Project Senior (Working Title) – Design Document

Overview:

Project Senior (Working Title) is a (maximum of) 5-player virtual reality (VR) locally multiplayer versus game that utilizes both VR capabilities and traditional gameplay styles. One player will assume the role of a monstrosity within the cityscape, while the other players will fight against the impending doom in an asymmetrical boss fight experience.

For this project, we will be utilizing the HTC Vive VR System, as well as a strong computer for a smooth testing cycle. We will be utilizing SteamVR and a VR toolkit from Sysdia Solutions called SteamVRTK.

This project will be developed using the Unity game engine due to its accessibility and malleability, as well as the built in support it has for VR.

Panoptic, one of the inspirations for the setting and art style.

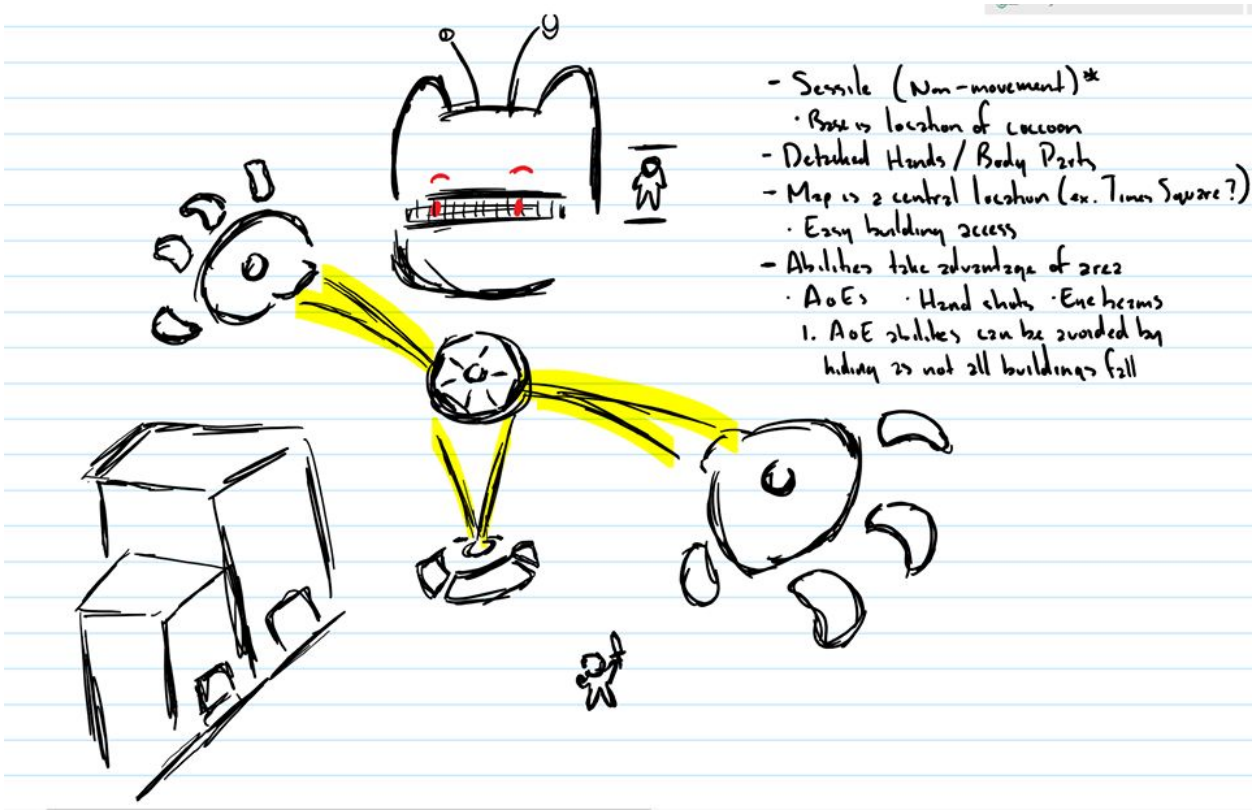
The game will take place in an alternate-universe 70's Alien Invasion movie-type world with graphics resembling a simulation or a digital arena with a simple and clean low-poly style. We will have an announcer, which will prompt the players in an old 70's movie voice to direct them to the correct places and objectives.

In the end, we want to create a simple multiplayer experience that does not require everyone to invest in VR. We feel that the VR library is lacking that kind of capability, and we would like to fill that gap.

Base Mechanics:

The objective of the game is simple: to stop the opposition. How this is done varies; the non-VR players must take down the monster in any way necessary. This may include destroying weak spots or simply whittling down the monster's

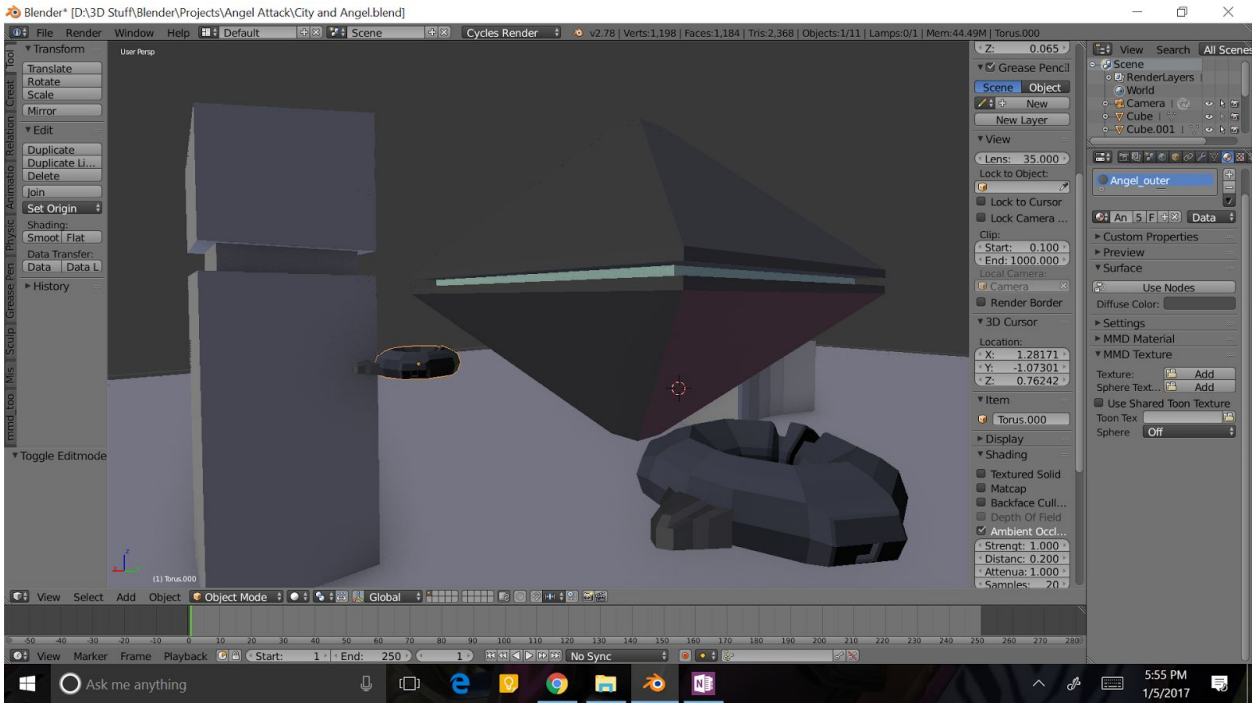
defenses with every shot. The monster must destroy the competition, whether that involves eliminating its opponents or completing its assigned objectives. (We have not yet decided on the win/loss conditions. For the beginning, we will focus on a simple kill condition for both sides in order to save time and exert efforts elsewhere.)



Quick doodle of possible boss monster.

Players will assume the role of infantry soldiers attempting to halt the oncoming assault. With an *Attack on Titan* style grappling hook, they will be able to traverse the city with speed and accuracy. Players will be able to utilize a gun and a sword, although not at the same time, so be able to have a simple but important difference of utility.

(We have discussed multiple other possibilities, such as the players being vehicular, similar to Starfox vehicles, and having abilities for these players, but those ideas have been yet to be fully developed. Other movement possibilities have also been discussed, such as jetpacks and side dashing, similar to Halo 5.)



The seed or “cocoon” of the boss monster before the match.

While the players make their way throughout the map, the VR player will take time in the beginning of the match to choose their monster from a selection. These monsters will have various abilities and capabilities utilized in different ways to knock out the players trying to take them down. The player can use their hands to block attacks and even break buildings in order to clear ground and make a space for itself.

(We have talked about bosses having different moving capabilities, as well as how we would make movement work with VR. This will require testing and iteration.)

Phases of Development

SCRIM 1:

- Maintained a working prototype
- Working player characters / models and VR player / model placeholder
- Environment generated (Cal Poly Pomona map)
- Player entity health system implemented
- Player entity damage system implemented
- Player controllers complete, changes probably will be made
- *Game playable*

SCRIM 2 Goals:

- Player weapons / weapon system working
- VR Player missile system working
- Damage and player death working properly
- Small UI elements
- Slight NPC soldier AI

<u>Tools</u>

Unity: We chose to utilize Unity as the game engine behind our game.

SteamVR: We utilize SteamVR in order to play and test our game using the HTC Vive components.

SteamVRTK: A toolkit for VR development by Sysdia Solutions. Utilized alongside Unity and SteamVR to assist in development practice.

Developer Notes:
Throughout the planning and development of the project, our team recognized that each of us had different strong points to bring to the team in regards to skillset. We decided to split the duties accordingly, while still lending a hand and contributing to the other parts of the development.

Justin O: 3D Modeling / C# Development
Justin G: Design
Kyle: Unity / C# Development
Colin: Unity / C# Development

With these loose labels, we have been able to create a smooth development cycle, emphasizing everyone’s strong suits in order to minimize issues and maximize productivity.