OnSight53

# Contents

# Abstract

OnSight53 is a tech demo that showcases a combat system where the player is able to freely navigate in a procedurally generated open world in which enemy NPCs follow the player and attacks them until eventually killing them. The objective of the tech demo is to survive the game and pick new weapons to kill enemies which will in turn give you points similar to retro arcade games.

# Introduction

The reason I chose to create a combat tech demo as opposed to a full game is because I believe that in order for a game to be a success, it requires adequate mechanics and gameplay, especially in the case of a game where fighting is one of the key components of the game. The core feature of this tech demo is the weapon system; it consists of 4 types of weapons, each sporting its own set of attack combinations which I will go into more detail in the chapter ‘Design and Implementation’. You can find what the inspirations for the demo in the following chapter and how I implemented it and how I plan to use it as the core for a future game in the chapters ‘Design and Implementation’ and ‘Conclusion and Future Works’ respectively.

# Background/Literature Survey/How I chose my project

As mentioned in the introduction, I believe that the success of a game depends on not just its story or even its end goal but its gameplay mechanic especially (obviously) in the case of a game that involves combat. Even a game such as Final Fantasy X, one of the most well-known of title of the Final Fantasy series, which is vastly popular for its powerful story, I feel that it would not have succeeded without its iconic turn-based mechanic and Sphere Grid levelling mechanic; which is the main reason I chose a combat tech demo for my project, to create a combat system that could be used for a future game. The combat system was inspired by a game that I played as a child, Kingdom Hearts; its combat style allows the player to change the attack combinations and its order allowing endless attack possibilities. In my demo, rather than allowing to change attacks, similar to the game Nier: Automata where the player has a choice between two types of weapons which can be changed mid combat, the player will have a choice of four weapon types: Greats Sword, Sword and Shield, Twin Daggers and Bare Hands, each with its own set of attack combinations that is also interchangeable mid combat.

# Design and Implementation

In the initial project proposal there were many features that I wanted to add but did not make the cut due to either time restrictions or just the lack of experience/skill to implement it.

Figure 1 – A table showing the initial demo ideas and how it was changed

|  |  |
| --- | --- |
| **Initial Design** | **How it was implemented** |
| Player can change both the weapons the attack combinations via a main menu | Player can change the type of weapons which alters the attacks of each player |
| Custom made Arduino controller for the gameplay | Use of keyboard and mouse |
| Air combos | No air combos |
| Original character designs and animations | Character and animations used from [www.mixamo.com](http://www.mixamo.com) |
|  |  |
|  |  |

One of the first things that I had to change was the character that I was designing; this is due to the fact that I had no experience in 3D modelling and it would have taken too much time to learn and then implement it; I resorted to finding free animations on [www.mixamo.com](http://www.mixamo.com) that I could use since time was an issue. After speaking to my supervisor, Jeremy, I decided to focus on the game mechanics, which has also been altered, first before starting any type of original character design or animation. In terms of combat I had to change the attack system to have attack combinations that are set to the weapons themselves as opposed to being able to change the attack modules due to not having enough time to work it out.

## Sprints

I initially started off the project by designing a character which I would have then imported into blender to be 3D modelled and then animated, however after meeting with my supervisor (Jeremy Gow) I realised that the core mechanic of the game should be more of a priority as creating my own character would take up too much time due to my lack of design experience; because of this I decided to start on the core mechanics of the game using animations that I could find on [www.mixamo.com](http://www.mixamo.com) which is a website where you can download and use the animations for Unity. After finishing the movement for both the player and enemy I found myself stuck on what to do next which brought my project to a halt. After writing down the key components that I wanted to achieve by the end of the project (shown in Figure 1) I chose to keep myself motivated and keep up the pace of work made personal checkpoints of where I wanted to be in the form of bi-weekly sprints. The tasks that are marked with high priority are what I believed to be the backbone of my demo, they are the key features that allow the demo to function; anything with a lower priority is either for the general aesthetic or feel of the demo.

The reason I chose to do bi-weekly as opposed to weekly sprints is the nature of each sprint; I felt that that certain tasks such as: player animations, was too large a task to finish within one week.

DECIDED TO ADD SCOPRE SYSTEM TO SEEM LIKE A GAME

|  |  |  |
| --- | --- | --- |
| Task | Priority | Done? |
| Player attacking/movement animations | High |  |
| Player movement | High |  |
| Weapon switch mechanics | High |  |
| Enemy hitbox/health/death | High |  |
| Enemy tracking/spawn/attacking system | High |  |
| UI – to make the demo more game like | Medium |  |
| PGC environment | Medium |  |
| Create a game controller using the Arduino | Low |  |
| Concept art of the character | Low |  |
| Game Controls | Low |  |
| Create behaviour trees for the enemies for difficulty using NPBehave | Low |  |

Figure 2 – Overall project goals

After separating the overall tasks in order of priority I started the bi-weekly sprints which are the overall projections broken down into more specific tasks, again marked by priority. My very first sprint is shown in figure 2.

|  |  |  |
| --- | --- | --- |
| Task | Priority | Done? |
| Find attack animation for shield and sword | High | yes |
| Combination transitions for the attack animations for shield and sword | High | no |
| Weapon Switching | High | Yes |
| Enemy tracking/movement | High | Yes |
| Enemy hitbox/health/death | medium | No |

Figure 3 - Sprint 1: 1st March – 15th March

|  |  |  |
| --- | --- | --- |
| Task | Priority | Done? |
| Combination transitions for the attack animations for sword and shield | High | Yes |
| Enemy hitbox/health/death | High | Kinda |
| Enemy Spawning system | High | Yes |
| Find animations for dagger and or great sword attacking and or hand to hand | High | Yes |
| Enemy attacking system(animation) | Medium | No |
| Player health/death/hitbox | Medium | Kinda |

Figure 4 - Sprint 2: 16th March – 29th March

|  |  |  |
| --- | --- | --- |
| Task | Priority | Done? |
| Combination transitions for the attack animations for all weapons | High | Yes |
| Enemy Attacking system | High | No |
| Score system | High | Yes |
| Enemy animations | Medium | No |
| Player Health/Death/UI | Medium | kinda |
| Find animations for dagger and or sword attacking and or hand to hand | Low | Yes |

Sprint 3: 1st April – 15th April

Sprint 4 – 15th April – 1st May

|  |  |  |
| --- | --- | --- |
| Task | Priority | Done? |
| Enemy animations | High | Some |
| Enemy Attacking system | High | Kinda |
| Enemy AI | High | Yes |
| Environment | Medium | Yes |
| Player Health/Death/UI | Medium | kinda |

|  |  |  |
| --- | --- | --- |
| Task | Priority | Done? |
| Combination transitions for the attack animations for all weapons | High |  |
| Enemy Attacking system | High |  |
| Enemy animations | High |  |
| Replace enemy tracking with NPBehave | Medium |  |
| Find environment textures | Low |  |

Sprint 4 – 16th April – 1st May

# Testing and Evaluation

# Conclusion and Future Work

# Bibliography

# Appendices

Assets from assets store:

Rock & boulders

Grass and flowers pack 1

mixamo