



Fighting Game with Online Play

Functional Specification

Name: Ivan Yankovski

Student Number: C00259561

Supervisor: Dr. Joseph Kehoe

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Definition of Application

This documentation outlines the functional specification and requirements for a 2D, 1v1 fighting game with online play functionality. The online play functionality will be a peer-to-peer basis with the implementation of a lobby system so players can play against each other. Players will also be able to access their demos/replays for playback.

Core Functionalities

- Online play with a lobby system to challenge others, with corresponding gameplay being driven by rollback netcode
- Offline play against CPU/Bots
- Allow players to access their demos/replays of matches they played
- Players can access options to adjust their video/audio settings

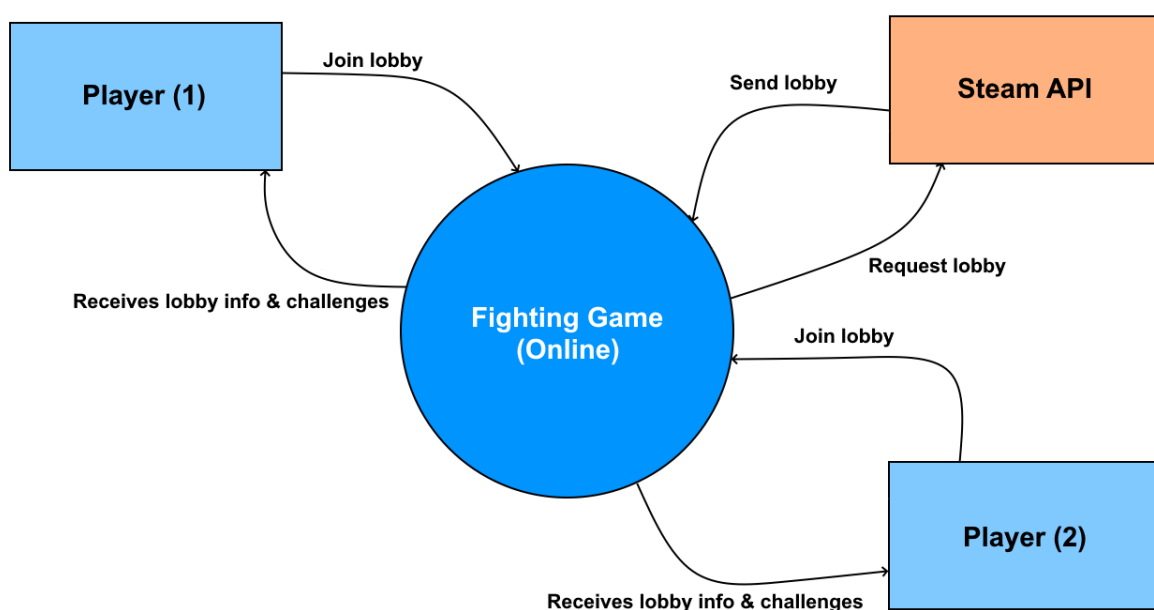
Non-Core Functionalities

- Support for various controllers

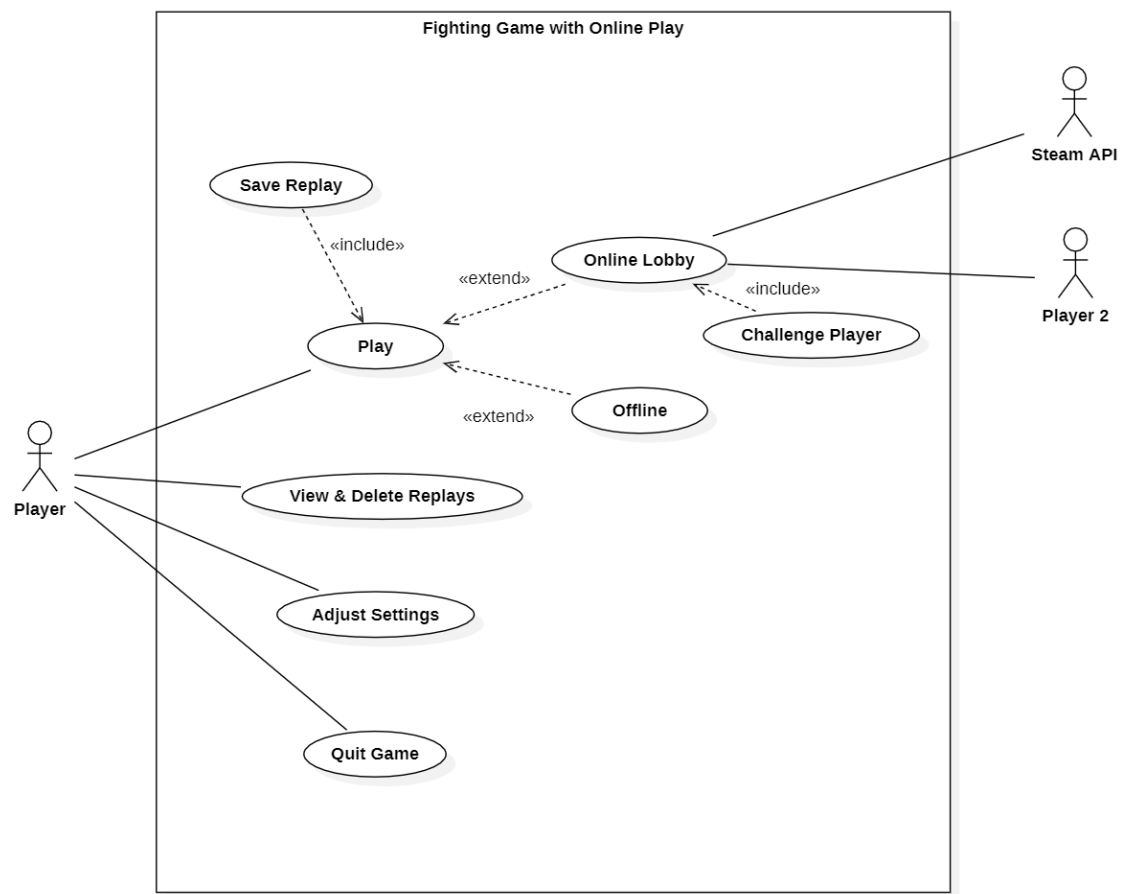
Technologies

- Godot Engine 4.3
- GDScript
- GodotSteam

Context Diagram



Use Case Diagram & Use Cases



Use Case	Play (Online Lobby)
Actors	Player, Steam API, Player 2
Description	This use cases describes how the player accesses the online lobby via the Steam API, displaying other players/actors to interact with.
Trigger	Player selects 'Online Play'
Normal Flow	<ol style="list-style-type: none"> 1. Player navigates menu to go to online play 2. Player's device sends handshake to lobby 3. Steam API verifies player 4. Player joins lobby, which displays other players within lobby
Alternate Flows	3a. Steam API is unavailable (possibly due to maintenance) <ol style="list-style-type: none"> 1. Display error message

Use Case	Challenge Player
Actors	Player, Steam API, Player 2
Description	This use case describes how a player challenges another player, to play each other.
Trigger	Player sends/receive a challenge to another player
Normal Flow	<ol style="list-style-type: none"> 1. Player selects another player (Player 2) to challenge 2. Player 2 receives the challenge request 3. Player 2 accepts the challenge request 4. Game state creates a P2P session between the two players 5. Both players play until they decide to return to main menu or otherwise drop connection
Alternate Flows	<p>3a. Player 2 denies the challenge request</p> <ol style="list-style-type: none"> 1. Player who issues challenge gets a message, notifying they've been denied.

Use Case	Play (Offline)
Actors	Player
Description	This use case describes how a player gets to play offline, being able to play against bots or another person via another controller.
Trigger	Player selects 'Offline Play'
Normal Flow	<ol style="list-style-type: none"> 1. Player navigates menu to access offline play 2. Player selects whether they're going against a bot or player 3. Game state is created

Use Case	Save Replay
Actors	Player
Description	This use case describes how a player saves the replay, getting to view them later.
Trigger	Player selects 'Save Replay' after completing a game
Normal Flow	<ol style="list-style-type: none"> 1. After completing a game, player gets the option to click save replay 2. Player saves replay locally.

Use Case	View & Delete Replays
Actors	Player
Description	This use case describes the player being able to view their own demos/replays of their gameplay
Trigger	Player selects 'Replays'
Normal Flow	<ol style="list-style-type: none"> 1. Player uses menu to view demos 2. Player manipulates a replay, either viewing it or deleting it 3. Game state is created when viewing a replay, replaying the exact inputs of that prev. game

Use Case	Adjust Settings
Actors	Player
Description	This use case describes the player being able to adjust their own settings (video, audio, controls).
Trigger	Player selects 'Settings'
Normal Flow	<ol style="list-style-type: none"> 1. Player uses menu to view settings 2. Player adjusts settings to their liking 3. Menu creates a timed confirmation to confirm the settings 4. Player confirms the settings
Alternate Flows	<ol style="list-style-type: none"> 4a. Player is unable to confirm the settings. <ol style="list-style-type: none"> 1. Confirmation times out, reverting to previous settings.

Use Case	Quit Game
Actors	Player
Description	This use case describes the player quitting the game
Trigger	Player selects 'Quit Game'
Normal Flow	<ol style="list-style-type: none"> 1. Player navigates menu to quit game 2. Game closes

Functional Requirements

Primary Focus

- Access to online play via a lobby system to challenge others
- Access to offline play to either play locally or against a CPU
- Allow players to access their demos/replays of matches they played

Secondary Focus

- Players can adjust their video, audio and misc. settings for the game

Non-functional Requirements

Usability

- Online play requires a Steam account to play, however creating an account shouldn't take more than two minutes.
- The game should support multiple input devices such as a gamepad i.e. Xbox controller, dualshock controller, etc

Reliability

- The game should provide a enjoyable experience, whether its online or offline. Any bugs existing related to the gameplay should not detract from it.
- The online lobby should always be accessible, except when there's scheduled maintenance from Steam (23:00 – 24:00 GMT)

Performance

- The game should launch in less than fifteen seconds, offering an experience to the player where they can jump in for one or two games seamlessly.
- The game should be able to run on most devices (Win10, Win11) due to the game engine being lightweight, devices are expected to run at 60 FPS.

Supportability

- The game must be maintained and updatable to fix any potential issues and add more features. However, players can play on whatever version of the game they like (but online play will be restricted to those who share the same game version)

Metrics

The success of this application will be determined by the following:

- Functional online play with the addition of rollback netcode
- Functional offline play with a capable enough CPU/Bot to play against
- The game providing a replay system