Proposal

January 2022

1   Intro

CS4900 Capstone Project Proposal Document The purpose of this document is to outline, with as much detail as possible, critical aspects of your capstone project, the technologies involved and a timeline. You will fill this template completely and turn it in to via email: rpmihail@valdosta.edu

2   Group Members and Group Number

Nathan Bailey, Erskine Denson, Edward Hayes, RJ Pace, Razah Stewart, David Tan (Group 4)

3   Project Title

Last Stand

4   Project Executive Summary

Please describe in a paragraph or less what is new/cool about your project and why it's worth doing. Do not use "because my professor requires it" or "because I'm learning a lot". Be thoughtful about this summary

Our project is a game called Last Stand. It is a 2D, top-down, twin-stick, arena shooter. You will choose a character from a list, and each character will have a unique trait and ability. Then you will select a map and level to play on and be dropped into that level. Once you are in the level, your goal is to survive against enemies infected with Covid in waves. The difficulty grows harder with each wave. The player starts off with a basic weapon, but different weapons will drop from random enemies. If an enemy drops a weapon that is the same as the one you are currently carrying, it increases the damage of your weapon. After a certain number of rounds, there will be a boss fight. If you win against the boss, you can access a shop and buy a unique or specific weapon. Rinse and repeat until the player character dies. It will help people's mental health by allowing them to fight the disease in a virtual world while also providing educational information about COVID and the pandemic (via loading screens or the game's built-in encyclopedia). This will also benefit us, the students, because this project will allow an opportunity to study the development and implementation of Unity, C-sharp and the many tools that are used with them. The project will push us out of our respective comfort zones enabling us to strengthen our collaborative mindset and/or skills in a team setting while also learning a newer more utilized coding language we are all unfamiliar with.

5   Problem Definition

What is the problem that you are addressing?

Mental Health problems like depression, anxiety and stress. Also, boredom and we would like to educate people about COVID

Who is the end user, and what is the end user profile?

The end user would be anyone interested in video games.
End user profile: Teens and adults who enjoy isometric 2D shooters. Specifically those who prefer endless wave based twin-stick shooters with power ups and weapon drops.

What is the target market?

Players curious with branching into a genre and trying new games and/or gamers from families who've had to deal with COVID(whether it being an afflicted family member or themselves). Also, streamers who have the ability to showcase their game while they play.Anyone who enjoys playing games or wants to try out the product for the first time.

Who is the organization?

Our organization is called: Unified Productions

6 Proposed Solution

What is the significance of this project?

- We are creating a virtual outlet for players to fight back against the covid virus.

- The game will educate players about the virus, its variants, the vaccine, and ways the player may be able to help.

- We want to venture out of our comfort zones (learning new and unfamiliar tech to get used to teaching ourselves prior to joining the workforce).

What is the proposed solution or approach?

The proposed solution is to use tools and software that we are not familiar with but are essential in creating a game such as Unity, Blender and C-sharp programming. Our hope to build a prototype that will encompass some aspect of covid education while battling the virus virtually and working together to make that happen. Trial-and-Error, or Agile approach to development.

How do you propose to complete your project (It is important to explain how you propose to complete your project)?

To complete this project, of course it is going to take a great deal of teamwork. We will do the proper research and learn whatever skills we need to make this game successful. We will assign team members to mainly handle different aspects of the game such as Player and AI models/movement, environment interactions, etc. We want to let our members play a part in whichever parts they are most comfortable with.

What tools and/or methodology (e.g., ThreeJS, JavaScript, CSS, Blender, etc.) will be used to design, implement, and deliver the proposed solution?

The tools that we are using as of right now are: Unity, C-sharp, blender, YouTube.
Via Unity we will be utilizing the tools the game engine has to offer, such as: Sceneview/Gameview, Inspector tool, Aspects/Project storage system, Built in Hierarchy system, and Rigid-body built-in component.

What type of resources (e.g., software, hardware, virtualization techniques, etc.) will you need to complete your project?

Unity, C-sharp, Blender, YouTube, GitHub, Google.

Briefly describe the schedule of activities you will engage in to complete your project.

Learn Unity, learn Blender, learn other tools, and start work on prototype.

As appropriate, include a budget with projected expenses and their importance to the project

Time because most of the tools we will be using are free software's. We are hoping to work a couple of hours a day on this project.

7 Timeline

Since you now have some preliminary work done, your experience should be insightful when creating a timeline for completing the project. Outline, with as much detail as possible, a timeline with action items and deliverables.

- Discuss the details of what exactly we want the game to be.(Jan. 17th. - Jan. 21st)

- Research and get familiar with the tools that we will use to create our project.(Jan. 21st - Jan. 28th).

- Start work on a prototype.(Jan. 28th - Mar. 30th)

- Iterate and refine the prototype while adding new elements until we are satisfied with the final product.(Mar. 30th - Apr. 27th)

8 Reflection

Why does this proposal qualify as a capstone project?

This proposal qualifies as a capstone project because it will unitize many topics we have covered in previous courses such as data structures, algorithms, software engineering, communication, thinking critically, etc.. Basically, it will bring together all the skills we have gained in the CS program, while also allowing us to learn something new.

What technologies and methodologies does your capstone proposal incorporate that demonstrate your learning experience?

We will use the concepts we learned in 1301(variable utilization) and 1302(Object-oriented programming). We will use multiple data structures, work with memory like we learned in computer organization. We will use software development techniques we learned and software engineering and more(Agile approach technique).

Are there any new technologies that will be utilized?

Nearly every technology and tool we will use in this project will be new to us. The tools that are new are C-sharp, Unity, Blender, Trello, and likely other useful tech we don't know about yet. Most of the tools mentioned in question 4 of the proposed solution.

How will your project further knowledge, understanding, or increase your skills in your discipline?

We are all new to game development, so this project will be a learning experience from start to finish. We will be working collaboratively as a team, on a project we chose, striving to create something new. From learning a new programming language, to learning a game engine, to mastering GitHub, this project will benefit us greatly.