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**Design Document for:**

# Pete the Penguin

“Just Beat It © “

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Written by The WeGame Team

James Yamagata

May Koi

Jia Hao Yao

Peng Xi

Michael Yuen

Yungchu Chuang

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# Design History

This is a brief explanation of the history of this document. This is needed to show the progress made on the game from the initial stage to the final version, and how the concept of the game was created over time.

## Version 1.00

Version 1.00 is the first version of the document. Added to Game Overview, Feature Set, Game World, Game Characters, User Interface, Items and Weapons, Tutorial, and Main Game.

# Game Overview

## Philosophy

### Philosophical point #1

We believe that the philosophical outlook of this game is that we simply want to create a game that fits in both a PC setting and a virtual reality setting.

## Common Questions

### What is the game?

Pete the Penguin is a first-person survival/action game that allows usage of both standard computers (PC) and Virtual Reality (VR) Headsets to play the game. The player can move around in a dynamic world and use weapons to survive multiple rounds of enemies that appear and both the player’s weapons and the enemies get progressively stronger.

### Why did we make this game?

We wanted a game to create in a VR environment while making the game fun, yet simple. VR games are difficult to tackle and with a simplistic feel to the game, we can spread the concept of using VR devices to more people without the game being so difficult to play.

### Where does the game take place?

The game takes place in Antarctica in the year 3000. World War 5 has just ended, and the entirety of the world has been decimated by constant fighting. The only remaining country on Earth is Antarctica, which holds out a small colony of surviving scientists and some native penguins. The little colony must find a way to survive against the monsters that have been created through nuclear warfare in the war. The scientists believed that the penguins can be used to help them survive with replications of previously surviving soldiers’ brain data and genetically modified muscles added to the penguin’s genetic makeup. The penguins can then think like soldiers and fight like soldiers that were alive before. Whether this plan works is determined by the player and his will to survive.

### What do I control?

The player plays as Pete the Penguin, a penguin in the year 3000 who has been genetically modified to hold a replication of a deceased soldier that has been killed during the war defending the Antarctician colony. This penguin has the ability to jump, move around, strike with a melee weapon, use ranged weapons, and pick-up items off the ground to use.

### What is the main focus?

The player must survive as this penguin in the harshness of Antarctica in year 3000. With the player’s help, the colony might survive, or else everything is all for naught as the radiation from the war corrupts everything. The player must fight against the enemies created from the war and hold his ground against all odds. If the player is able to do so, the player can reach new heights and gain new weapons, and the enemy will continue to evolve into something harder to beat.

The main focus is gameplay in relation to VR devices as an attempt to create a fun experience on the VR, while making the game simple to play.

### What’s different?

The game is unique in the way that the enemies work; the weapons are uniquely created and the environment is something atypical of survival games with arctic environments. The game also is developed on VR, which is a new platform to the gaming industry and makes the game unique.

# Feature Set

## General Features

There is a tutorial level. This level introduces the player to the harsh environment of Antarctica and gives background information of the game, including who the player is (Pete the Penguin) and why he exists. The level also introduces the player to the basic mechanics of the game, including movement using WASD controls on the PC version and the analog stick on the VR version of the game, camera movement using mouse scroll on the PC version and looking around on the VR headset on the VR version, using melee and ranged weapons with Mouse Button 1 on the PC version and the Rear Trigger on the VR version, and picking up items with Mouse Button 2 on the PC version and the Side Trigger on the VR version. The player must collect a basic hammer and push a button to activate a door, releasing 5 zombies. The player then must kill the zombies before advancing to the main level. The player is also given 3 potions to heal if the player takes damage, and the player can talk to the scientists, caged penguins, and text placed on the map to see how to play. Once the player has killed the 5 zombies, the player can now advance to the main portion of the game.

After the tutorial, the player is free to move out into the world and fight in the environment surrounding the tutorial area (which is the colony that the player must defend). The player is now in the main game; the player must survive against rounds of enemies that progressively get stronger. The player does receive weapons over time with the scientists teleporting weapons and items in each round. The player’s goal is to survive as long as possible, and if the player survives 10 rounds, then the player wins the game.

## Gameplay

The player can move around, look around, use weapons, and pick up items. The player must go through the tutorial and then beat the 10 rounds of enemies that appear. See general features.

**Enemies**

The enemies include the Zombie, the Chemical Zombie, the Speed Zombie, the Armored Polar Bear, the Infested Mech, and the Infested Death Machine.

**Weapons**

The melee weapons include the Hammer, the Axe, the Sword, the Combat Knife, and the Golden Sword.

The ranged weapons include the Pistol, the Revolver, the Assault Rifle, the Machine Gun, the Shotgun, and the Minigun.

Other items include Potions, Big Potions, Speed Boosters, Big Speed Boosters, Hit Point Boosters, and Big Hit Point Boosters.

# The Game World

## Overview

There is a central colony and the remaining outside world, which the former is used to serve as a tutorial and starting point, and the outside world is the main game.

## Center Base

The small base in the center serves as the starting point and tutorial of the game. The base contains three scientists that guide the player on the story. The base also contains two penguins in cages to add to the story and give an interactive feel to the game. The base contains different props that have collision, but cannot be interacted with except jumping on top of the items. The base also has text that explains what to do. The base has a hammer and three potions on a table that allows the player to use the hammer to fight enemies and potions to heal up against damage. The player must then push a button, which then activates a door and allows 5 zombies to enter. Once the player has killed the 5 zombies and exited the base, the player can now enter the main game.

## The Outside World

The outside environment will feature a snowy terrain with elevations and trees. The environment is set-up so that the player can roam around and fight a total of ten rounds of enemies. The player receives new items per round. The outside world has mountains blocking out the boundaries of the map. The outside world also has elevations that block vision and trees that also block vision, and has collision, so the player cannot walk through or break the trees.

## The Physical World

### Overview

See above with the Center Base and The Outside World sections.

### Scale

The scale is relative to the player as a penguin. Pete the Penguin is shorter than human beings and zombies, and the goal is to get the player to feel like everything is in the scale of a penguin. The environment, items, props, and weapons all feel enlarged due to the fact that the penguin is smaller than a human. The player is still very powerful despite the penguin’s size.

### Objects

There are weapons, items, and props in the environment. All props are not interactable with besides the button in the tutorial, but all props do have collision, like trees and walls of the base. The items and weapons include the melee weapons, ranged weapons, and different potions, described in the Items and Weapons section.

### Weather

Snow- add when implemented or don’t add this to the game.

## Rendering System

### Overview

Give an overview of how your game will be rendered and then go into detail in the following paragraphs.

### 2D/3D Rendering

Describe what sort of 2D/3D rendering engine will be used.

## Camera

### Overview

Describe the way the camera will work and then go into details if the camera is very complicated in sub sections.

### Camera Detail #1

The camera will move around like this and that.

### Camera Detail #2

The camera will sometimes move like this in this special circumstance.

## Game Engine

### Overview

Unity is the engine of choice as we wanted to implement a VR version and a PC version. The engine is easier to use for all purposes and has many free assets to use, even though Unity isn’t as high quality as other engines.

### Game Engine Detail #1

The game engine will keep track of everything in the world like such and such.

### Water

There will be water in the world that looks awesome and our game engine will handle it beautifully.

### Collision Detection

Our game engine handles collision detection really well. It uses the such and such technique and will be quite excellent. Can you see I am having a hard time making up stupid placeholder text here?

## Lighting Models

### Overview

Describe the lighting model you are going to use and then go into the different aspects of it below.

### Lighting Model Detail #1

We are using the xyz technique to light our world.

### Lighting Model Detail #2

We won’t be lighting the eggplants in the game because they are purple

## Controls

### Overview

Describe the lighting model you are going to use and then go into the different aspects of it below.

# The World Layout

## Overview

Provide an overview here.

## World Layout Detail #1

## World Layout Detail #2

# Game Characters

## Overview

Pete the Penguin is the main character that is playable. Non-playable friendly characters include three scientists in the tutorial and two penguins in the tutorial. The enemies include the Zombie, the Chemical Zombie, the Speed Zombie, the Armored Polar Bear, the Infested Mech, and the Infested Death Machine.

## Pete the Penguin

Pete is the main character of the game, but for the most part this character is seen in a first-person view. Pete is allowed to take potions, use ranged weapons and shoot with them, and use melee weapons and shoot with them. Pete is also able to jump and move around. Pete can talk to non-playable friendly characters and attack enemies.

**Non-playable Friendly Characters**

There are three scientists that briefly describe the story. There are also two penguins that add to the story a little bit. These are in the tutorial. These characters don’t do anything more than add to the story.

## Enemies

All enemies have a melee attack and animation. All enemies change different stats including their hit points (hp), their speed, and damage done to the player. The enemies include the Zombie, the Chemical Zombie, the Speed Zombie, the Armored Polar Bear, the Infested Mech, and the Infested Death Machine.

The Zombie is the basic enemy, a standard grunt enemy that comes in swarms. The Zombie does weak damage, holds a weak hit point pool, and is very slow. This enemy appears in almost every round in large numbers.

The Chemical Zombie is a zombie with poisonous damage. The player takes periodic damage over 3 seconds if the player is hit by the Chemical Zombie. The enemy has the same speed and hit point pool otherwise. This enemy appears after round 1 and appears often.

The Speed Zombie is a zombie with high speed. The enemy has the same damage as a typical Zombie, and the same hit point pool. However, the Speed Zombie has a much faster movement speed. This enemy appears after round 2 and appears often.

The Armored Polar Bear is a larger enemy that has a high hp pool (double a Zombie’s). The enemy also has double the damage that a Zombie has. The enemy appears after round 4 and appears often after. The speed of the enemy is the same.

The Infested Mech is a larger enemy that has a very high hp pool (triple a Zombie’s). The enemy also has triple the damage that a Zombie has. The enemy appears after round 6 and appears often after. The speed of the enemy is the same.

The Infested Death Machine is the largest enemy that has an extremely high hp pool (four times a Zombie’s). The enemy also has quadruple the damage that a Zombie has. The enemy is very fast. The enemy appears after round 8 and appears in small numbers.

# Character Rendering

Provide an overview as to how your characters will be rendered. You may have decided to include this elsewhere or break it out to provide more detail to a specific reader.

# User Interface

## Overview

There is a Hit Point bar that shows the hit points the player has. There are also hit point bars for enemies. There is a pause menu allowing the player to quit or keep going just in case the player needs to step away from the game. There also is a victory or defeat screen to allow the player to restart the game from the tutorial.

## Hit Point Bars

1

## Pause Menu

1

**Victory/Defeat Screens**

1

# Items and Weapons

## Overview

The melee weapons include the Hammer, the Axe, the Sword, the Combat Knife, and the Golden Sword.

The ranged weapons include the Pistol, the Revolver, the Assault Rifle, the Machine Gun, the Shotgun, and the Minigun.

Other items include Potions, Big Potions, Speed Boosters, Big Speed Boosters, Hit Point Boosters, and Big Hit Point Boosters.

Weapons are teleported to the player through scientists in the lab over time as the scientists figure out how to bring bigger and better things to the player to use.

## Melee Weapons

The penguin has genetically modified muscles, so the penguin can not only use these weapons, but also use them with high effectiveness and hit harder than the weapons usually hit. Melee weapons also hit much harder than ranged weapons.

The Hammer is a weak weapon with slow attack speed and weak damage. The player starts with this in round 1 after the tutorial.

The Axe is an average weapon with slow attack speed and decent damage. The player starts with this in round 3.

The Sword is a strong weapon with decent attack speed and high damage. The player starts with this in round 4.

The Combat Knife is a strong weapon with fast attack speed and high damage. The player starts with this in round 6.

The Golden Sword is a very strong weapon with fast attack speed and very high damage. The player starts with this in round 8.

## Ranged Weapons

Ranged weapons do not need ammo in the year 3000 as the weapons have nanotechnology that constantly create bullets within the guns themselves. This mechanism makes it so the player does not need to pick up ammo crates or anything like that. Ranged weapons are also using a hit-scan method (or projectile we’ll see) to hit enemies.

The Pistol is a weak weapon with decent attack speed and weak damage. The player starts with this in round 1.

The Revolver is a weak weapon with slow attack speed and decent damage. The player starts with this in round 2.

The Assault Rifle is an average weapon with fast attack speed and decent damage. The player starts with this in round 4.

The Machine Gun is a strong weapon with very fast attack speed and decent damage. The player starts with this in round 5.

The Pistol is a strong weapon with decent attack speed and high damage. The player starts with this in round 7.

The Minigun is a very strong weapon with very fast attack speed and high damage. The player starts with this in round 9.

## Items

The Items usable by the player typically give the player buffs towards their Hit Point (hp) pool and movement speed.

Potions are used to give the player some hp back that has been taken from the player.

Big Potions are used to give the player a lot of hp back that has been taken from the player.

Speed Boosters are used to increase the player’s speed permanently.

Big Speed Boosters are used to increase the player’s speed a lot permanently.

Hit Point Boosters increase the player’s hp permanently and also restores the amount of hp that was given permanently back to the player.

Big Hit Point Boosters increase the player’s hp permanently and also restores the amount of hp that was given permanently back to the player (This is basically a full heal).

# Musical Scores and Sound Effects

## Overview

This should probably be broken down into two sections but I think you get the point.

## Red Book Audio

If you are using Red Book then describe what your plan is here. If not, what are you using?

## 3D Sound

Talk about what sort of sound APIs you are going to use or not use as the case may be.

## Sound Design

Take a shot at what you are going to do for sound design at this early stage. Hey, good to let your reader know what you are thinking.

# Tutorial

## Overview

This level is to introduce the game mechanics and the story to the player before entering the main game.

## Goals

The player needs to learn that the player can jump, the player can move, the player can look around with camera, the player can pick up items and use them, the player can attack enemies, and the props around the player have collision.

## Story

There are 3 scientists and 2 penguins: the scientists explain that the player is a penguin on Antarctica that is the final holdout in year 3000 after World War 5. The scientists also explain what the penguin can do, and text explains exactly what controls are needed to do these goals. The penguins add a little bit to what the scientists are doing to them and why the player is needed as the savior of Antarctica’s last remaining colony.

## Minutes of Gameplay

This should last only a few minutes for the player to quickly learn how the game works.

## Victory Conditions

# The player needs to hit the button and kill the 5 zombies with the hammer. Once the player has done this, the player needs to exit the base.

# Main Game

## Overview

The player must survive ten rounds of enemies, with both the player and enemies progressively getting stronger. The player can roam around the outside environment but cannot reenter the tutorial area.

## Rounds

Round 1 allows the player a Pistol and three Potions. The player must fight 15 Zombies.

Round 2 gives the player a Revolver and three more Potions. The player must fight 15 Zombies and 5 Chemical Zombies.

Round 3 gives the player an Axe and three more Potions. The player must fight 20 Zombies, 5 Chemical Zombies, and 5 Speed Zombies.

Round 4 gives the player a Sword, an Assault Rifle, 2 Speed Boosters, and 2 Hit Point Boosters. The player must fight 30 Zombies, 10 Chemical Zombies, and 10 Speed Zombies.

Round 5 gives the player a Machine Gun, 2 Speed Boosters, and 2 Hit Point Boosters. The player must fight 20 Zombies, 20 Speed Zombies, and 5 Armored Polar Bears.

Round 6 gives the player a Combat Knife, 3 Big Potions, and 2 Hit Point Boosters. The player must fight 30 Zombies, 30 Chemical Zombies, and 5 Armored Polar Bears.

Round 7 gives the player a Shotgun, 3 Big Potions, and 2 Big Hit Point Boosters. The player must fight 20 Zombies, 20 Chemical Zombies, 20 Speed Zombies, 10 Armored Polar Bears, and 5 Infested Mechs.

Round 8 gives the player a Golden Sword, 5 Big Potions, 2 Big Speed Boosters, and 2 Big Hit Point Boosters. The player must fight 50 Zombies, 20 Armored Polar Bears, and 10 Infested Mechs.

Round 9 gives the player a Minigun, 5 Big Potions, 2 Big Speed Boosters, and 2 Big Hit Point Boosters. The player must fight 30 Zombies, 30 Chemical Zombies, 30 Speed Zombies, 30 Armored Polar Bears, 10 Infested Mechs, and 3 Infested Death Machines.

Round 10 gives the player 10 Big Potions, 10 Big Speed Boosters, and 10 Big Hit Point Boosters. The player must fight 50 Zombies, 50 Chemical Zombies, 50 Speed Zombies, 50 Armored Polar Bears, 30 Infested Mechs, and 10 Infested Death Machines.

## Story

The player must try to survive the rounds of enemies. The scientists teleport in items and the player needs to use those items and weapons to survive. The enemies keep spawning from random locations in order to try to corrupt this last surviving colony on Antarctica; it is up to the player to stop this from happening.

## Hours of Gameplay

Test the game first try to beat whole game- then we say exactly. For now, I’ll say the game shouldn’t last longer than 30-45 minutes.

## Victory Conditions

The player must beat all 10 rounds of enemies, and if he does without dying, he wins the game.

# Virtual Reality

## Overview

1

# Extra Miscellaneous Stuff

## Overview

1

# “XYZ Appendix”

Provide a brief description of what this appendix is for and then get down to business and provide data to the reader.

Here are a few examples of some of the appendices in my latest design…

# “Objects Appendix”

# “User Interface Appendix”

# “Networking Appendix”

# “Character Rendering and Animation Appendix”

# “Story Appendix”

Conclusion