Designing Let Me Survive 2D Multiplayer Survival Adventure Game on Windows Platform

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ABSTRACT
"Let Me Survive" is a two-dimensional survival adventure game specifically designed for Windows operating systems. The game was created using the Unity 2D game engine, which is a well-known platform used to create computer games. In "Let Me Survive," players are presented with various challenges to defeat all enemies in each level, with the goal of reaching the end. The game also utilizes the multiplayer feature available in some games, allowing players to play together to complete each level. This feature provides a cooperative experience for players to work together with other players.

Keywords: *Let Me Survive, Windows, multiplayer, survival adventure, two-dimensional, Unity.*

1. INTRODUCTION

The history of the development of games, often referred to as "GAME," from time to time is something that is highly sought after and played by people of all ages, including children, adults, and even the elderly. Games do not discriminate based on age or background and can be played by everyone. As time goes by, games have changed and evolved, accompanied by technological advancements. The game industry and developers worldwide are also competing and creating new eras for the gaming world.

The definition of a game is an interactive digital entertainment that can be done through a computer, game console, mobile phone, or tablet. As technology advances, games are increasingly played by many people. Following the trends of the times, game genres have also increased, including action games, arcade games, card games, simulation games, role-playing games, and adventure games.

The development of games, or often referred to as "GAMES," over time is something that is highly sought after and played by society, both children, adults, and even the elderly. Games are ageless, background-less, and can be played by everyone. As time passes, games change and develop with the advancement of technology, the game industry, and game developers around the world compete and create a new era for the gaming world.

"Let Me Survive" is a 2D multiplayer game with a Survival Adventure genre that can be played on the Windows platform. The game is designed to be played in singleplayer and multiplayer mode with a maximum of 2 players.

Game References

"Let Me Survive" was conceptualized by weaving together an intricate web of ideas, mechanics, and styles borrowed from several distinguished games. Key amongst these sources of inspiration are Metal Slug, It Takes Two, and My Unfair Adventure. The picture of game "My Unfair Adventure" is depicted in Figure 1.

Figure 1. My Unfair Adventure [1]

2. RESEARCH METHOD

Before creating a game, a design method is necessary as a reference in the game development process and also to determine the scope of the game. Designing a game requires a template as a foundation, and therefore this research utilizes the methods presented in "Game Design Second Edition 2004" by Bob Bates, providing a solid structure for game development.

Design Methodology

"Let Me Survive" adopts the game design principles [2]. The design methodology encompasses:

High Concept

The game is tailored to the horror survival genre, challenging players to survive and unravel puzzles to flee a multi-level building. The following are key details about the game's design:

1. Name of the Game   : Let Me Survive

2. Game Category   : Survival Adventure

3. Language of the Game   : English

4. Intended Players   : Those aged 8 and above

5. Player Count   : Single Player and Multiplayer

6. Visuals   : 2D

7. Game Development Tool: Unity Engine

8. Coding Language   : C#

9. Game Controls   : Keyboard

10. Supported Platform   : Windows 10 or later

Gameplay

The game "Let Me Survive" belongs to the survival adventure genre because it is designed to be relatively straightforward to play. The multiplayer system implemented in this game allows for one to two players with a split-screen display, where each player is on the same screen but separated by a window. Each player will use a keyboard as their playing tool, with different control settings. In the game "Let Me Survive," players will encounter several monsters that they must combat using close-quarters or melee combat. Apart from battling monsters, players are also tasked with collecting items, which serve as scores or special items for them.

Storyline

The game "Let Me Survive" tells the story of two men who are trapped in a forest while trying to find their way back home. Along their journey, they must overcome traps and face off against monsters that attempt to hinder their progress and prevent their safe return. As they finally reach their ultimate destination, they encounter a massive troll monster that blocks their path. Both men must defeat the troll in order to successfully reach their goal.

Audience

The target audience for this game is anyone above the age of 8 who has a basic understanding of computers. It is recommended that the game is easily playable for this age group. Children who are 8 years old can still play the game but should be supervised by parents or guardians. However, anyone who wishes to try the game can still play it. The game is designed to entertain, making it suitable for players of all backgrounds and ages.

Software Utilized for Development

In the process of creating the game, the following pivotal software tools will be used to perform various tasks, such as game design, scripting, 2D and 3D modeling, and graphical asset creation. Each of these tools is recognized within the industry for its wide range of features and abilities, covering multiple facets of game development:

1. **Unity** will be the main platform used for game development, offering various features for creating interactive 2D content.

2. **Visual Studio Code is a** powerful code editor will be used for scripting and debugging tasks, aiding in efficient development.

3. **Photoshop** will be the primary tool for editing and creating 2D graphical assets, which will be integrated into the game.

Display Design

"Let Me Survive" game features several display designs, including:

1. Main Menu: Following the opening, the main menu presents the title and four selectable Play, About, Help, and Exit.

2. Play: This display is used to start the game.

3. About: This display provides information about the game, such as its background story, development team

4. Help: This display is for system settings, adjusting game brightness and volume.

5. Exit: This display is for exit or quit the game.

Survival Adventure

Survival adventure genre is a combination of the survival and adventure game genres. In a survival adventure game, players are required to survive by exploring a specific area. In these games, players are usually tasked with finding essential items such as water, food, and many others.

3. RESULTS AND DISCUSSIONS

The game, "Let Me Survive", is a unique blend of survival and adventure genres designed for a multiplayer. The game "Let Me Survive" features 10 levels, with 3 of them containing boss levels. The player's character is presented using 2D graphics. The game is designed to be playable on the Windows platform, and the controls for "Let Me Survive" are operated using a keyboard.

Control Design

The game, "Let Me Survive," employs a straightforward design for its control scheme, utilizing a keyboard for various modules within the game. Each key's function can be found in Table 1. The game's movement system utilizes a combination of keys.

Table 1. Keyboard Control Layout for "Let Me Survive"

Key	Function
W	Navigate Menu / Move Up
A	Navigate Menu / Move Left
D	Navigate Menu / Move Right
R	Attack
Arrow Key "↑"	Navigate Menu / Move Up
Arrow Key "←"	Navigate Menu / Move Left
Arrow Key "→"	Navigate Menu / Move Right
Space	Attack

Character Design

"Let Me Survive" features diverse characters designed by the game's developers, embodying pixelated art style. The characters fall into three categories:

1. Main Character

    The main characters in the game "Let Me Survive" are James and Cyborg. James is a human character who will be played by the first player as the main character, while the second player will control the character of Cyborg. Each character has a special attack and the ability to walk, jump, and punch. The vitality of each character is measured by health points (HP), which start at 100. If James and Cyborg got hit by an enemy, his HP reduces. The game ends once the HP reaches zero. The design of the main character is depicted in Figure 2. Specifications detail about character can be found in Table 2.

Figure 2. Main Character James and Cyborg

Table 2. Specification Character

Name Character	Health Point	Damage	Speed	Special Attack
James	100	35	3.0	45
Cyborg	100	35	4.0	35

2. Enemy Character

    Monster characters are characters that can harm the main character. There are six monster characters in the game "Let Me Survive": bat, smiley plant, spear skeleton, orc, golem, and minotaur. Monsters can harm the main character by attacking or coming into contact with them. When a monster attacks or makes contact with the main character, it reduces the main character's health points. The design of the enemy character is depicted in Figure 3. Specification detail about enemy can be found in Table 3.

Figure 3. Enemy Character

Table 3. Specification Enemy

Name Character	Health Point	Damage
Bat	5	5
Smiley Plant	10	15
Spear Skeleton	15	15
Orc	25	35
Golem	30	40
Minotaur	40	45

3. Boss Characters

Boss characters in the game "Let Me Survive" are characters that appear in several levels. There are three boss characters in the game: troll, Two Headed, and purple masked man. Boss characters have high damage and can harm the main character by attacking or biting them. The design of the boss character is depicted in Figure 4. Specification detail about boss can be found in Table 4.

Figure 4. Boss Character
Table 4. Specification Boss

Name Character	Health Point	Damage	Speed	Apperance
Troll	100	20	1.5	Stage Three
Two Headed	100	35	2.5	Stage Five
Purple Masked Man	100	50	4.0	Stage Seven

Object Design

The objects used in the game "Let Me Survive" are items that can be picked up by the player character, each with its own function and purpose. The appearance and presentation of each object vary. The design of the object is depicted in Figure 5. Specification detail about object can be found in Table 5.

Figure 5. Design Object

Table 5. Object Spesification

Name Object	Description	Appearance Presentation
Health Glass	The player will receive an additional 50 health if they successfully acquire the item.	20%
Key	The player will collect a key in order to progress to the next stage.	20%
Ruin Necklace	The player will receive a shield as protection for the player character.	5%
Power Stone	The player will obtain a special attack where the player character will receive a weapon that can be used to fight the boss level.	5%
Diamond Crystal	The player will earn a score of 100 points if they successfully collect the diamond crystal.	10%
Hex Crystal	The player will earn a score of 50 points if they successfully collect the Hex Crystal.	20%
Blue Sapphire	The player will earn a score of 20 points if they successfully collect the Blue Sapphire.	10%

Score Design

In the game Let Me Survive, players will be asked to collect several items that will serve as their score. The items that contribute to the score are diamond crystals, hex crystals, and blue sapphires. The player's score will increase when they successfully gather these items and eliminate monsters. The design of the score is depicted in Figure 6.
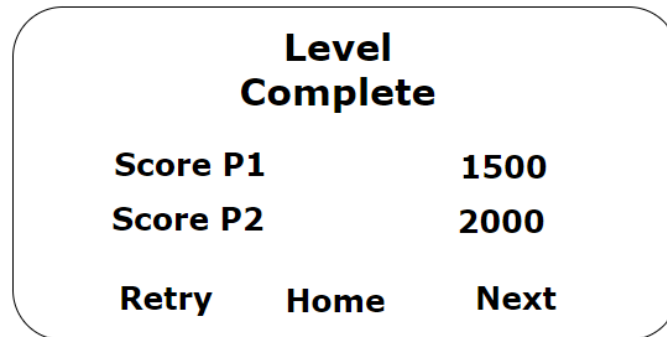

Figure 6. Display of Score Design

Level Design

Levels are a crucial component of a game as they indicate the number of stages within a gameplay experience. In the game "Let Me Survive," there are ten stages, with three of them featuring boss stages. The boss stages in the game appear on the third, fifth, and seventh stages. Players can gauge their progress in the game by the level they have reached and anticipate the challenge of encountering a boss stage at these specific points in the game. The design of level is depicted in Figure 7.
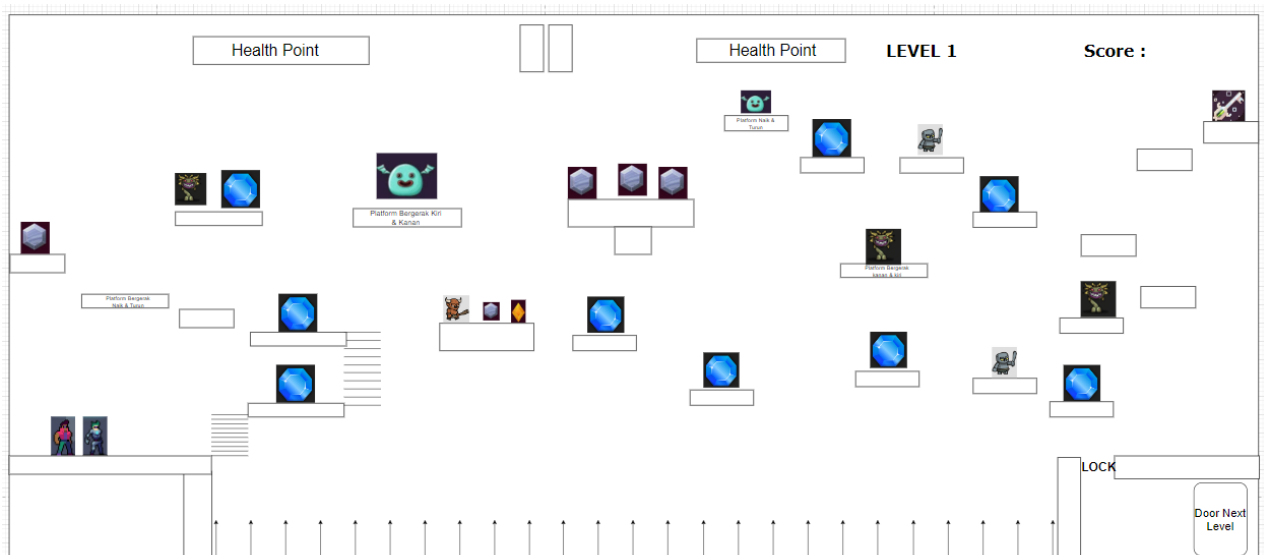

Figure 7. Level Design Stage 1

Sound Design

In the game "Let Me Survive," there are three background music tracks that will be used throughout the gameplay. The first track is the main menu music, which plays during the menu screen when players are navigating the game's options. The second track is played while transitioning to the next stage, creating a seamless and immersive experience for players. Finally, there is a specific music track designed for boss levels, heightening the tension and providing an intense atmosphere during these challenging encounters. List of background music can be found in Table 6.

Table 6. Background Music List

No	Name SFX	Publisher	Source
1	Retro Adventure Music Pack	MuzStation Game Music	https://www.unrealengine.com/marketplace/en-US/product/retro-adventure-music-pack
2	Retro Battle Music Pack	MuzStation Game Music	https://www.unrealengine.com/marketplace/en-US/product/retro-battle-music-pack
3	Retro Platfomer Music Pack	MuzStation Game Music	https://www.unrealengine.com/marketplace/en-US/product/retro-platformer-music-pack

Display Design

The game "Let Me Survive" utilizes a 2D display design. In "Let Me Survive," players can see the display design of the game immediately upon starting the game. They will be able to view the health points, pause button, level, and score. The design of display gameplay is depicted in Figure 8.
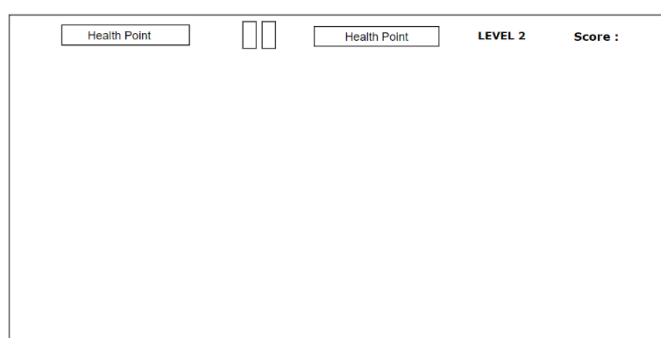

Figure 8. Display Gameplay

4. CONCLUSIONS AND SUGGESTIONS

"Let Me Survive" is a game designed for fans of survival adventure. The game has a 2D appearance. It consists of 10 different levels, where players will fight boss enemies in 3 of the levels. Each boss has different damage capabilities.

The game is also designed with the needs of its target audience in mind. It is intended for individuals aged 8 and above. The game offers a 2D display, where it follows the story of a man and his robot friend who are trapped in a forest area and must find their respective ways back home.

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