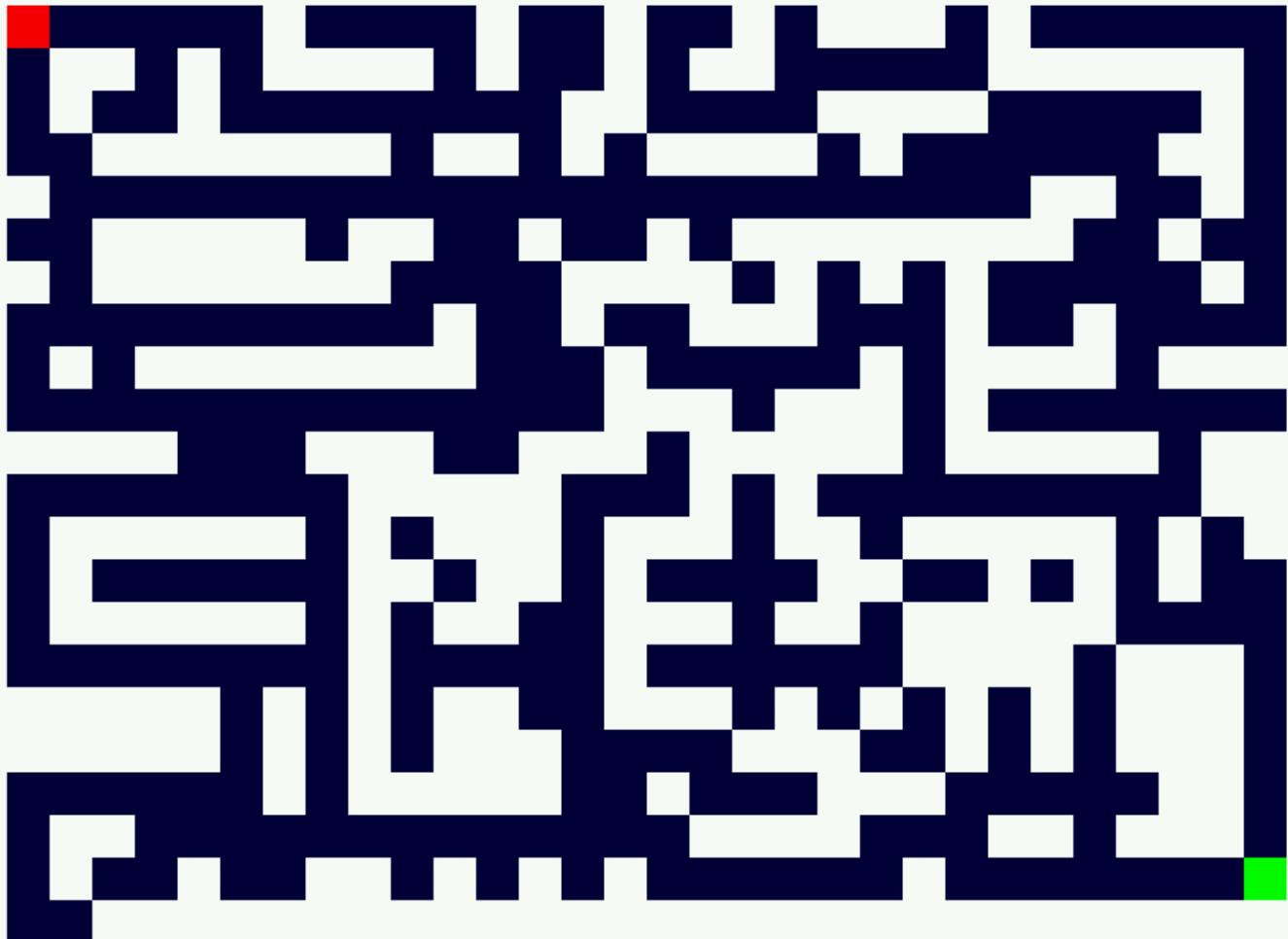


Game Project Overview

Maze Mania

Designing intricate maze patterns that progressively increase in difficulty, inviting players to engage their cognitive abilities as they navigate through the maze, unlocking its secrets to advance to the next level.



Project Details

Background

The provided code appears to be part of a game development project implemented in C language. It involves a simple text-based game where players navigate through a series of rooms, encountering obstacles and making decisions. The game is designed to be displayed on a VGA display, and an FPGA DE1-SoC board is used for testing purposes.

Goals

The game's primary goal is to provide players with an engaging and interactive experience. It aims to entertain and challenge them by presenting various scenarios and choices within the game world.

Objective and Scope

- Create a navigable game environment with interconnected rooms.
- Implement player movement mechanics between rooms.
- Introduce obstacles and challenges for players to overcome.
- Offer decision points where players must choose a course of action.
- Provide feedback to players based on their choices and progress.

Deliverables

1. A functional game environment with multiple rooms.
2. Smooth player movement between rooms.
3. Obstacles and challenges integrated into the game world.
4. Decision points with branching narratives.
5. Clear feedback mechanisms to inform players of their progress.

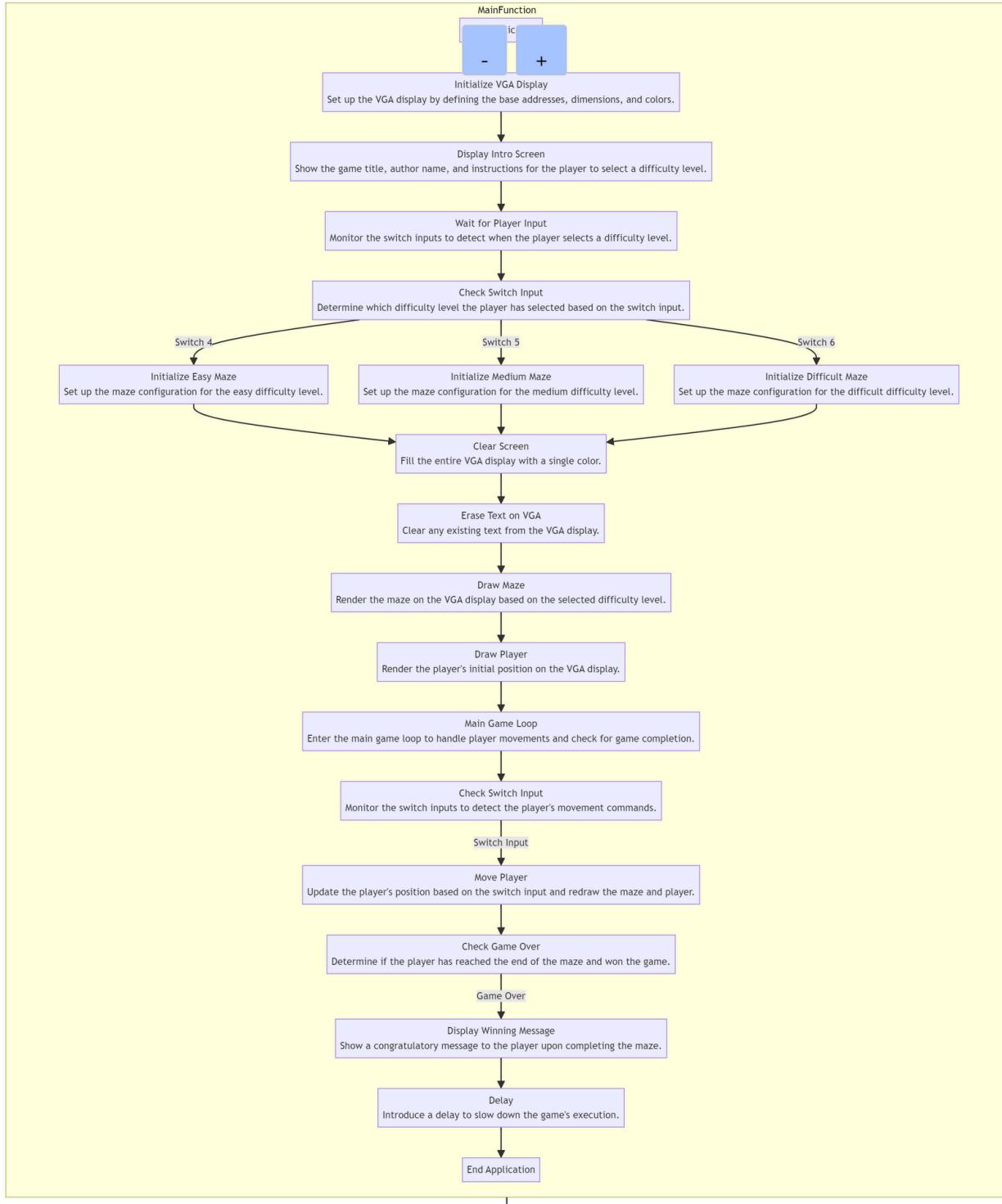
Working Procedure of the Game

- The game utilizes switches on the DE1-SoC board to control player movements and select difficulty levels.
- The first four switches (0 to 3) are assigned for directional movements within the maze: switch 0 for left, switch 1 for right, switch 2 for up, and switch 3 for down.
- Additional switches (4, 5, 6) are designated for selecting the game difficulty: switch 4 for easy, switch 5 for medium, and switch 6 for difficult.
- Upon successfully navigating through each level, a message is displayed indicating completion.
- The player is instructed to press specific switches to progress to the next level.
- Upon conquering all levels, a winning message is displayed, signifying the successful completion of the entire maze.

Potential Obstacles

- Discrepancies in the speed of the player's movement block compared to the speed of switch pressing created an inconsistency in the gameplay experience, potentially leading to frustration or disorientation for players.
- Creating an array pattern to generate the maze was laborious and demanding, presenting a significant obstacle in the development process.
- Despite attempts, incorporating background images and music into the game was unsuccessful, indicating challenges in implementing these features within the existing code structure.

Flow Chart



Write Pixel

Draw a pixel on the VGA display at the specified coordinates with the given color.

Draw Square

Render a square on the VGA display at the specified coordinates with the given color.

Write Char

Display a character on the VGA display at the specified coordinates with the given color.

Helper Functions



Conclusion

The game development project outlined in the provided code promises to deliver players an immersive and entertaining experience. However, it also presents several challenges that must be carefully navigated to achieve its objectives effectively. With proper planning, testing, and iteration, the game has the potential to meet the expectations of the project requirements. Overall, it was a great experience to build such an innovative project that requires many layers of understanding and visualization.

CS210 Computer Architecture Project

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