

Proposal: Rhythm Game Emulator

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1. Introduction

Our proposed project is a 2D rhythm arcade game that requires a VGA display and speaker to provide an immersive gaming experience. Players will use a keyboard or controller to interact with the game, following the rhythm of the music to hit notes or turn the nod as they reach the baseline. The more players hit the notes or turn the nod accurately, the higher their score will be. We aim to create an engaging and challenging game that will appeal to fans of rhythm and arcade games alike.

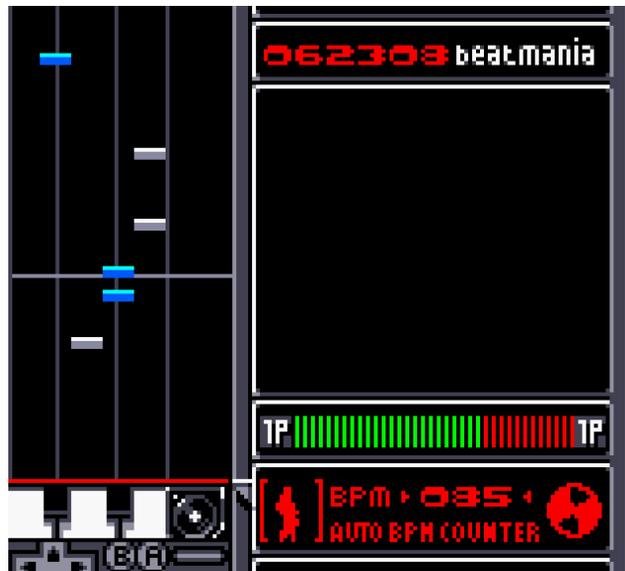


Figure 1. Similar Rhythm Game Emulator Screenshot

2. Methodology

- a. Hardware
 - i. DE1-SoC Board
 - ii. Controller (First deploying the keyboard, but might change to the self-design controller)
 - iii. Speaker
 - iv. VGA Monitor
- b. Software
 - i. Image generator
 - ii. Timeline Control
 - iii. Game score recording
 - iv. Game logic deployment

3. Milestones

- a. Construct the functional game machine and config its driver
- b. Testing the hardware driver on FPGA
- c. Once the hardware has successfully set up, implement the basic game logic software
- d. Test and refine. Improving the user experience, perfecting UI, and maybe add more features to enhance playability(if time permit)