

Guitar Hero: Nursery Rhyme Edition

6.111 Final Project

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Overview

- Implementation of Guitar Hero using Keyboard as Guitar
- Frets => keys 1-8
- Strum => shift key
- ROM will store nursery rhyme songs. Each address will hold a different note.
- Players must hit the correct notes displayed in the “Matching Zone” at the right time for song to play.

Major Modules

- Memory
- Display
- Game Logic
- Audio

Memory

- ROM

- Generated with Xilinx tools with note codes of each song

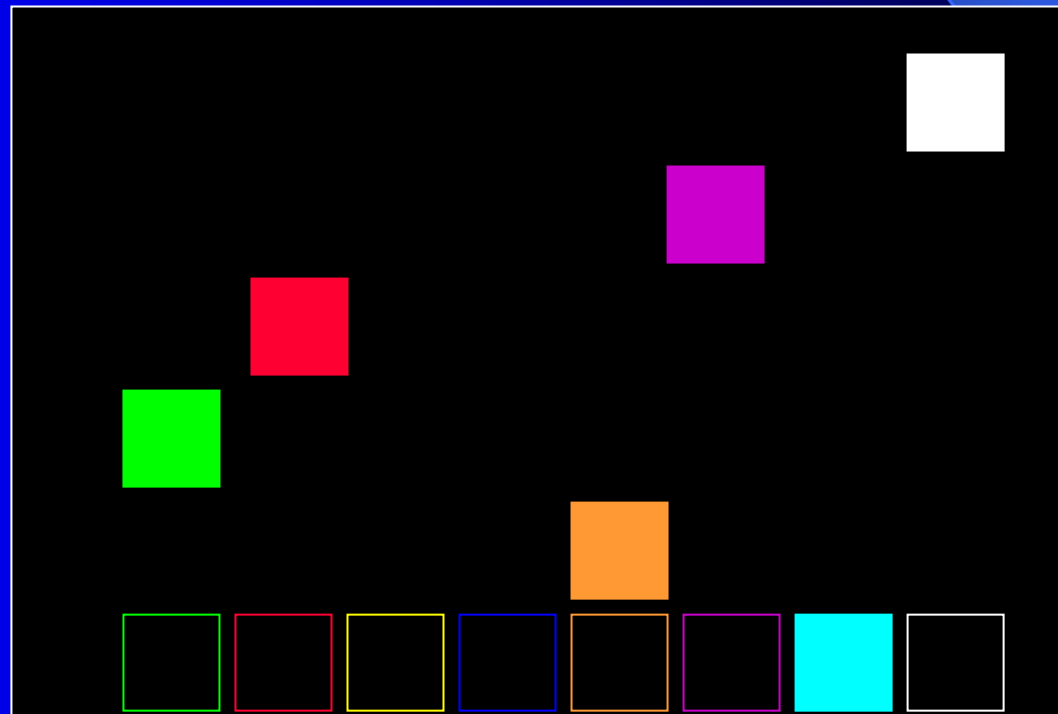
- Song Selection

- Keeps track of start and end locations of each song in the ROM



Display

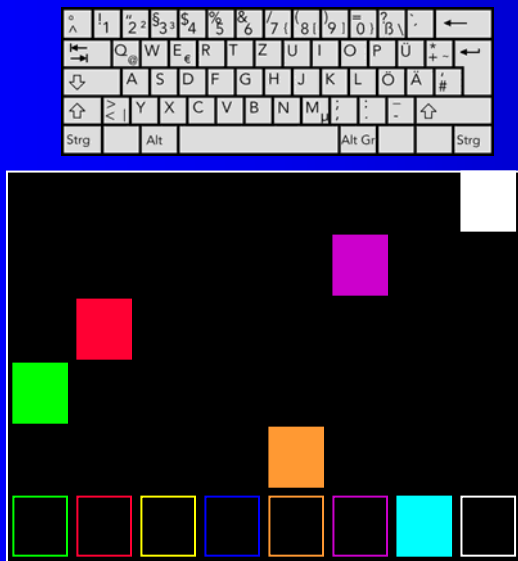
- Receives notes from ROM
- Scrolls down 6 notes at a time
- Bottom area is designated for user to match notes to be played with note displayed
- Implementation: registers remember last 6 notes



“Matching Zone” {

Game Logic

- Determines whether user plays appropriate note correctly
- Sends either correct note code, buzzer note code, or off code to Audio
- Implementation: Only receives relevant expected note to compare with user input
- Challenge: Detection window - note is playable when it crosses top of matching zone y axis

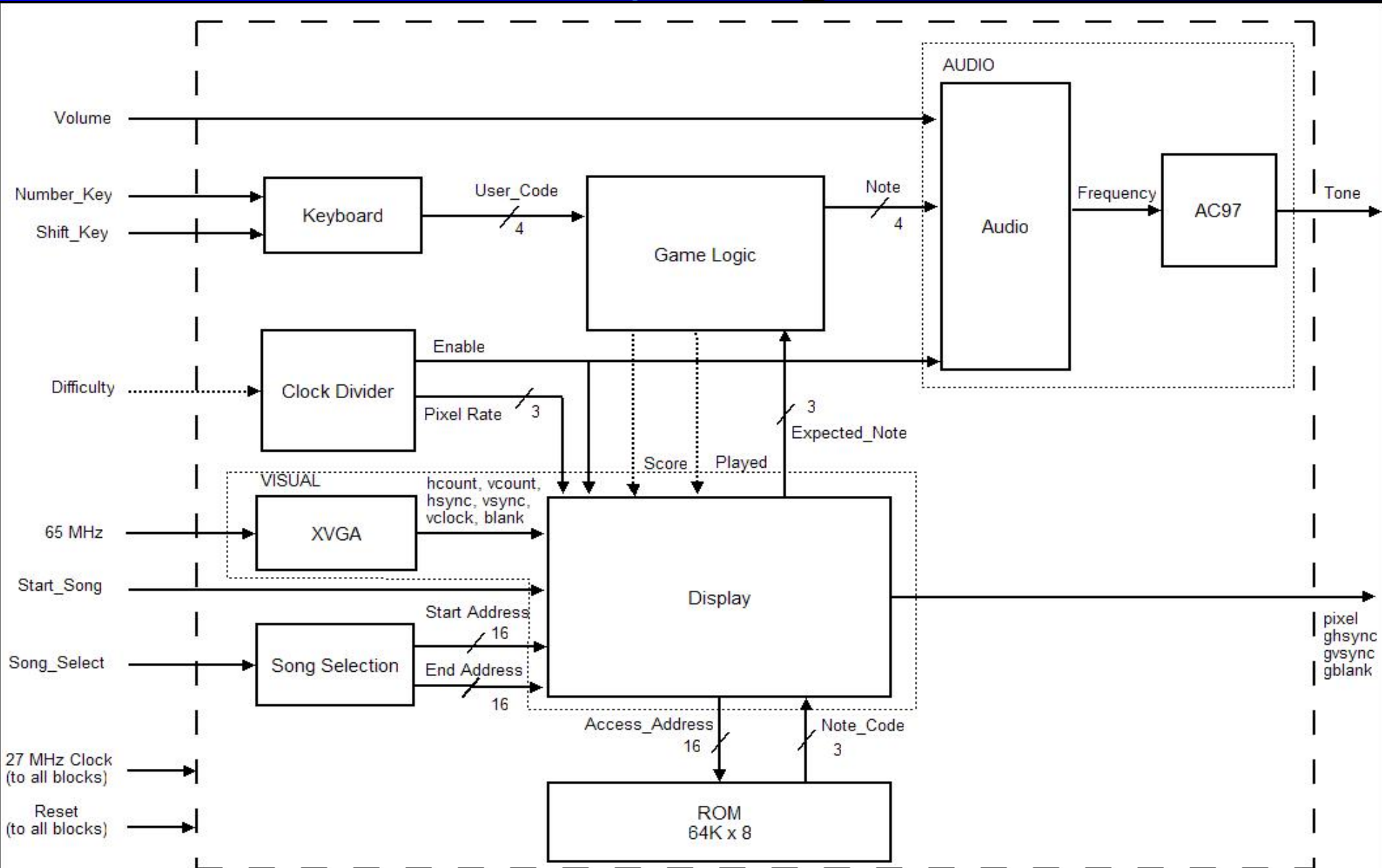


Audio

- Receives note code from game logic
- Uses lookup table to output correct note frequency to AC97
- Output is hooked up to speakers
- Challenge: Synchronizing output and note on screen



Block Diagram



Schedule

- November 16th
 - Generate ROM with all songs
 - Game Logic outputs correct note code
- November 23rd
 - Audio/AC97 outputs correct frequencies based on lookup table
 - Interface Keyboard
 - Display contains scrolling notes
- November 26th – 30th
 - individual modules tested and debugged
- December 3rd – 9th
 - integrated system tested and debugged

Questions?

