the formatted text found in "What You See Is What You Get" word processors like Microsoft Word, LibreOffice Writer and Apple Pages. Wikipedia
- **Resources** - All resources were delivered online via moodle. Moodle is a free and open-source learning management system written in PHP and distributed under the GNU General Public License. Wikipedia
- Due to the Covid-19 pandemic all material was delivered online using Microsoft teams rooms . Microsoft Teams is a proprietary business communication platform developed by Microsoft, as part of the Microsoft 365 family of products. Teams primarily competes with the similar service Slack, offering workspace chat and video-conferencing, file storage, and application integration. Wikipedia

## Chapter 4

# Design Choices

### The Map Design

- The first stage to implementing the game is to settle on a map type. the Map I decided to create is a tight space quartered maps by adding blocks to a plane. The user will progress through the map eliminating enemies that come from corners. There a total of 3 maps in the game. Each map contains the same tight spaced gameplay but with a more intense soundtrack similar. My inspiration for the map is from the 3D shooter game Call of Duty Modern warefare : " Shipment " . The map was created using the ProBuilder Tool provided by the Unity Game Assets Store . By using the ProBuilder Tool i was able to add multiple rectangles to create a maze for the player to navigate through.

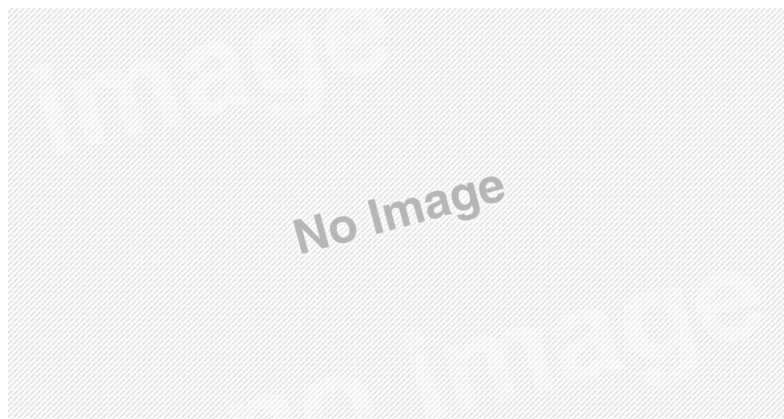


Figure 4.1: Map Design

- The overall enviroment progresses to a darker tone to give the player a more intense/edging experience .

### The Character Design

- The Design document did not provide a theme for the game to be set in e.g space, western, war thorn, etc. You control the space alien throughout the game. After messaging the design document creator it was established it would be a post-apocalyptic space 3d rail shooter .I decided to use the built in Unity Assets store to create a 3D model for the main character .

### Menu System Design

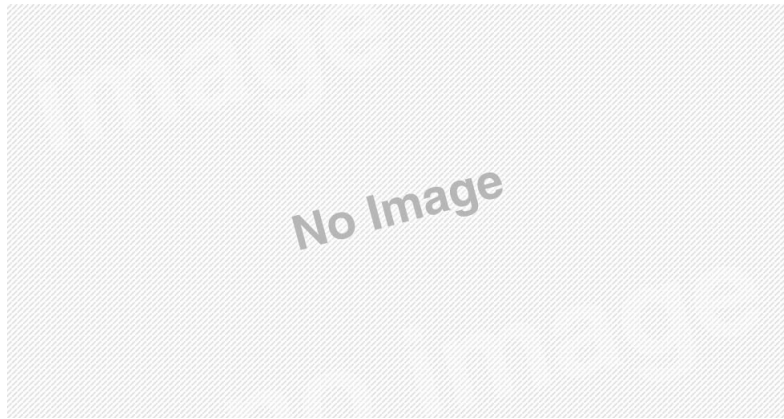


Figure 4.2: Character Design

- The Design document did not provide a theme for the game to be set in e.g space, western, war thorn, etc. The menu system incorporates a simple user interface borrowed from the classic arcade game Super Mario Bros.

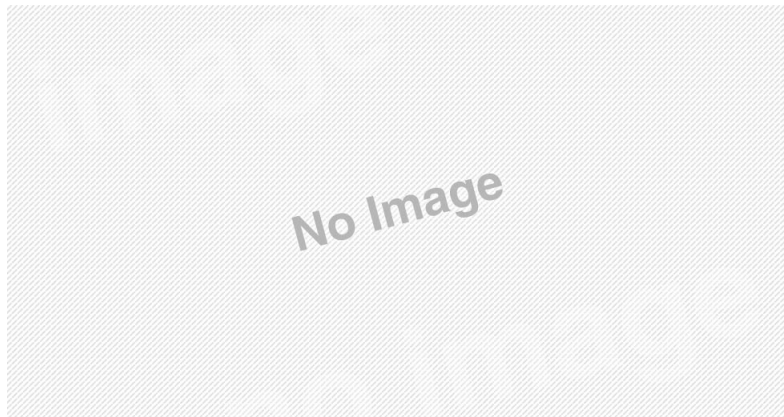


Figure 4.3: Menu System.

## Chapter 5

# Obstacles/issues

### 3D Models

- The Unity Assets store has a wide catalogue of models free/paid. I settled on the Robot Kyle Package

### 3D Animations

- After researching online I found a website where you can upload an avatar from the asset store and create animations based on the model. I settled on the Avatar model Robot Kyle after experiencing "Spine" issues in the inspector console of my Game

### Camera Movement

- To allow the camera to move I had to create a final pathway for the player to be guided by from start to finish in the game. By Adding a path finder script pre installed on Unity I could make this possible.

### Enemy Spawning

- The game works by spawning an enemy at a path

### Multiplayer

- Sadly I wasn't able to integrate a multiplayer into this game

# Chapter 6

## Testing

### **Test Items:**

- List the test items (software / products) and their versions.

#### **Features to be Tested**

- List the features of the software / product to be tested.
- Provide references to the Requirements and/or Design specifications of the features to be tested.

#### **Features Not to Be Tested:**

- List the features of the software / product which will not be tested.
- \* Specify the reasons these features won't be tested.

#### **Approach**

- Mention the overall approach to testing.
- Specify the following , Testing levels [if it's a Master Test Plan], , Testing types , Testing methods

#### **Item Pass / Fail Criteria:**

- Specify the criteria that will be used to determine whether each test item has passed or failed testing.

#### **Suspension Criteria and Resumption Requirements**

- Specify criteria to be used to suspend the testing activity.
- Specify what is required before testing can resume.

#### **Test Deliverables**

- List test deliverables, and links to them if available, including the following: , Test Plan (this document itself) , Test Cases , Test Scripts , Test Data , Defect Reports , Test Reports

#### **Test Deliverables**

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- List test deliverables, and links to them if available, including the following: ,

### **Test Environment**

- Specify the properties of test environment: hardware, software, network, etc. , List any testing or related tools. ,

### **Estimate**

- Provide a summary of test estimates (cost or effort) and/or provide a link to the detailed estimation. ,

### **Schedule**

- Provide a summary of the schedule, specifying key test milestones, and/or provide a link to the detailed schedule. ,

### **Staffing and Training Needs**

- \* Specify staffing needs by role and required skills , \* Identify training that is necessary to provide those skills, if not already acquired. ,

### **Responsibilities**

- \* Specify staffing needs by role and required skills , \* Identify training that is necessary to provide those skills, if not already acquired. ,

### **Risks**

- List the risks that have been identified. Specify the mitigation plan and the contingency plan for each risk. ,

### **Assumptions and Dependencies**

- List the assumptions that have been made during the preparation of this plan. List the dependencies. ,

### **Approvals**

- Specify the names and roles of all persons who must approve the plan.
  - Provide space for signatures and dates. (If the document is to be printed.)
- ,

## Chapter 7

# Reflection

## Chapter 8

# Conclusion

Overall I found it very difficult to complete the game

## Chapter 9

## References