



Game Design Document



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1/ INTRODUCTION

Team Presentation

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Data Sheet



Titre du jeu : Get Off my Beach

Plateforme : HTC VIVE

Thème : Invasion / War

Mode : Solo

Genre : FPS / Tower Defense

Audience : Players who want to let off steam with guns as well as players who appreciate strategy.

Pegi : PEGI 12

Engine : Unity

Références

Our game is a good way to blow some steam off in the form of a shooter.

For the references of Shooter we immediately thought of Serious Sam VR.



Our game focusing on both Shooter and Tower Defense mechanics, we have taken for reference common Tower Defense mechanics like those of Kingdom Rush or Orcs Must Die:

- Enemy waves
- Strategic points (turrets) from which the player can shoot optimally.
- Move in the level



2/ Gameplay



Overview

Destroy all enemy waves with weapons with unlimited ammo. Butchery can begin.

In "Get Off My Beach" the player will defend an island from his invaders. To do this, he must teleport between different strategic points that contain different weapons. They are located high up compared to the battlefield. With these weapons the player must decimate the enemy army which is concentrated below and whose purpose is to seize the legendary treasure of the island.

This army is made up of different enemies who have different stats and abilities that will demand to the player to adapt to them.

"Get Off My Beach" is a game that wants to be enjoyable. We're looking for the player to let off steam while feeling overpowered.

Camera

The camera is in a subjective view to put immersion in the foreground. Indeed, in a game in virtual reality the player tries first to experiment new experiences with his body in a parallel universe, where he does not risk anything.

The camera will be directly attached to the body of the player, if the player rotates with his head 90 °, the camera will do the same.

The limits of the camera are therefore the limits of the possible angle of rotation of the player's head.

In our game the camera also serves as a viewfinder as the player will aim with his eyes.



Character

Moving :

The player can teleport on different strategic points at any time. When it targets one of the strategic points, it will be highlighted. Thus, he will know which strategic point he has selected before teleporting.



To avoid the problem of Motion sickness, the player can only move by teleporting. All other movements in space are impossible. Thus, when the player arrives at a strategic point after teleporting, he has the same rotation as when he left to avoid an inconsistency. The player can only direct his rotation in the direction he wants through his camera (helmet) or grab his weapons and shoot.

Controls

This is a Virtual Reality game, the player will control the HTC Vive Controller and can identify and direct his angle of view through his helmet.

Shooting :

In order to have the most immersive controllers as possible, we wanted to reproduce the sensations that one could feel when shooting with a real weapon. So, we chose to put the firing inputs on the rear triggers.

Aiming with weapons :

Orienting his weapons allows the player to have complete freedom on the direction he wants to shoot. It will move his weapons thanks to the functionality of the displacement in space of controllers of the HTC VIVE.

Reloading Weapons :

The player has a pool of unlimited ammo. However, the capacity of the weapons is not unlimited. The player will have to reload his weapons at regular intervals. To perform this reload, the player will perform specific gestures for each weapon using the localization feature in the controller space.



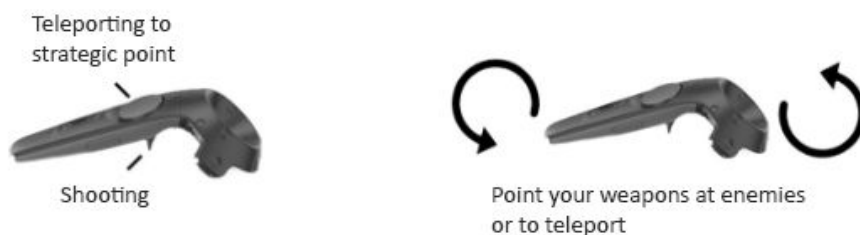
Teleporting to strategic point :



To teleport from a strategic point to a strategic point, the player must first target them with his controller, which will create a raycast, then he will have to press the central button on the controller. He will teleport to his goal.



He can also press the two central buttons at the same time and look towards a strategic point, the player will then teleport to the closest and most central strategic point of his vision.
(When firing the player won't have the time to aim a turret, so we added this feature to let the player in the rhythm of the situation)



Weapons

Uzi

The uzi is the fastest weapon in the game. It does little damage but its high firerate can drastically reduce the number of enemies. In addition, being a weapon that can be held in one hand, the player will have the pleasure of having two at the same time, this is the point that differentiates it from other weapons.

The reloading of the Uzi is done in a very simple way to keep the rhythm and dynamic of the game. Ammunition will be placed in front of the player, he will just have to give a quick hit down towards these ammunition to reload his weapon.

Machine Gun

The heavy machine gun is the most polyvalent weapon of the game. It does good damage for an average firerate.

We wanted to preserve the speed of the reloading, so the player will have to reload his weapon as if he was reloading a shotgun.



Rocket Launcher



The rocket launcher is the most destructive weapon of the game. Indeed, when it hits its target, the player is almost certain to destroy it in addition to carrying everything around in a huge explosion. However its firerate is low because of its destructive firepower.

Reloading the rocket launcher is a bit more realistic than the Uzi. Indeed, after firing the player will have to seize an ammunition of rocket launcher, located in front of him, and insert it into his rocket launcher. Thus, we reinforce the player's immersion while including a slow rate of fire.

Grenade

The grenade is a way to make explosive damage continuously to enemies. Although less powerful and less accurate than the rocket launcher, it can destroy a mass of enemies grouped very easily and much faster than the rocket launcher.

The reloading of the grenade is similar to that of the rocket launcher. The player must take a grenade, throw it and then have to get another one to be able to restart it. This gives a rather slow firerate.

[Link to Weapons balancing sheet:](https://docs.google.com/spreadsheets/d/1wxv3X_YGaJA8-nbFzcl4wm2sXzwvvREQphJ615ecdcQ/edit?usp=sharing)

https://docs.google.com/spreadsheets/d/1wxv3X_YGaJA8-nbFzcl4wm2sXzwvvREQphJ615ecdcQ/edit?usp=sharing

Score/Income

The score that we obtain is from the following conditions:

- Number of enemy killed
- Type of enemy killed
- Clear time of the level
- Remaining Health points

This score obtained remains hidden from the player, however it becomes money that is directly visible to him at the bottom right of the screen. We decided to reduce the amount of information so that the player's immersion is as strong as possible.





Upgrades

The player can upgrade his weapons at any point in the game as long as he has enough money to buy them. Upgrades are present in every strategic point. They "hang" above the player. When the player reaches a certain amount of money, he can shoot one of the upgrades above him, which will be put on his weapon. Each upgrade has an icon to signify the feature it is increasing.

Damage Upgrade :

Improving damage boosts the firepower of weapons.

Firerate Upgrade :

Improved firing rate boosts the speed at which bullets leave the weapon. This means that the charger will empty faster.

[Link to upgrade balance sheet/ income :](https://docs.google.com/spreadsheets/d/1wxv3X_YGaJA8-nbFzcl4wm2sXzwvvREQphJ615ecdcQ/edit#gid=37151136)

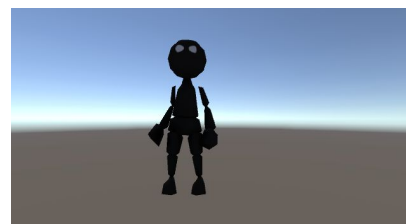
https://docs.google.com/spreadsheets/d/1wxv3X_YGaJA8-nbFzcl4wm2sXzwvvREQphJ615ecdcQ/edit#gid=37151136

Enemies

In this project, we have created three different enemies that the player will encounter as waves unfold. These enemies have different stats and behaviors that the player will need to know in order to react properly:

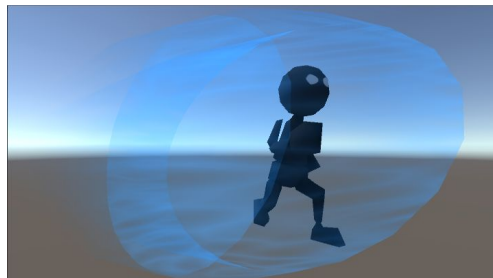
The soldier

The soldier is the basic enemy, he is often surrounded by his congeners to overcome his weakness. These enemies will be the most common enemies in the game. They are weak but they are fast.



The Protector

The Protector is an elite unit. Indeed, he wears a huge shield in the shape of a hemisphere located at his side. It allows him to block most shots from the player. So, he can protect his allies. However, this shield is not indestructible, it will deteriorate under the incessant assaults of the player until breaking. However, it takes a lot of Uzi bullets to destroy it in comparison to the bazooka and the grenade that need only a single explosion to shatter. In addition, the slowness of the protector makes it a less alarming threat to the player.



The Misanthropist

Misanthropist indescribably hate humans. His only goal will be to follow the player no matter where he is to send him his stunning bombs. When the player receives one of his bombs he is unable to move or shoot for a defined time.



[Link to enemies balancing sheet](#)

Obstacles

Terrain

Since we want to strengthen the player's immersion, we decided to create evolving levels. This means that events triggered or not by the player will change the levels, changing the arrival point of enemies, the path they take etc ...



This will aim to energize the game and the player will have to redirect to new weapons / strategic points.



Objectives

Our game is endless, the main objective of the player will be to survive as long as possible enemy waves all more powerful than each other. Thus, to reward him for his tenacity against these invaders we have included a system of waves that will measure the time that the player has survived. The longer it holds, the greater the number of waves will be.

The secondary goal of the player is to unlock all possible weapon upgrades. Thus, he will be continually rewarded by the new attributes of his weapons in addition to the number of waves he has destroyed.

Victories and defeats conditions

The player defends a treasure. If this treasure is destroyed / looted then the player lost.

The treasure loses its life when the enemies manage to reach it, they will continue to attack it if the player does not kill them.

The player can not win, he is destined to lose the game, however, he can try to survive as long as possible to increase his wave count.



Main Gameplay Loop

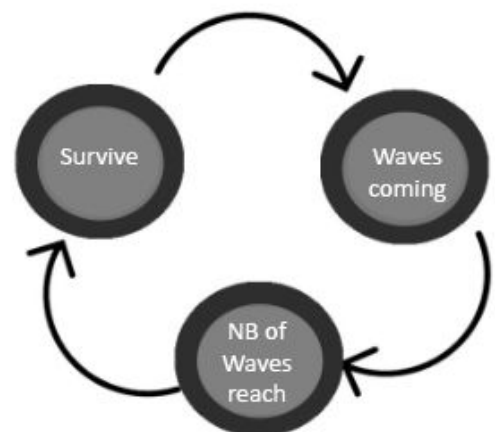


OCR Loops

Macro



Micro





Scale

- In each level the number of enemy waves will be infinite.
- We have created three different enemies :
 - The Soldier
 - The Protector
 - The Misanthropist
- We estimate the duration of the levels to 15 minutes of play for the players in difficulty and 25 minutes of play for veteran players.

KSP

- Use Weapons Manually
- Teleport through different locations
- A First Person Shooter Tower Defense where Tactic is more important than strategy.

3/ Level Design

Metrics

A/ Character

Player is approximately 6 feet. He is on towers located about 9.8 feet from the ground, so the player's head is around 13 feet high.

This choice of height was made so that the player can overhang the enemies to have a feeling of power but also so that it has a rather important view of the map.

B/ Enemies



The enemies measure a little less than 6 feet, they are below the player to emphasize their inferiority in the face of the power of the player. They appear in large numbers at each wave.

C/ **Terrain**

The player will evolve on different islands where he will have to protect treasures. The islands will make a maximum of 500 m / 500 m (maximum surface of the unit lands).

On this ground the gate defining the end of the level is composed of 20 hit points, if it reaches 0 the player loses.

Of course this includes the graphic aspect of the islands, with beaches, mountains, forests etc...

D/ **Balancing**

In order to help the balancing of enemies and turrets an algorithm was made. This one gives a value of strength for each type of turret and each type of enemy.



4/ Artistic Direction

In this game we want the player to feel really inside the action, to be totally immersed. For this, we will focus on the visual and sound signs and feedbacks.

As for the graphic universe, our game is set in a cartoon universe.



Graphics



The graphics are very simple and refined, emphasizing saturated textures and low-poly to give the game a cartoon and offbeat look. The choice of cartoon graphics results from the desire to offer the player a fun experience. The player must first have fun, he must not feel guilty to kill the enemies. This is why they are graphically very simple: not giving them a definite appearance makes their destruction more acceptable to the player.

The game is played on an island because it keeps the player in a closed space and helps to give him a sense of isolation. The tropical setting also gives an appearance of adventure and escape to the game, reinforcing the pleasure taken by the player.

The island has a battlefield appearance, with continuous gunfire and a forest fire, to make the player feel that he is there to fight and is besieged.

Visual Signs and feedback/FX :

Visual Signs :

- Enemies moving (minimap)
- Enemies moving (walking animation)
- weapons
- Viewfinder

Visual Feedbacks :

- Teleport
- Highlighted strategic points while aiming them
- Selecting Weapons
- Shoots (Each Weapon)
- Enemies (Death)
- Upgrades
- Damage taken
- Damage to enemies
- Explosions
- Ammos coming out of the weapons
- Reloading
- Income
- Upgrading weapons
- Waves
- Ammo number



Interface

HUD

We will have a clean HUD to let the immersion take over. There will be very little information legible for the player, we will have to make the player understand certain mechanics through signs and feedbacks.

The HUD present will be the number of bullets remaining in the magazines, including the UZI and the assault rifle.

Minimap :

There is a minimap for the player to be able to locate himself in the level and also know where the enemies are and their progress in the level.

To keep the interface clean, we decided to put the minimap on a place that will not stop the player when they shoot. The latter is therefore in each strategic point, on the opposite side to the path that the enemies take.



Menu/UI

The different buttons are interactive, the player will have a machine gun and he will have to shoot the buttons to activate them. This will take him to the scene of the button he hit first. The change will not be instantaneous, however, the player can shoot several bursts before being teleported into the scene.



Sounds



Audio Signs and Feedbacks :

Audio Signs :

- Enemies walking
- Enemies reaching the treasure
- Selecting Weapons and turrets
- Countdown of the incoming wave
- Misanthropist Shoots

Audio Feedbacks :

- Teleport
- Shoots (Every Weapons)
- Upgrading Weapons
- Damage taken
- Damage to enemies
- Explosions
- Ammos
- Reloading

We want to incorporate all these signs and feedback into the game to further strengthen the player's immersion.

As the game is very action-oriented, the music must be energetic without taking up too much of the player's ear. That's why we turned to rock, choosing Kevin McLeod's "What You Want ver 2". Thus, the music supports the action and encourages the player without becoming invasive.

For the sound environment, explosions that sound randomly on the playing surface have been implemented, always to give the impression of being on a battlefield.

The explosion and fire sounds must be strong and sufficiently distinct so that the player can recognize them easily, especially so that he does not confuse the ambient explosions with those he triggers.

