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BREAKOUT

Abstract

The breakout game is a classic arcade game that challenges players to break bricks using a paddle and a ball. In this project, we aim to design and implement a breakout game within the Nand2Tetris platform, which involves building the necessary hardware components and writing assembly code to create an interactive gaming experience.

We conducted a survey of existing breakout game implementations to understand the mechanics, features, and design considerations involved. This allowed us to gather insights into different approaches and best practices for creating an engaging breakout game.

Building upon the knowledge gained from the survey, we are implementing a breakout game within the Nand2Tetris platform. This involves designing and constructing the hardware components, including input/output, display, and sound. Furthermore, we are developing assembly code to handle game logic, such as paddle movement, ball physics, collision detection, brick destruction, and scoring.

Our methodology consists of utilizing the Nand2Tetris platform's provided tools and resources to design and implement the required hardware components using Hardware Description Language (HDL). Additionally, we are writing assembly code to control the game's behavior, leveraging the platform's architecture and instruction set. Testing and debugging are conducted to ensure proper functionality and compatibility.

Our project includes the creation of hardware components and the development of assembly code to enable gameplay mechanics and interaction. This serves as a demonstration of leveraging the Nand2Tetris platform's capabilities to design and implement a classic arcade game, showcasing the integration of hardware design and assembly programming to deliver an enjoyable gaming experience.