

DESIGNING VR SHOOTER GAME “HOW FAST” ON GOOGLE CARDBOARD

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ABSTRACT

How Fast is a singleplayer 3D VR shooter game made for Cardboard VR, played on android device and designed to be played for people of all background and ages. The game employs Unity as its game engine, Unity provides a game engine with helpful and popular tools that deliver to various levels of game development, especially indie game developers. Utilizing the methods put forth in "Game Design Second Edition 2004" by Bob Bates as a foundation, we strive to craft an enjoyable game that is both simple and entertaining. Our goal is to structure the development of "How Fast" following these proven and effective methods. "How Fast" is a game designed for casual gamers that likes shooter game and want to test their skill. The game uses 3D graphics as its appearance. It consists of only 1 level or stage, where the players required to kill or shoot as many ghost enemy as possible while approaching closer to the players until the timer runs out. The game is intended for individuals age from 12 and above. The game take place on a open field behind a barn where lots of ghosts coming to hunt the players. Players required to kill as much ghosts as possible while having limited time.

Keywords: *How Fast, Singleplayer, Cardboard VR, Unity, 3D.*

1. PREFACE

Introduction

Entertainment in the form of games is a trend that is seen among all age groups, predominantly teenagers, adults, and kids. The game industry has witnessed numerous transformations and its popularity has steadily soared with game followers from around the globe inclined towards various genres. Amidst these genres, 3D VR Shooter games have managed to carve a niche for themselves by combining elements of horror, action, strategy and reflex genres thereby enhancing the overall gaming experience.

A game is a voluntary activity or structured contest that typically involves players following a set of rules, engaging in competition or cooperation, and often striving to achieve a specific objective or score. Games can encompass a wide range of activities, including physical sports, tabletop board games, card games, video games, and more [1].

“How Fast” is a 3D Singleplayer Game, with Shooting genre that can be played on Cardboard VR or Android VR. The game designed to be played from age 12 and above. The game aim is to

test how fast your react shooting enemies and reach the highest score before the timer given ran out of time.

Problem Formulation

Develop and designing an challenging 3D singleplayer VR shooter game, “How Fast” utilize unity for its game engine and made for Android platform played using Google Cardboard that incorporates big spaces and great envirointment to provide an unique gaming experience for players ages from 12 and above.

Game References

The game How Fast was conceptually designed by combining several ideas, game mechanics and game styles from various existing games.



Figure 1. Aim Lab VR

Source: [Aim Lab VR – Apps on Steam](#)

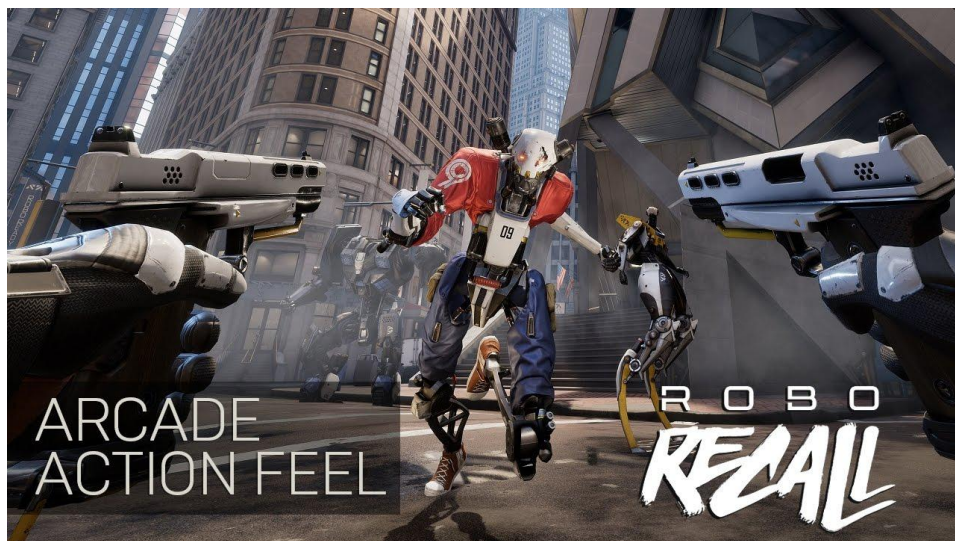


Figure 2. Robo Recall

Source: Robo Recall – Apps on Epic Games

2. RESEARCH METHOD

Before the game can be developed, a design method needed in the process of designing the game "How Fast". Template required as a foundation of designing a game, therefore this research utilize the methods presented in [2], providing an solid structure for game development.

Design Methodology

"How Fast" applies game design concepts from Bob Bates "Game Design Second Edition 2004". The design methodology involves:

High Concept

The game is made as a shooter genre, players are challenged in how quick the player can eliminates enemy within the limited amount of time. The following are key details about the game's design:

- | | |
|--------------------------|---|
| 1. Name of the Game | : How Fast |
| 2. Game Category | : Shooter |
| 3. Language of the Game | : English |
| 4. Intended Players | : Those aged 12 and above |
| 5. Player Count | : Singleplayer |
| 6. Visuals | : 3D |
| 7. Game Development Tool | : Unity Engine |
| 8. Coding Language | : C# |
| 9. Game Controls | : Google CardBoard (TouchScreen) |
| 10. Supported Platform | : Windows 10 and Mobile phone with level 19 API |

Gameplay

The game named "How Fast" belongs to the genre of shooters, because it is designed to be played in order to shoot at the enemies. The game mechanics are mainly focused on the player shooting into aproaching enemy, the game requires fast reflexes, quick thinking, and precision. Players will encounter ghost coming from more than 1 direction. The player can fire ina a certain range , this adds complexity and flexibility to the gameplay of the game, this element allows the player to think about timing and quick responses to eliminate their opponents.

Storyline

The story of the video game "How Fast" is about a teenagers doing a trick or treat game on halloween day using a costume of a killer, but suddenly he lost consciousness while met someone on his neighborhood. When player gain consciousness back, player realize he stuck and cant move in the middle of an field back of a barn. While stuck on place, players sees lots of ghost slowly come to his positions.

Audience

The targeted audience for this game is individuals over the age of 12 who have a basic understanding of computers. Children as young as 12 may play the game under the supervision of a parent or guardian. However, the game is designed to remain non-violent, making it suitable for players of all backgrounds and ages.

Software

In the course of the developing of this game, there are several software that are being used during the making of the game "How Fast". Tools that are being used are for utilizing several purposes such as, design, scripting, 3D modelling, and sound design. The following tools are being used during the development of the game are as follows:

1. Unity is the main game engine used for developing this game.
2. Visual Studio Code is a powerful compiler tool used by various developers worldwide, this tool is primarily used for coding the game scripts.
3. Blender is a 3D Graphics software used to create animation, visual effects, 3D models, interactive 3D applications, and more.

Shooter

Shooter is a part from Action Game Genre, which gain lots of popularity in gaming industry. Lots big games title based from this genre such as, Call of Duty, Battlefield, and Counter Strike. In shooter game, players were required to defeat certain enemys on certain condition with a weapon usually ranged weapon such as pistol, rifle, or sniper rifle.

3. RESULT AND DISCUSSION


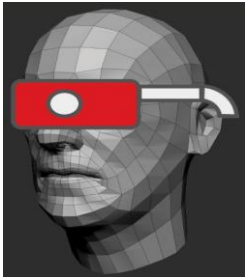
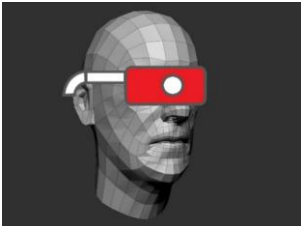

This game require player to use their reflexes, timing and shooter combat. The game "How Fast" features a single stage with lots of environment details. The graphics used for this game is 3D. The game itself designed to be played on Android platform using GoogleCardboard VR. The controls for the game "How Fast" are are operated using head movement for aiming and a trigger on the Cardboard VR to shoot.

Control Design

The game uses head movement as primary control for aiming to the enemy in the game. The game also uses trigger or button on the GoogleCardboard to shoot the enemy. Each control can be found in Table 1.

Table 1. Control Layout for the game "How Fast".

Movement	Function
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 <p>Figure 3. 1 Facing Forward</p>	<p>Players look forward to aiming forward</p>
 <p>Figure 3. 2 Facing Left</p>	<p>Players look left to aiming left</p>
 <p>Figure 3. 3 Facing Right</p>	<p>Players look right to aiming right</p>
 <p>Figure 3. 4 Pressing Button</p>	<p>Performing Shooting Action</p>

Character Design

1. Main Character

The main character of the game “How Fast” is a 3D Model shaped like killer. This character will be played by the player to aim and shoot at the incoming enemies as fast as possible till the time runs out. The Design of main character is depicted in **Figure 4**.

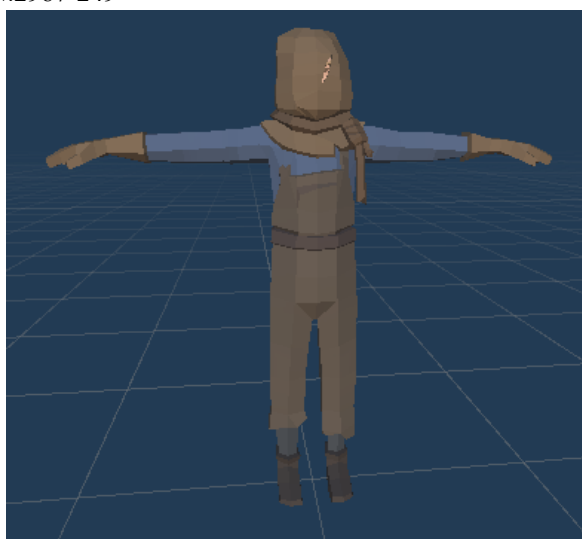


Figure 4. Main Player

2. Enemy Character

The enemy character of the game is also a 3D Model shaped like ghost. This character will go towards players position and the player goal is to kill or eliminate the ghost before it reach the players character. The Design of enemy Character is depicted in **Figure 5**.



Figure 5. Enemy Character

Score Design

“How Fast” utilize scoring system by how many the players eliminates enemies, for each enemies eliminated score will be added 1 score until the timer runs out. The score itself placed near the timer, so players wouldn’t get lost how much time left they have, and how much score they have. The design of the score is depicted in **Figure 6**.

Display Design

The game “How Fast” utilize a display design that stuck on players POV (Point Of View) every where they look. Players can see the display design as soon as the player entering the level. They will able to view score, timer, crosshair and when the times run out they can see the restart window. The display design is depicted in **Figure 6** and **Figure 7**.

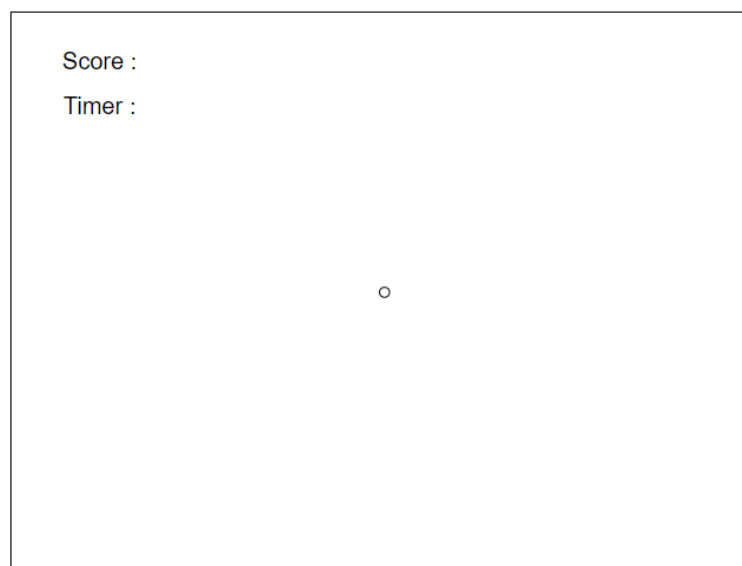


Figure 6 Score, Timer, and Crosshair Design



Figure 7 Restart Design

Level Design

Level is like a life of its game, because level is where players interact with the game itself. In the game “How Fast” player will only stuck in one place and there will be lots of enemies spawning from 3 spots around the player. With limited range to shoot player need to time it right when to

switch between 1 enemy into another. The red circle in the figure indicate where the enemy spawn, and the black circle in the figure represent of where the player is. The level design is depicted in **Figure 8**.

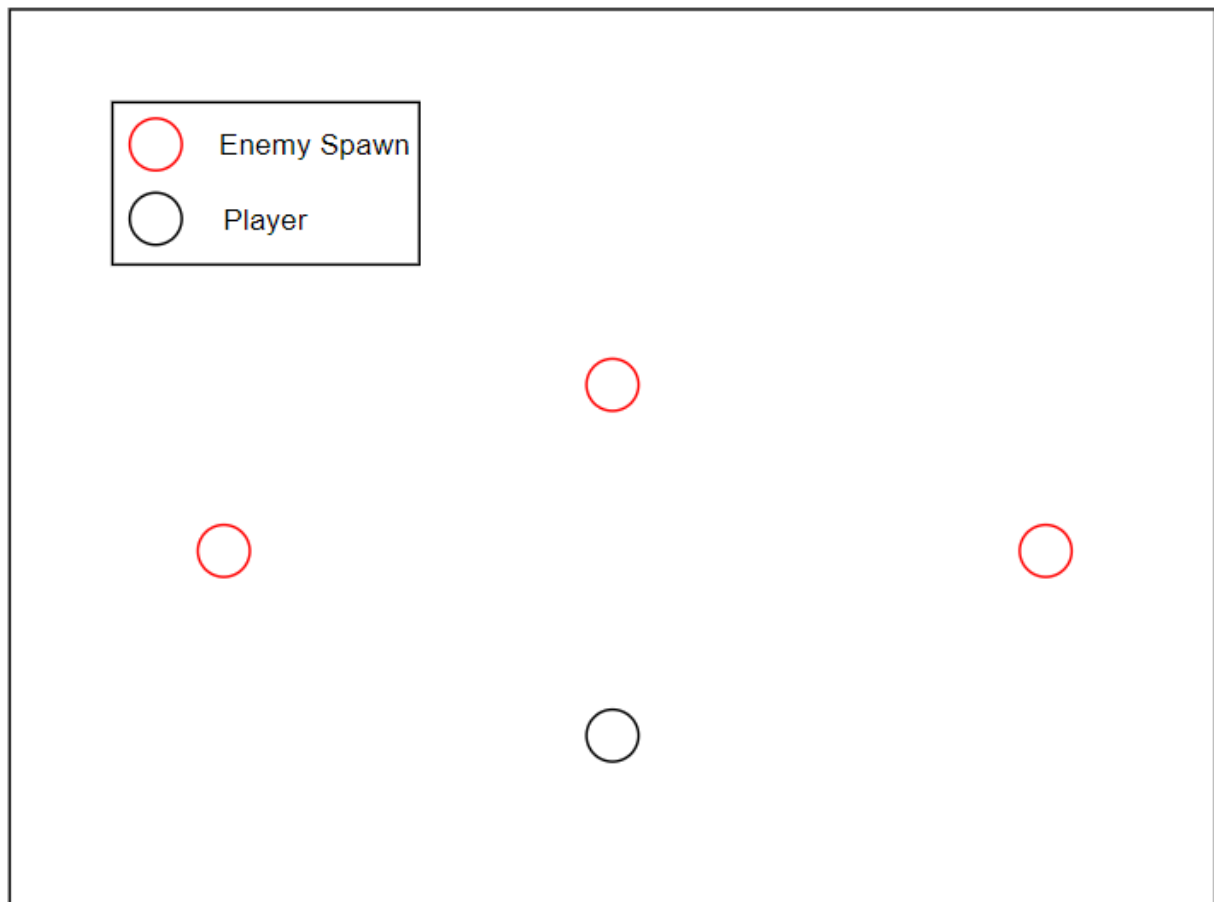


Figure 8 Level Design

Sound Design

The game “How Fast” we not utilize any music, audio, or song. This because our goal is to keep players focus on the timing and quick thinking while playing the game.

4. CONCLUSIONS AND RECOMMENDATIONS

“How Fast” a game that designed for casual shooter gamers that want to test their skills. The game uses 3D graphics as its appearance. It consist of a single level with lots of graphics in the level it self, that we hope make the players become more immerse into the game.

The game intended for individuals agedd 12 and above. The game follows the story of a a teenagers doing a trick or treat game on halloween day using a costume of a killer, but suddenly he lost consciousness while met someone on his neighborhood.

REFERENCE

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