Technical Design Document – Outline

# Title Page

Escape from Castro

# Document History

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| --- | --- | --- | --- |
| Version | Date | Author(s) | Changes |
| 1.0 | 2024-03-07 | Manuel Suarez | Added content |
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# Game Summary

# "Escape to Freedom" is a thrilling adventure game where players assume the role of Fony Tontana, a 30-year-old Cuban refugee escaping Fidel Castro's dictatorship. In this quest, players navigate the perilous waters around Cuba, brave the challenging conditions of the Gulf of Mexico, and strategically reach the coastal waters of the U.S.A. on a boat. Evading wildlife, security forces, and harsh weather, players must survive and ultimately reach the coveted destination of Miami, Florida, for a chance at a better life.

# Development Environment

## Development Hardware

SFML, Visual Studio

## Programming Languages

C++

## Development Tools

Visual Studio

## External Code

SFML - [SFML (sfml-dev.org)](https://www.sfml-dev.org/)

## Game Engine

Describe the game engine to be used (or implemented), as well as modifications that need to be done to it.

# Architectural Analysis

## Classes

Describe the classes that will have to be implemented. For each class, provide:

* Its responsibilities
* How it collaborates with other classes

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| --- | --- | --- |
| Class | Responsibilities | Collaborations |
| sRender | Render entities |  |
| sUpdate | Update the scene | sRender, sEnemySpawner,sMovement |
| sEnemySpawner | Spawn enemies at a certain rate | spawnEnemy |
| sMovement | Move entities on map |  |

Present class diagrams that show the relationships between classes. Show only the most essential attributes and methods for each class.

## Behavioral Analysis

Statechart for Fony Tontana (Main Character):

* Start: Idle
* Transition: Move (A, S, W, D keys pressed) -> Walking
* Transition: Special (Q key pressed, with floating bags) -> "The Limit" mode
* Transition: Special (Q key pressed, without floating bags) -> Idle
* Transition: Collide with enemy -> Die
* Transition: Reach Miami, Florida (end of level) -> Win

Sequence Diagram for Combat:

* Player attacks by pressing SPACE key
* Game checks for nearby enemies
* If enemy within range, damage is dealt to enemy
* If no enemy, no action is taken

## Game Loop

1. Start the game.
2. Display the main menu.
3. Wait for player input.
4. If player selects "Start Game," proceed to the game loop.
5. Game Loop:
   * Update player input.
   * Update game state based on player input.
   * Update NPC behaviors.
   * Check for collisions.
   * Render the game world.
   * Repeat until game over or level complete.
6. End of Game:
   * Display game over screen or victory screen.
   * Allow player to restart the game or quit.

# Technical Risks

List all technical risks that could make it difficult or impossible to complete the game. Examples:

* Uncertainty on how to implement a certain feature
* Uncertainty on if a certain feature can be executed fast enough in real time
* First time using a certain library

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| Risk | Severity | Mitigation (what is to be done to eliminate or minimize this risk) |
| Death menu | High | No solution found yet |
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