DESIGNING LAST STAND 2D SHOOTER ON WINDOWS PLATFORM

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ABSTRACT

"Last Stand" is a basic 2D action game. It shows players a post-apocalyptic modern world and is designed for the Windows Operating System. Nowadays, many games are filled with complex features. But some players just want simple, easy games. "Last Stand" was made with this idea in mind. We wanted to create a game that anyone can enjoy without too much complication. We picked pixel art because it's simple and brings back memories of old games.Players can choose from four different difficulty levels, making it suitable for everyone. If players do well, they can find a hidden level, and there are boss fights to keep things exciting.This game is all about action and quick thinking. There aren't any confusing parts. Players just move forward, aim, and decide what to do next.Players will be given challenges that test how fast they can aim and make choices to get the best result. We kept things simple: no tricky game plans or playing with others online.With its blend of retro graphics, layered challenges, and hidden secrets, "Last Stand" stands as a games that prioritize player experience while adding layers of depth for enthusiasts it also brings together old-style graphics and a fresh story. It's a straightforward and fun game for people who want something easy and familiar to play.

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1. PREFACE
Introduction
Video Game is a game which we play with and audiovisual and which can be based on story [1], needless to say Video Games is something that was sought by many people be it kids or adults as a source of entertainment,Video Game itself has existed for long time ago since around 1971 and still developed further to present day,from a simple arcade to multi platform type of game.Game itself has many genre be it Basic genre like Action Adventure,Racing, there is also a game base of Perserpective and Viewpoint type like First Person,Third Person,Top-Down,Sports themed like Baseball, Basketball, and Non-Sport Themes (Arcade,Chess), even educational, and others.

Addidtionally Video Games are believed to enhance behavior in various domain like perception, attention, task switching and even mental rotation [2], the transfer of skill itself which influenced by games often unexpected. Embedding such training via Video games can be found appealing knowing how much time most people spend in this media which can result increase of motivation in educational setting. However its important to be noted that not all games can give the same benefit, a better understanding of game to implement the education aspect is also needed.

"Last Stand" is 2D shooter game which is designed to be played on Windows operating system, this game is designed to be played for single player.

Problem Formulation

Creating a compelling 2D survival shooter game "Last Stand", by leveraging the capabilities of the Unity game engine for the Windows platform where in the game will include supportive NPCs which will act as support in gameplay, ensuring a distinctive and challenging experience for the players.

Game Reference

The concept behind "Last Stand" is an combination of elements borrowed from different games. For instance, its mechanics are inspired by 'Terraria', while its design draws influence from "Your Only Move is a Hustle".The picture of "Your Only Move is a Hustle" can be seen in Picture 1.

Picture 1.Your Only Move Is a Hustle
Source : https://www.youtube.com/watch?v=TtsFmoTRk1U&t=112s

2. RESEARCH METHOD

Before a game is created, thorough preparation is essential. This include designing characters, enemies, story, establishing mechanics, and numerous other factors that will determine the game's primary objectives. Designing the game itself requires a solid reference that serves as the anchor for the game. This reference ensures consistency in development,and aids in addressing potential challenges. Drawing from reliable references can significantly streamline the development process, mitigate missteps, and ultimately contribute to the creation of a compelling and cohesive gaming experience. A proper research is also needed to understand the player not merely as part of audience of consumers but as an individual who has an emotional connection to your game and indirectly,to you.

Design Methodlogy

"Last Stand" draws inspiration from the game design principles laid out in "Terraria".The core methodlogy of the game stems from :

High Concept

This game is made with genre of Shooter Genre with survival aspect which demand the player to survive wave of enemies while clearing the objective.The following are the main details of the game :

1. Name of the Game : Last Stand

2. Game Category : Survival Shooter

3. Language of the Game : English

4. Intended Players : Those aged 15 and above

5. Player Count : Single Player

6. Visuals : 2D

7. Game Development Tool : Unity Engine

8. Coding Language : C#

9. Game Controls : Keyboard and Mouse

10. Supported Platform : Windows 10 or later

Gameplay

Last Stand" is best described as a Shooter Survival game, challenging players to defend against relentless waves of enemies. Players are tasked with both safeguarding their base and ensuring their own survival, using sharpshooting skills to fend off adversaries. The game unfolds across various levels, each presenting escalating threats as players confront a horde of enemies intent on devastation. Amidst the chaos of combat, players are aided by NPCs who provide support on the battlefield. Periodically, players can also discover buff items scattered within levels, offering temporary advantages,some level may contain Boss which is a massively enhanced type of enemies.

Storyline

"Last Stand" tell the story where humanity is in brink of extinction due to assault of outer being, but admist the chaos the humanity manage to create a super soldier capable of doing anything normal soldier cant do, and now as humanity trump card he will tear through the almost endless onslaught of those creature and maybe some unseen enemies that creep in humanity.

Audience

The target audience for this game is anyone above the age of 15 and has a basic understanding of computers. It is recommended that the game is played for this age group,since this game contain mild violence that is not appropriate for younger age, this game is not supposed to be played by children since it might affect children psychology specially because of element of violence in this game,other than age restriction this game is designed for entertainment.

Software Utilized for Development

Throughout the game development journey, several essential software tools have been selected to handle diverse responsibilities, including game layout, coding, 2D/3D design, and crafting visual elements. Each tool has garnered respect within the gaming community for its comprehensive functionalities and versatility, addressing the myriad aspects integral to creating a compelling game:

1. **Unity** is game engine can be used to develop the augmented reality, virtual reality, two-dimensional, and three-dimensional, games along with simulations and for other practices.In the process of creating the game this engine will be used.

2. **Visual Code Studio** is a source code editor which will mainly use to create a script necessary for game mechanic like movement,attacking, and other.

3. **Aseprite** is a proprietary, source-available image editor designed primarily for pixel art drawing and animation which will be used to design various thing from character to enemy and the sprite.

Display Design

"Last Stand" game has a design which include :

1. Main Menu: A menu that can be accessed after the opening of the game which shows game titles, Play button, Tutorial, Credit,and Exit.

2. Play: A menu to start the game.

3. About: A menu to show all the contributor in the game development.

4. Tutorial: A menu that shows how to play the game in general

5. Exit: A Menu to quit the game.

3. RESULT AND DISCUSSION

"Last Stand" is a game which mix Shooter genre with Survival genre into one and designed for single player, this game feature 10 Level with 3 of them contain boss and each level have 4 difficulties,aside from the difficulties this game contain secret stage which has a Super Boss that can only be unlocked after fulfilling a certain condition,"Last Stand" is presented in 2D pixelated graphic,this game can be only be played in Windows and controlled by using keyboard and mouse.

Control Design

"Last Stand" features an user friendly control design,primarily relying on keyboard and mouse for most occasion, a detailed breakdown of each key role can be seen in Table 1.

Table 1. Keyboard Control Layout for "Last Stand"

Key	Function
A	Move Left
S	Crouch
W	Fly/Jump
D	Move Right
Left Mouse Button	Shoot / Interact
Right Mouse Button	Swap Weapon
1	Access hot bar key 1
2	Access hot bar key 2
3	Access hot bar key 3

Character Design

"Last Stand" showcases a variety of characters crafted by the game's creators, reflecting a retro pixel art aesthetic. The characters are categorized into five distinct groups:

1. Main Character

The main character of "Last Stand" is named Null. Null is a super soldier which player control or played as,this character has ability to attack,move,and fly.In the gameplay he can carries up to 2 Weapon which he can switch.The Survivability of this character can be measured via HP (Health Point) where the game will be over if his HP reached 0 and his attacking power measured by "Attack" stats,each stat will be increased 300 per upgrade for HP and 30 per upgrade.The design reference of the character can be viewed in Picture 2,while specification detail of this character can be viewed in Table 2

Picture 2. Character Design Reference

Table 2. Specification

Name	Health Point	Attack (Base)
Null	3000	60

2. Base

Base in one of vital object in the game,in each level player is required to protect the base from the attack of enemy,if the base fall then the player will immedeatly failed at that level.. The design reference of the character can be viewed in Picture 3,while the detail of base can be viewed in Table 3.

Picture 3 Base Design   Reference

Table 3. Base Spesification

Name	Health Point
Base	15000

3. Enemy

Enemy in this game are the characterthat posses threat both to Main Character and Base,in "Last Stand" there is three type of enemy which is a Melee type enemy that attack by close contact, Ranged Type enemy that will attack by shooting projectile,and kamikaze which is enemy that sacrifice itself in exchange dealing massive damage, for each damage dealt by enemy Main Character HP will drop according to how much damage they do, additionally their stat will increased by 10% for each rise in difficulty. The design reference of the enemy is heavily inspired from "Terraria" and can be viewed in Picture 4 while specification detail of the enemies can be viewed in Table

Picture 4. Enemy Design Reference (Melee,Ranged,Kamikaze)

Table 4. Enemy Specification

Name Character	Health Point	Damage	Spawn
Melee	200	20	All Level
Ranged	120	10	All Level
Kamikaze	100	300	Level 3,5,7,9

4. Boss

Boss in this game is a enhanced version of enemy and way more powerful than other enemy in the game.Boss also serve as one of main objective in each level,some level will have a Boss spawned which required to be defeated to finish the level,this game in total has 3 boss.The design reference of the Boss can be viewed in Picture 5 while the Specification detail of the Boss can be seen in Table 5.

Picture 5. Boss Design Reference

Table 5. Boss Specification

Boss Name	Health Point	Damage	Spawn
False Mech	60000	100	Level 3
Lost Kin	70000	120	Level 6
Radiance	80000	150	Level 10

5. Super Boss

The Super Boss represents an advanced challenge, specifically tailored for players who have adeptly mastered the game's mechanics. This character poses a degree of difficulty that surpasses any encountered within the primary narrative. Distinct from standard bosses, the Super Boss operates outside the central storyline. To engage this formidable adversary, players must satisfy specific criteria, subsequently granting them access to concealed stages where the Super Boss awaits confrontation.. The design reference of the Boss can be viewed in Picture 6 while the Specification detail of the Boss can be seen in Table 6.

Picture 6. Super Boss design reference

Table 6. Super Boss Specification

Boss Name	Health Point	Damage	Spawn
Progenitor	150000	500	Secret Level

Item Design

In "Last Stand" there is a various item that sometimes can appear and can be picked in game by player,each item has its own function but when the item is spawned it only have one minute to nbe picked or it will disappear and diss,the Design reference of Item can be seen in Picture 7 while the specification about the item use and chance of appearance can be seen in Table 7.

Picture 7.Item design reference

Table 7. Item Specification

Item Name	Effect	Duration	Appearance Chance
Med Kit	Heal Player by 500	Instant	20%
Combat Stim	Enhance player attack by 50%	30 Second	20%
War Banner	Increase NPC attack by 50%	30 Second	20%
Force Field	Erect a shield that can Protect player for 1000 damage	500	Secret Level

Score Design

In "Last Stand" there is no score system,the game itself has time to let player know how many times they in the level and gold they earn which can be used in the shop to buy new weapon or to purchase upgrade and the objective they have fulfilled which will be displayed in here.The design of Score can be seen in Picture 8.

Picture 8. Display of Victory Screen

Level Design

In "Last Stand" Level is the main core of the game,because it's the place where player interact the most in the game,in this game there is 10 Main Story stages where in each level has different objective like defeat all enemy, survive, defeat the boss by shooting the with the weapon the player choose,in the level there will be an enemy with different behavior like shootingor melee attack,each Boss in this game also have different behavior and attack pattern compared to other normal enemy. The Level design of level 5 can be viewed in Picture 9.
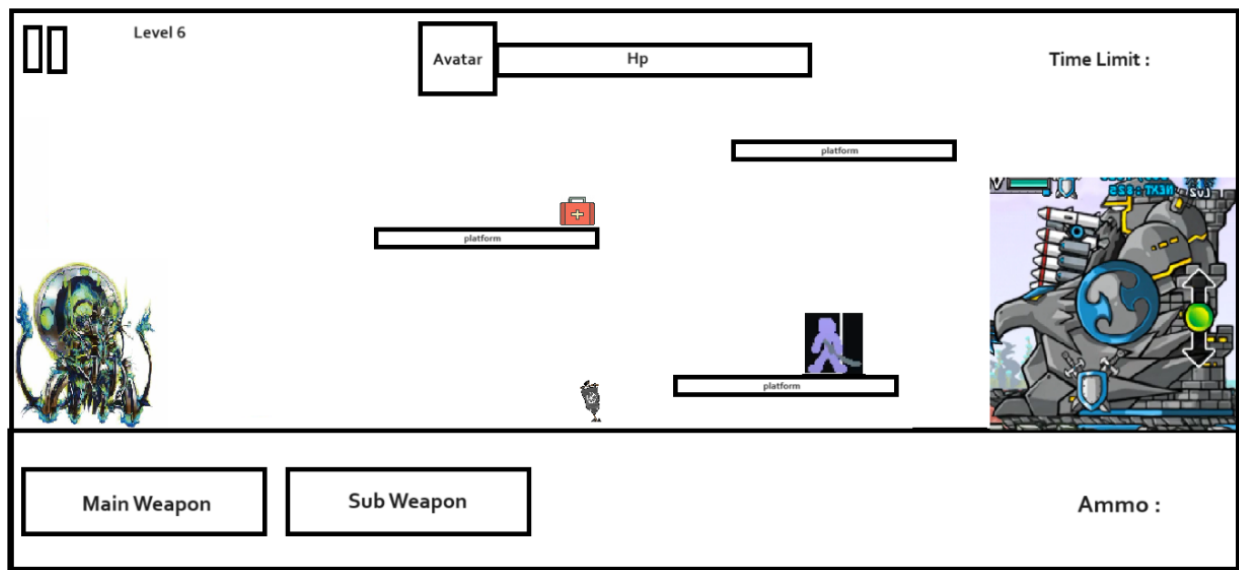

Picture 9. Level Design

Sound Design

In "Last Stand" there will be six background music tracks that will be in the game,the first music will be played when player is in Main Menu, second music will be played if the player is in Shop section, third music will be played if Player is in a level with objective to defeat all enemy, fourth music will be played if Player is in a level with objective to survive, fifth music will be played if player ecounter a Boss,and Sixth Music will be played when Player entered secret stage an ecountered Super Boss

Display Design

In "Last Stand" where this game own a 2D design. Players can see the display playing by entering a level. They can see player health,,character avatar,ammo,time limit,main weapon, sub weapon. pause button, nd level name. The display of the game can be seen in Picture 10.
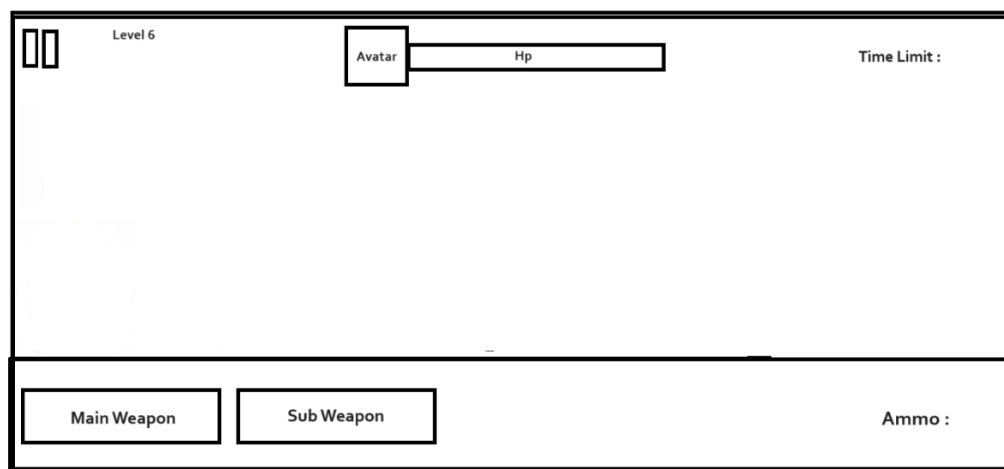
Picture 10. Display Design

4. CONCLUSIONS AND RECOMMENDATIONS

"Last Stand" is a game made for Windows platform for a Gamer who enjoy challenging shooter game, this game contain 10 level which in each level player will be given different objective with different enemy and Bosses,this game also contain four different difficulties and must fulfill the objective to progress from level to level while being helped by NPC along the way.

This Game is intended for individuals aged 15 and above, this game has a 2D graphic where it has a story about a Super soldier in Post Apocalyptic world at brink of destruction where he must destroy the outer being in order to preserve the humanity.

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