Developer Diary for Mobile Applications Development 3 Project

William Vida – G00356773

# Introduction

As part of the Mobile Applications Development 3 module, I was tasked with making a game based on a design document created by Evan Greaney. In the design document, he wanted a game to be a clone and tweak approach of the game Star Fox 64 which is a 3D, third-person rail shooter where the player controls a spaceship and must destroy other enemy spaceships. The game was developed using Unity and C#. It was made using Unity 2020.1.10f1. A test plan made in Microsoft Excel is also included.

# Spaceship Movement

My first objective was to create the movement of the spaceship. With this type of game, the movement of the player is critical for their enjoyment. In the design document, it stated that the player would move the spaceship the mouse. However, it suited me better to have the player move the ship with the WASD keys instead of with the mouse.

The movement code was taken from <https://github.com/mixandjam/StarFox-RailMovement>.

# Spaceship Weapons

After completing the spaceship movement, it was time to move to the spaceship’s weapons. The spaceship’s weapons are fired by using the left mouse button. I decided for the player to start with two weapons. The first weapon being two laser bullets that fire from the spaceship on a mouse click. A script is attached to the laser bullet emitter with a red laser bullet as the. The second weapon being two continuous laser beams being fired from the spaceship. The laser beams overheat when they are fired continuously. The laser beam is made using a particle system. If the player reaches the maximum overheat value, then the player is unable to use the laser beam until the overheat value reaches zero. The overheating system is achieved by using having a value increment in the Update() method while the laser beam is used while decremented when it is not in use. I think it would be better to implement the timing value using seconds instead of the current system. The player can switch weapons using 1 or 2 on the keyboard or by using the scroll wheel on the mouse.

Weapon switching from <https://www.youtube.com/watch?v=Dn_BUIVdAPg&ab_channel=Brackeys>.

# Enemies

The game was made on one scene with three waves of enemies on the terrains. Due to time limitations, I was only able to have five enemies in the first wave, ten enemies in the second and fifteen enemies in the third instead of the hundreds stated in the design document. When an enemy is successfully hit a small explosion occurs and if an enemy is destroyed a larger explosion occurs.

# Music and Sounds

The in-game music is “Cry Thunder” by DragonForce. There is an engine sound attached to the ship. The clip is short and is looped to achieve a continuous engine sound. A sound plays when the laser bullets are fired and when the laser beam is in use.

# Difficulty

The enemies have more health and give more points when killed as the waves continue and reward more points for their destruction.

# Menus

The start screen is the main menu where the user can play single player, multiplayer, go to the options menu and quit out of the game. The player can pause while in-game which has the options of resuming the game, going to the main menu or to quit. After the timeline is complete, a victory screen appears.

Start menu from <https://www.youtube.com/watch?v=zc8ac_qUXQY&ab_channel=Brackeys>.

Pause menu from <https://www.youtube.com/watch?v=JivuXdrIHK0&ab_channel=Brackeys>.

# Reduced and Scrapped Features

The design document had many great features that I was unable to implement. I was unable to implement an upgrade system where the player can buy weapon upgrades using currency earned in-game. I was unable to correctly implement the multiplayer functionality and local multiplayer feature was scrapped.

# Known Issues

There is a problem where the laser bullets can hit each other and deflect causing them to not fire in a straight line. There is an issue where if the game is paused, the laser bullet is currently equipped and the player left clicks, the lasers will fire and the sound will play but they won’t move, and the sound will play as well. The multiplayer does not function properly. The player ship choice at the main menu does not function. I made the box collider on the enemies larger than their original size to make it easier for the player to destroy them due to a poor aiming system but this did not work as I intended as the hit area did not change.

# Conclusion

The design document I was assigned was very well written and a lot of detail was given. Unfortunately, I was unable to accomplish everything laid out in it. Some aspects had to be sacrificed and some had to be toned down due to time constraints and my limited skills and knowledge on Unity. I am a bit disappointed with how the game worked out. After receiving the design document and commencing development on the game soon after, things were looking bright but due to time mismanagement on my part and other assignments, quite a lot of features had to be removed.