Game Design Document

Space Force

A Vertically-Scrolling Shooter based on the Proposed Military Branch

Version 1.00

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9. Introduction

This document describes the design of a game called “Space Force”, a scrolling shooter inspired by the eponymous proposed military branch. It is a concept developed by Gilbert Martinelli and Chandaravuth Non as a final project for CSC-476 - Game Development.

1. Target System

Space Force will be initially developed for Windows, but will be easily portable to other platforms, including WebGL and Mobile.

1. Development System

Space Force will be developed on Windows using the Unity game engine

### a. Software - Unity

The unity game engine provides a graphics and physics engine, as well as the ability to script all necessary elements of the game.

1. Specification

### a. Concept

Space Force will be a vertically-scrolling shooter in the same style as Xevious, Raiden X, 1942, Tyrian 2000, and many, many others, providing fast and frantic action.

### b. Story

Space Force will have a simple plot involving the deployment of the as yet unrealized “Space Force” branch of the U.S. military against alien invaders from space.

### c. Game Structure

There will be three levels, Earth, Space, and the Alien Mothership. Players will begin shooting alien spacecraft in Earth’s atmosphere, then fight them through space in Earth orbit, before engaging the aliens in a final battle within the massive superstructure of their planet-destroying mothership. Each level features a boss at the end which must be defeated before the player can move on to the next level.

### d. Players

There will initially be only one player, but if time permits, online multiplayer may be added to allow a second player.

1. Gameplay

### a. Player

The player will control a small space craft that they can move side to side, and up and down, as they scroll through the level. The player will have a single weapon that can be upgraded or can change type based on power ups picked up after destroying entire lines of aliens. The player ship has a shield which can be depleted by repeated shots or impacts with enemies. Once gone, a single hit kills the player.

Players will control their ship using either the W A S and D keys, or the arrow keys, and will fire with either the left mouse button or the space bar.

### b. Enemies

Enemies will consist of alien spacecraft, of increasing size, strength, and difficulty as the game progresses. Smaller, weaker enemies will fly down the screen in lines, while larger, stronger enemies will hold their position near the top attacking with ranged weapons. Additional mechanics may be considered during development. Final boss enemies spawn with a large amount of health and are much more difficult to defeat.

### c. World

The game world will consist of a scrolling background which may represent terrain, open space, or the superstructure of the alien mothership, depending on the level. Multiple parallax layers will scroll down at different speeds to give the impression of depth. For the level set on earth, this may include clouds. For space, nebulae, and for the mothership, different layers of the structure. These maps will be laid out using unity's built-in tile mapper.

1. Front End

### a. Menus

Space Force will have a main menu which displays the current high score, and allows players to start a new game, or quit. An additional option for multiplayer may be added if time permits.

### b. Interface

The main game interface will consist of a vertical health bar, representing the player’s shield at the bottom right, a lives counter in the bottom left, and a score counter and high score display at the top. During boss fights, a large health bar representing the boss’ health will be displayed at the top, under the score counter and high score.

### c. Graphics

All graphics will be handled using open source sprites from opengameart.org. The player and enemies will use 2d sprites, while the background and levels use tile maps

1. Team

Project Manager **: Chandaravuth Non**

**Gilbert Martinelli**

Programmer **: Chandaravuth Non**

**Gilbert Martinelli**

Designer **: Chandaravuth Non**

**Gilbert Martinelli**

Writer **: Gilbert Martinelli**

1. Time

Start Date **:** November 25, 2018

Complete Game Design **:** November 27,2018

End Of Project **:** December 13, 2018