

Designing and Developing a Cohesive Video Game

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Engineering Design and Development

Capstone Project

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Overview

We (J. Jeter and S. Milner) would like to design and develop a videogame that is cohesive in its controls, gameplay, storyline, design, and world. Our game will be based around space dogfights of remotely piloted drones. It will be a PC game controlled by the keyboard and mouse or, optionally, a joystick. This project will be primarily focused towards gamers who have become dissatisfied with the current trend of warfare games without a coherent storyline.

The story focuses on the actions and choices of a naval space captain, the squadron that serves under him, and humanity's expansion into the far reaches of space. As humanity begins to colonize planets in distant solar systems, they will realize that they are not alone in this vast universe. In fact, two ancient civilizations are at war with each other and now humanity has been thrust into the middle of the conflict. Every aspect of the squadron will be tested as humanity treads into uncharted waters, including friendship, loyalty, and sacrifice.

Benefits and Purpose

This project is primarily to address a current deficit in the game industry, namely that there are many combat games out currently that do not have a sophisticated storyline. Instead, they tend to focus primarily on the combat itself. We aim to create a game with innovative flight controls and a storyline that draws players in, engages them emotionally, and makes them want to keep playing. It will also help us refine and develop our skills. For Jeter, it will help to improve his skills in game design, Unity Game Engine, and C# scripting. For Milner, it will help to improve his skills in script writing, overall design, and the creation of a cohesive plot as well

as character development. Along the way, both of us will most likely have to develop new skills in order to bring this project to its full potential.

Passion

Jeter

Jeter has been programming for years. In fact, he often uses it as a form of stress relief. He also quite enjoys reading Science Fiction. He takes many opportunities to hone his skills in scripting including an internship in the summer of 2016. During the internship, he learned how to use the Unity game engine. After the internship ended, he wanted to continue to hone those skills. That desire and his skill set makes him a strong candidate for a game developer, which will be further enhanced by this project.

Milner

Being a successful and well-rounded writer was something Milner had been passionate in since middle school. In recent years, with the amount of workload school has provided, he hasn't had the opportunity to really apply himself to refining the art of storytelling. To become a professional at developing stories that people like, one must practice writing a lot as well as read a lot of content from various genres to understand what would be a strong suit. Hopefully by the end of this project, Milner will have gained valuable experience in story development and could perhaps take that knowledge with him to big gaming corporations, and maybe one day, play a part in developing best-selling titles for those companies.

Inspiration

Several sources inspired this project including both books and current video games. There are two main books contributed. The first is *Ender's Game*. It introduces a for space

combat that is different from that of air combat, including a fully three dimensional approach to



space combat and a reorientation due to null-g. Another book that influenced this project was Ernest Cline's *Armada*. A video game described in this book included several innovative features that will be attempted to be integrated in this project, including a finite amount of energy and drone warfare. There

were also several video games that

influenced us. Both Jeter and Milner

have played *Star Wars Battlefront II*. They felt that many

aspects of the game could be improved including the

controls, the level set up, and the storyline. Other games

that inspiration came from, not necessarily for the game mechanics in and of themselves but for

the approach taken in the game, include *The Last of Us* and *Mass Effect*, especially for the depth

of their storylines.



Mentor



Our mentor is Mr. Tony Fouts of Four Story Creative. He is from

Waxahachie, Texas, and is the president of said company. Four Story

Creative is a local media creation studio that has made software and done

animation for companies such as Sony and Dreamworks. Mr. Fouts holds a

Bachelor's Degree from Dallas Baptist University. We will meet with him at

least once every two months to share our progress.

Design Process

Jeter

The engineering design process is very relevant to programming. The way that one programs is that first, the programmer sets a goal for the piece of code to do. He or she then writes the code, developing new scripts if necessary, and include pieces of code that allows them to troubleshoot and test. One then tests the code and tries to break it. If it doesn't break, the programmer tries to streamline it. If it breaks, they find where and fix it. This loop is very similar to the engineering design process and so will be documented in the same way.

Milner

Though crafting a story may be perceived to have nothing to do with engineering, one can still use the design process to build a story. First, one must understand what message(s) and emotions the reader, or in this case the gamer, should understand or feel throughout the game. This is comparable to defining the problem in the process. Once the central idea has been developed, a general layout for how to write the story must be laid out. This is known as the plot and is comparable to generating concepts and it is then backed up with details, information, and research. Developing a solution would look like a completed version of the story. Next, one would have to test the story by revising and editing to ensure that everything is in its proper place and that the story is coherent, has quality substance, and is portraying the message(s) and emotions that the gamers should feel throughout the game. Once the game has been completely reviewed, the game will be evaluated by "beta" testers and if they like the game, that would

mean that the goals we had set in place were achieved and that we would now be ready to present the game to the public to play.

Research Topics

We would like to do our research paper over game theory and what causes a gamer to want to continue to play or be willing to pay for added content. Video games cause certain actions to happen in a player's brain and body. We would like to see how we can exploit biological, psychological, and instinctive processes to give our players the experience we want them to have.

Audience

Our audience for our product is gamers, especially those who have become disenchanted with the storylines of modern games. While there are some games out there that have a well thought out storyline, most warfare games' campaigns are shallow, dull, and poorly planned out due to the majority of the focus being on multiplayer Player vs. Player. We hope to appeal to the gamers who want a truly lasting, emotional story in their games. As we are focussing solely on a campaign and are not planning on a multiplayer side in the near future, we can appeal most to gamers who love the game for its story and how it made them feel.

Our audience for our overall project is game developers. We will share our experiences through the game creation process. Additionally, we wish to share our project through Steam Greenlight but may not be able to due to licensing.

Milestones

Milestone	To Accomplish By	Completed
Have Game Mechanics and In-level Physics and Interactions Preliminarily done	11/28/16	No

Have full storyline mapped out	12/31/16	No
Have Game Mechanics, Physics, Controls, Interactions, and scene transitions done	1/3/17	No
Have all levels planned	1/14/16	No
Have all levels created including objects, objectives, and victory conditions	2/6/17	No
Have all cutscenes made	2/13/17	No
Gameplay Testing	Mid-February	No
Fully integrate all cutscenes	2/20/17	No
Fully integrate all story elements into game with smooth entrances and exits	Beginning of March	No
Full game testing	Mid-March	No
Final Testing	Beginning of April	No

Measures of Success

For us to consider our project successful, we will need to have a game that will run without any major glitches or bugs. Next, we will need to have a coherent storyline over the course of the game. Finally, we would like to have at least 25 people to download and play our game before showcase. This can be tracked both through metrics in the game and on the download website. One major goal of ours, but not one that is necessary for us to consider ourselves successful, is to be greenlit for distribution on Steam.

Team Member Responsibilities

Jeter

Jeter will be responsible for the actual game creation - the physics, interactions, and scripting - as well as trying to find inconsistencies in the storyline.

Milner

Milner will be responsible for developing a cohesive and attention grabbing storyline as well as character development and scripting.

Others

As a team, we do not have all of the necessary skills to make a full game. These skills include advanced modeling, animation, musical composition, and creating concept art. We will do it to the best of our abilities but will most likely be bringing in others to help in specific areas.