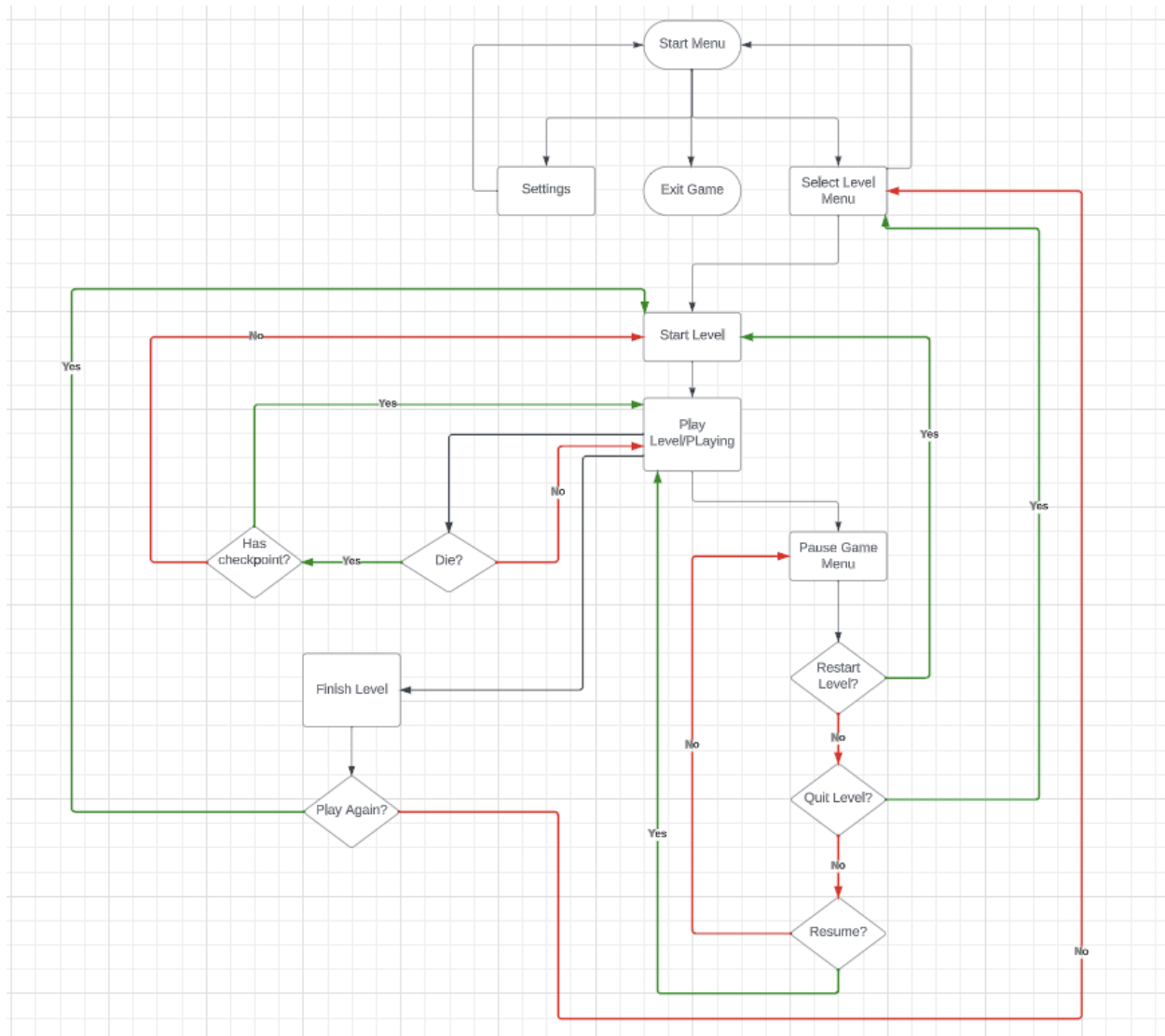
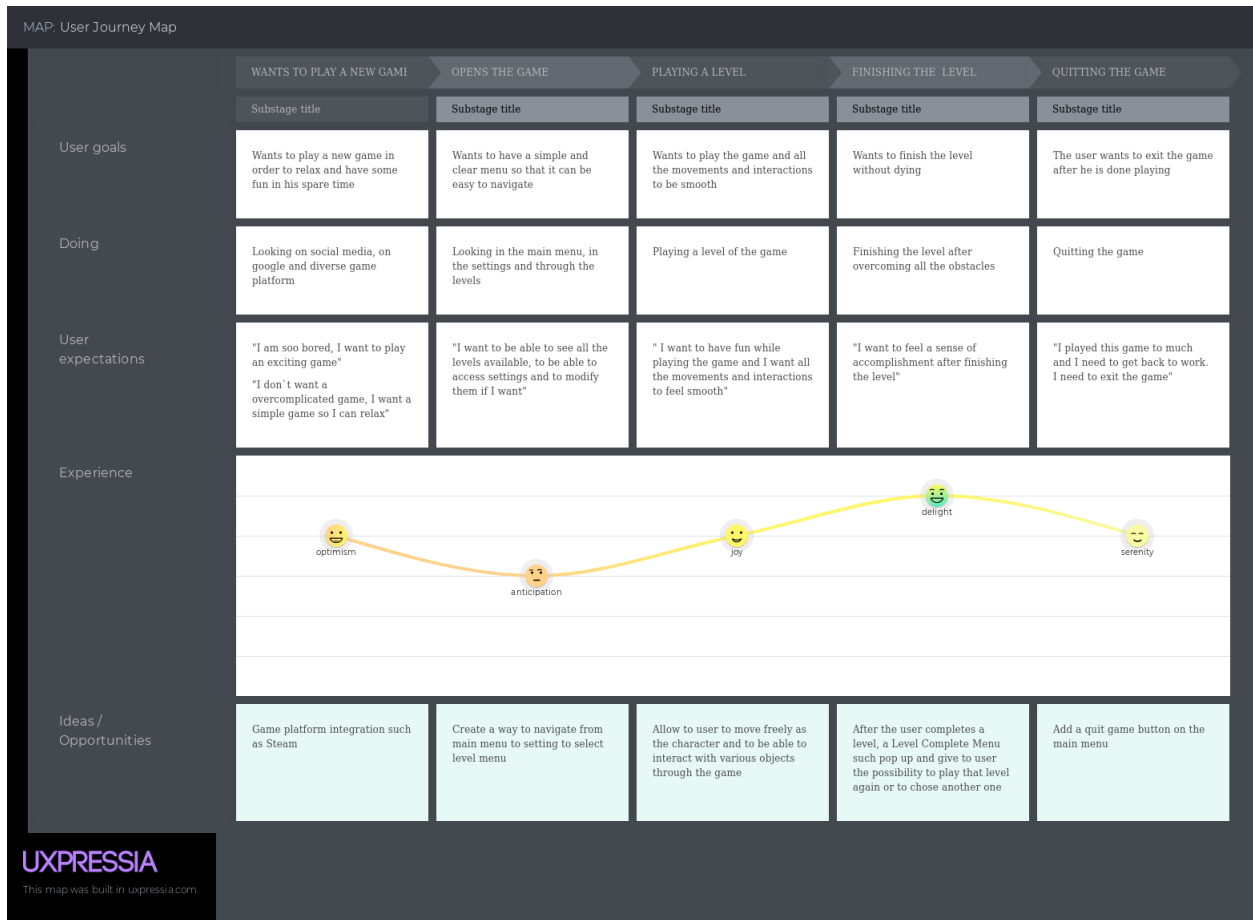


Activity Diagram



Customer Journey Map



Non-Functional Requirements

Performance

The game should start in less than 20 seconds

The game should run at a minimum framerate of 30 fps on any machine that meets the minimum requirements, 60 fps for any machine that meets the recommended pc requirements

The game should have minimal loading times between levels

Stability

The game should not crash

Difficulty

The difficulty of the game should be progressive, first level must include a tutorial for the player

Low PC Requirements

The game should be able to run on the majority of modern computers

Minimum PC Requirements

OS: Windows 10/11

Processor: 2.0 Ghz

Memory: 4GB

Hard Disk Space: 1GB

Video Card: 128MB Video Memory

Recommended PC Requirements

OS: Windows 10/11

Processor: 3.0 Ghz

Memory: 8GB

Hard Disk Space: 1GB

Video Card: 256MB Video Memory

Users

The game should be accessible for all user segments

Gameplay

The game should be fun

User Experience

The user interface should be intuitive, the default controls should be intuitive and the user should have the possibility of customizing controls, the menu should be easy to navigate

Graphics

The game should have graphics and animation that enhance the overall player experience

Audio

The game should have immersive sound effects

Prioritized Product Backlog

Prioritized Product Backlog

Make the textures from the Unity Asset Store – Pixel Adventure 1 usable (configure the standard settings for a 2D game) - (Difficulty: 2)

Create a level which will be used and updated on the go to test the different functions of the game (traversal, physics, object interaction, etc.) - (Difficulty: 4)

Write the script for basic player movement (moving left, right and jumping) - (Difficulty: 3)

Create/Find stripes for the necessary animations for basic player movement (moving left, right, jumping, staying idle) - (Difficulty: 2)

Develop the first level. This level should be simple and show the basic features of the game (mentioned above) - (Difficulty: 7)

Create a checkpoint system. - (Difficulty: 3)

Implement basic traps (rotating saws, spikes) and the needed scripts for traps - (Difficulty: 5)

Implement scripts for the player interacting with traps, player falling out of bounds, scripts for player death - (Difficulty: 4)

Develop the functionalities needed for collecting and counting items - (Difficulty: 5)

Write scripts for special items and the effects they have on the player - (Difficulty: 10)

Create multiple levels - (Difficulty: 10)

Implement the start menu and its functionalities (choose level, change settings, etc.) - (Difficulty: 5)

Implement the pause menu and its options (restart level, exit level, settings, etc.) - (Difficulty: 6)

Implement the level select menu and its options (choose level, exit to main menu) - (Difficulty: 4)

Implement the level completed menu and its options (replay level, exit level) - (Difficulty: 4)

*Implement slippery ice platforms (frictionless) - (Difficulty: 3)

*Add a basic shooting mechanic and implement it in platforming (breaking walls, eliminate enemies, etc.) - (Difficulty: 10)

*Add enemy creeps that can block the path/attack the player - (Difficulty: 10)

*intended for future releases

Problem Statement and Product Vision

Problem Statement

In today's competitive gaming landscape, there's a demand for a 2D platformer game that can engage players with an enjoyable visual style and a straightforward storyline while delivering a range of gameplay experiences. Existing platformer games often lack the ability to cater to a broad player base and may try to introduce many novel ideas, without having a good core for movement or basic mechanics. Our challenge is to address these concerns and create a platformer that offers a satisfying experience for a diverse player group while considering practical constraint.

Product Vision

Our product vision is to create a 2D platformer game with an emphasis on engaging gameplay and visual aesthetics, tailored to the confines of our university project. We aim to offer an entertaining gaming experience for a broad audience, featuring a variety of visually appealing levels, each with its own set of entertaining challenges. While we prioritize gameplay, we will include basic accessibility features to ensure an enjoyable experience for all players. Our objective is to craft a platformer that provides an accessible and enjoyable gaming experience, with less focus on an intricate storyline.

Product Features and Functionalities

Gameplay Features

Levels

Users shall have access to a variety of meticulously designed levels with increasing difficulty with lots of challenges

Interactive Objects

The game shall be full of interactive objects that behave in many different ways depending on the item: spikes and traps that damage and kill the player, moving platform on which you can sit on and slippery ice platform that will make the player slip and keep moving even after stopping pressing the movement button

Checkpoint System

The game shall implement checkpoint mechanics that will return the player to the latest checkpoint if they die

Out Of Bounds

Falling out of bounds shall be possible in the game, action that will kill the player

Pause Menu

The user shall be able to pause the game in the middle of the level by pressing the pause button which will make the pause menu appear

Playable Character

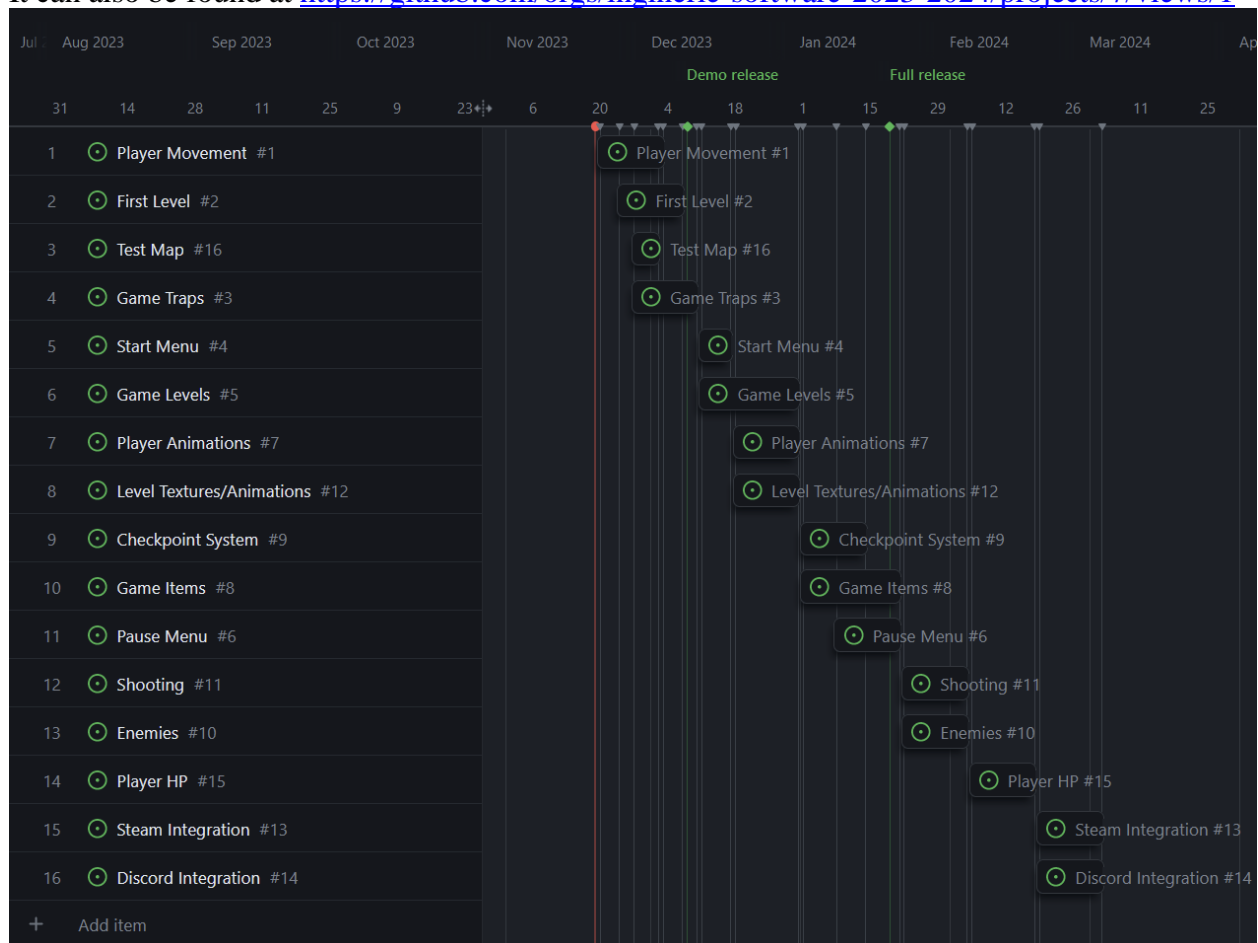
- The character shall have access to basic movement like left and right movement and jump that makes it possible to move freely
- the character shall have special abilities that enable the player to solve puzzles in order to progress through the game such as double jump, object grappling and others
- The user shall have the ability to personalize their character with additional cosmetic items that can be unlocked while playing the game
- The player will be able to collect objects that will help the user progress through the levels or to unlock cosmetic items

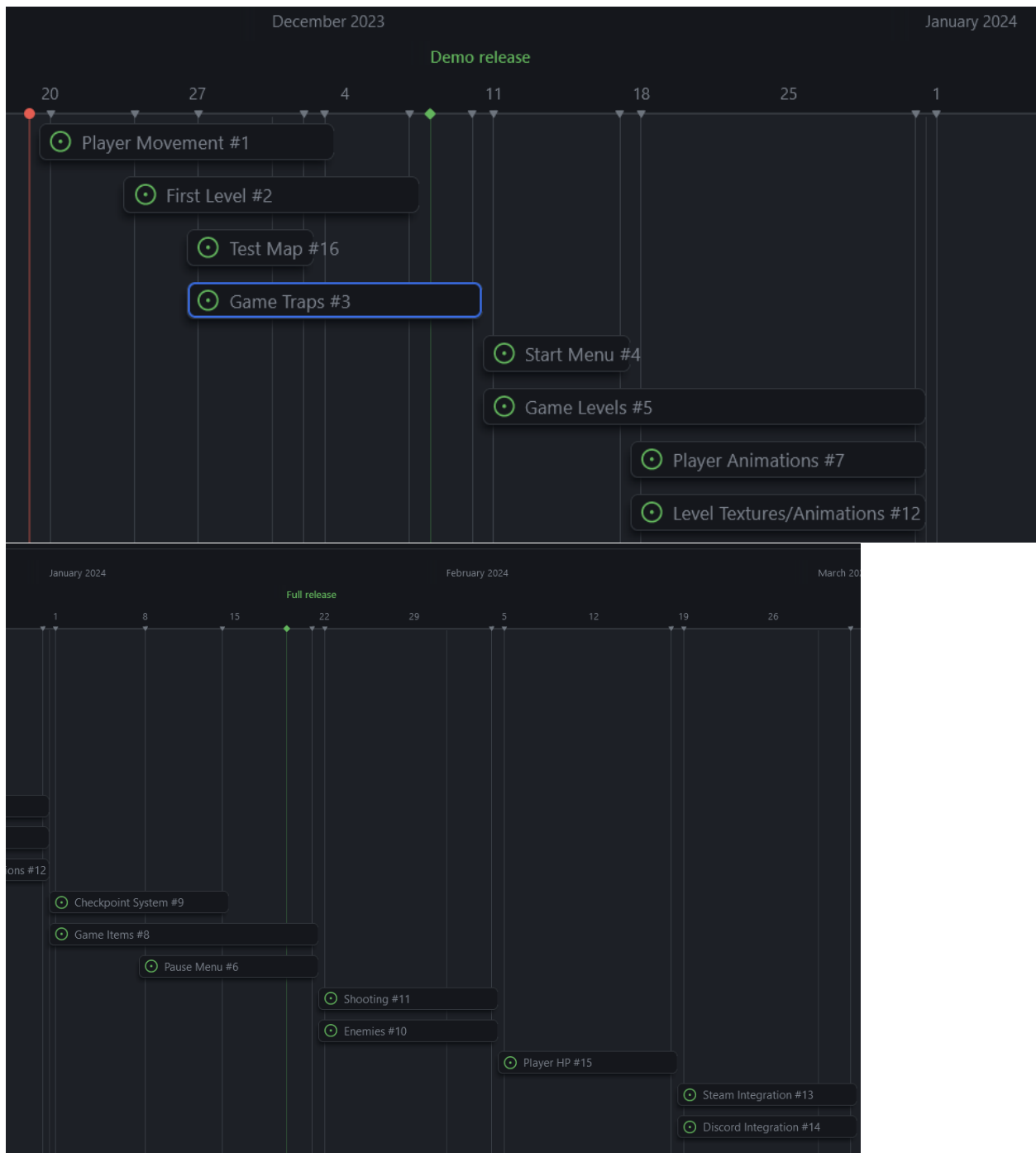
User Interface

- The start menu shall give the user access to select the level which they want to play, give them access to change the settings, and the possibility to exit the game
- The pause menu shall let the user have the possibility of choosing the following 3 options: resume the level from the current position, restart the level or exit the level which returns the user to the start menu
- The "Level Completed" menu shall appear after completing a level and it shall let the user play the same level again or to exit to the level selection page

Product Roadmap

It can also be found at <https://github.com/orgs/ingenierie-software-2023-2024/projects/7/views/1>



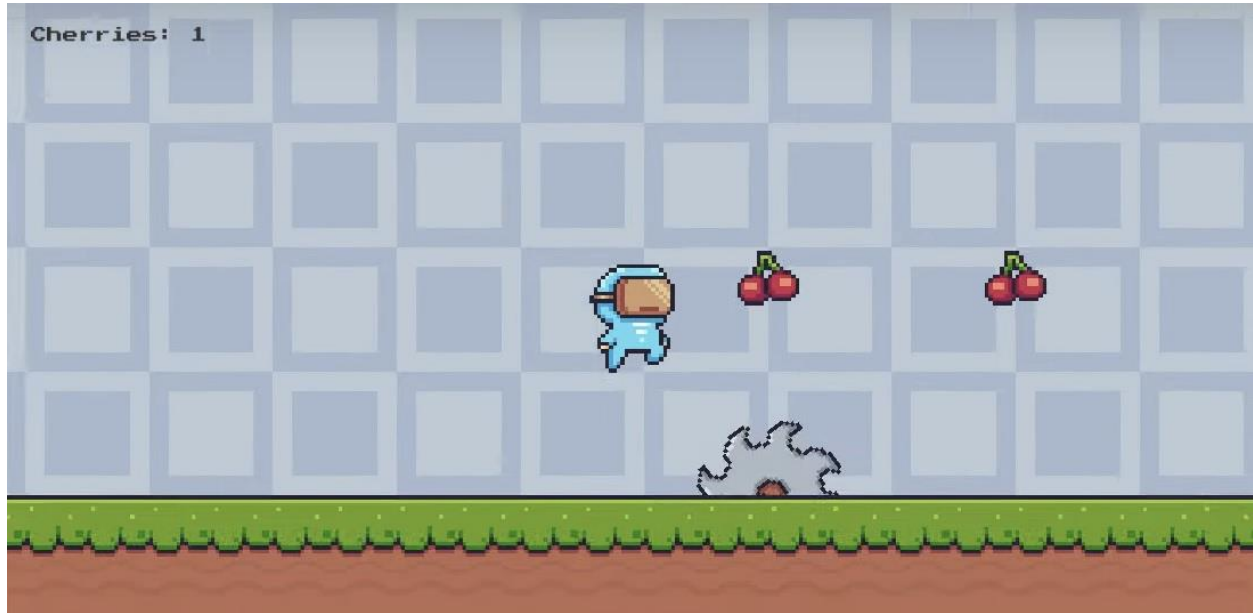


Integration Points

- Integration with Steam digital distribution service
- Integration with Discord overlay and user status

UI Mockups

Gameplay



Level Completed Menu



Pause Menu



Main Menu

Game Name

Select Level

Settings

Exit Game

Level Select Menu

Select Level

1

2

3

4

5

Exit

Play

Settings Menu

Settings

—————●————— Music Volume

—————●————— SFX Volume

Exit

Save

User Stories and Acceptance Criteria

User Stories

- As a user, I want to have immersive textures and animations for the player character and the game environment so that I can enjoy an enhanced gaming experience.
- As a user, I want to move left and right using the arrow keys or a controller so that I can navigate the game environment.
- As a user, I want to make the character jump with a button press so that I can overcome obstacles and reach higher platforms.
- As a user, I want to control the character's running speed so that I can adapt to different sections of the game.
- As a user, I want to avoid obstacles and traps by jumping, ducking, or using other movements to pose a challenge through the game.
- As a user, I want levels with diverse challenges, such as moving platforms, rotating hazards, or gravity changes, so that the gameplay remains engaging and varied.
- As a user, I want to collect power-ups or items by touching or jumping on them so that I can enhance my character's abilities.
- As a user, I want to complete a level by reaching the end goal, providing a sense of accomplishment and progression.
- As a user, I want to unlock new levels by completing the previous ones, adding a sense of advancement and unlocking new challenges.
- As a user, I want to be able to navigate a UI to play the levels, making the overall gaming experience user-friendly and accessible.
- As a user, I want the game difficulty to increase gradually as I progress, maintaining a challenging and rewarding experience.
- As a user, I want to have a checkpoint system in order to go back to spawn if I fail the level, allowing me to retry without starting from the beginning.
- As a user, I want the pause menu to display options such as resume, restart level, and quit game, providing me with control over my gameplay experience and so that I can go and attend to other matters.
- As a user, I want the option to play again after completing a level so that I can immediately retry and improve my performance.

Acceptance criteria for sprint 1

Movement

- Given the user is playing the game, When the user presses the left or right arrow key or uses a controller, Then the character should move left or right accordingly in the game environment.
- Given the user is playing the game, When the user presses both left/right and jump at the same time, Then the character should move diagonally.
- Given the user is playing the game, When the user presses the designated jump button, Then the character should perform a jump, allowing the user to overcome obstacles and reach higher platforms.
- Given the user is playing the game, When the user presses jump and there is an obstacle above the character, Then the character should not pass through the obstacle.
- Given the user is playing the game, When the user adjusts the speed control input, Then the character's running speed should change accordingly, allowing the user to adapt to different sections of the game.

UI

- Given the user is interacting with the game, When navigating the UI, Then the user should be able to easily select and play levels, ensuring a user-friendly and accessible gaming experience.
- Given the user is playing the game, When the user pauses the game, Then the pause menu should display options such as resume, restart level, and quit game, providing the user with control over their gameplay experience.
- Given the user has completed a level, When presented with the option, Then the user should be able to choose to play the same level again immediately, allowing them to retry and improve their performance.

User Personas

NAME

Félix Lengyel

MARKET SIZE



TYPE

Video Game
Streamer

Goals

- Achieve a high-level mastery of any game he plays
- Always challenge himself with hard games
- Bringing public attention to the indie games scene

Demographic

♂ Male 28 years

📍 Laval, Quebec

Single

Twitch Streamer

\$ 2,200,000

Quote

“The result is irrelevant because the effort was there.”

Background

After finishing high school and a brief stint in business administration at CEGEP, Félix Lengyel, known as xQc, started streaming on Twitch at the age of 19, initially playing League of Legends. His fame grew with his involvement in Overwatch, leading to a name change to xQcOW. In the esports realm, he began with smaller tournaments and joined Denial Esports, later forming the independent team Arc6. During this time, his intense dedication to gaming had negative impacts on his personal life. Despite challenges, he represented Team Canada in the 2017 Overwatch World Cup, earning the title of the event's most valuable player, despite the team's loss to South Korea in the finals. After quitting Overwatch esports scene, he has now taken an interest into playing indie video games on stream such as the 2D platformer Jump King, and many other difficult games from the same genre.

Gaming skills

Reaction time



Strategic thinking



Dexterity



Adaptability



Motivations

Is deeply passionate about playing video games and genuinely enjoys the gaming experience.

Derives joy from entertaining and making people laugh through engaging commentary and humorous interactions.

Seeing himself improve in games where the window of opportunity is small and thus having the character's achievements being earned and not handed.

Frustrations

Coping with negative comments, trolling, or toxic behaviour in the chat.

Struggling to maintain a balance between producing high-quality content and adhering to a consistent streaming schedule.

Playing games that guide the player too much or that offer a way too generous room for error and thus ruining the risk-reward ratio.

Scenarios

As xQc starts his stream, a viewer suggest the following: "Hey xQc! Try out this platformer game I found! It's full of surprises, and I'd love to see you tackle it!" The chat agrees, and xQc, decides to give the game a shot. The ensuing gameplay becomes a rollercoaster of laughter and suspense as xQc navigates the platformer's obstacles, creating memorable moments for both him and his viewers, thus promoting the game.

Technical Skills

Stream setup and

management



Troubleshooting technical

issues



Social media and community

management



NAME

Sam Fisher

MARKET SIZE



TYPE

Casual Gamer



Goals

- Wants a quick and easy way to relax
- Have fun doing something undemanding
- Have something exciting to do, whether he is at home, at the office, on the train, etc.

Quote

“Nothing compares to a few hours of gaming after a long day of work”

Demographic

♂ Male 28 years

📍 United States

Lives With Girlfriend

Administrative assistant

\$50,000

Background

Works in a typical office setting, handling administrative tasks. Enjoys casual gaming during breaks or after work to unwind and relax

Motivations

- Appealing graphics that set the right atmosphere
- Gameplay that is fun, bombastic and not too complicated

Frustrations

- Hates complicated games with a steep learning curve
- Dislikes games which require a huge time investment

Gaming Skills

Reaction Time



Strategic Thinking



Dexterity



Adaptability



Technical Skills

Digital game setup process



Troubleshooting Technical



Issues



Using digital stores to give



Scenarios

Sam gets back home after a long day of work and is looking forward to playing some videogames. As he is browsing through his digital store, he comes across a 2D platformer. Interested, he decides to give its demo a try. He finds the game very fun and enjoyable, so he buys the full version and begins playing through the levels. After about 1-2 hours of gaming, Sam decides that it is time to go to sleep and is looking forward to playing the game tomorrow, perhaps during a break at work.