CSEE4840 Project Presentation

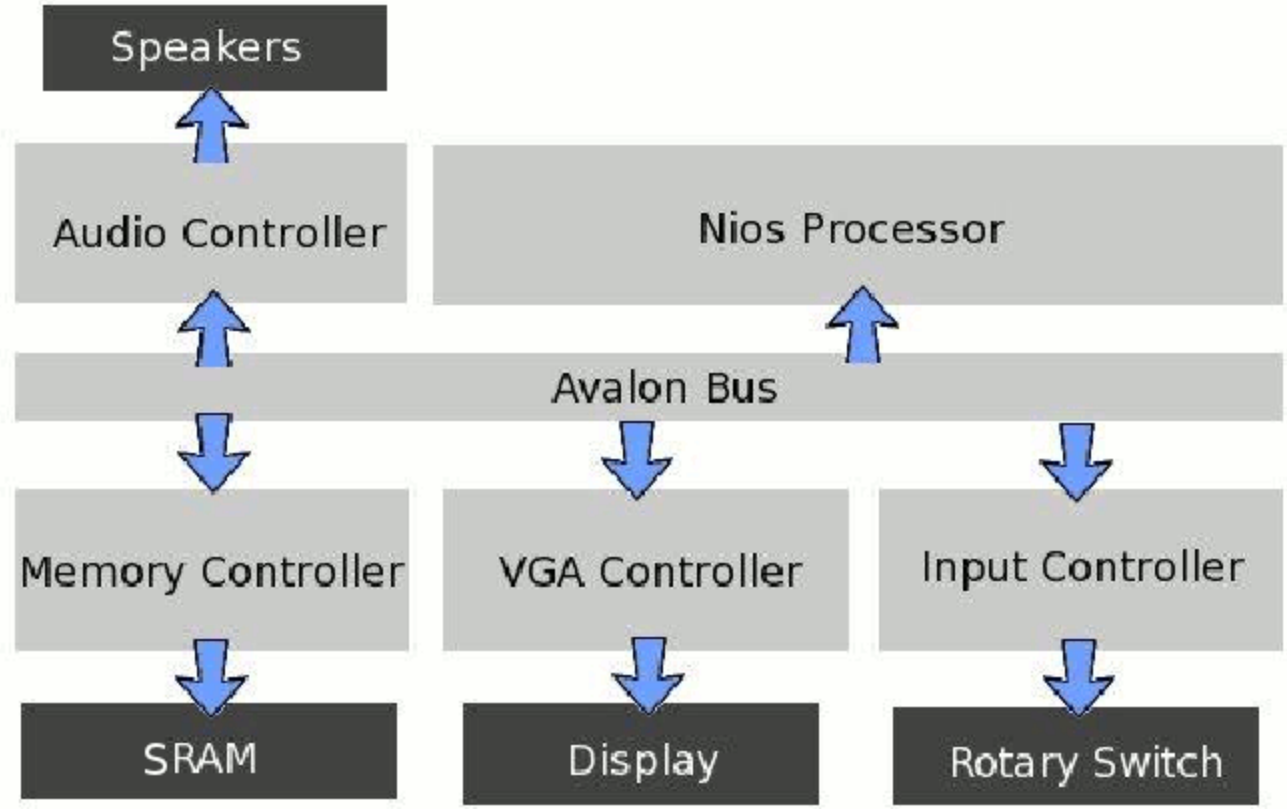
Watch Out!

Zachary Salzbank
Shangru Li

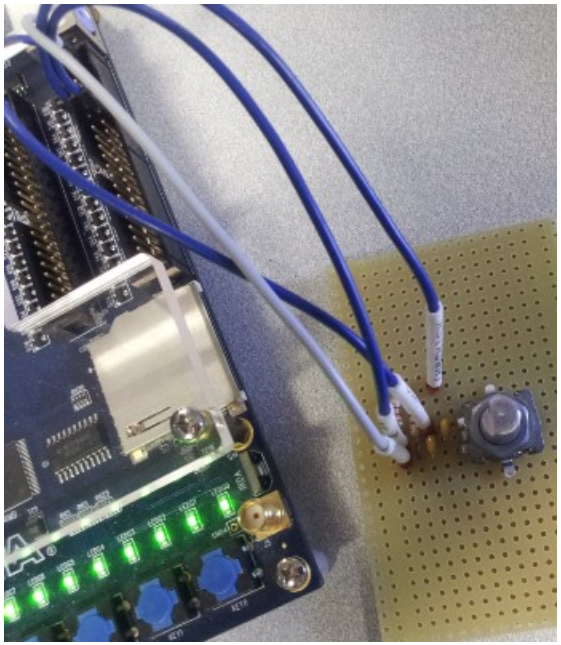
Gameplay

- Player moves from platform to platform with rotary switch as controller
- Landing on platforms increases the score
- Different platforms create different challenges
- Difficulty increases as score increases
- Object of the game is to get the highest score

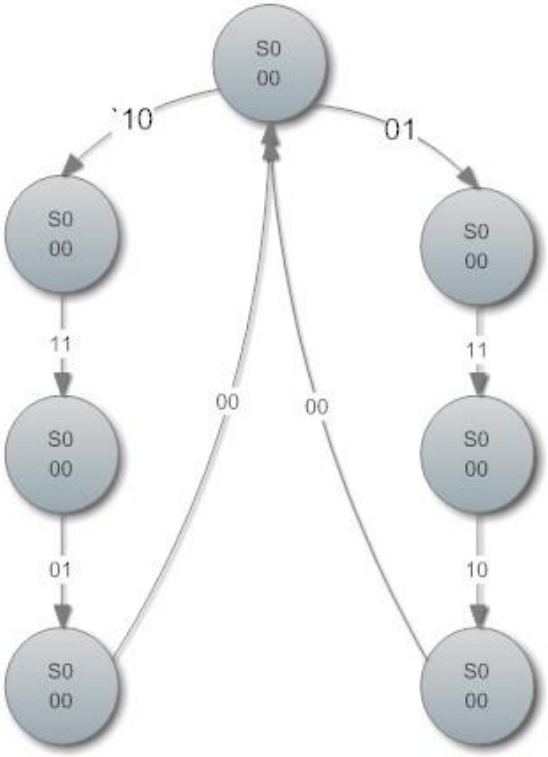
General Architecture



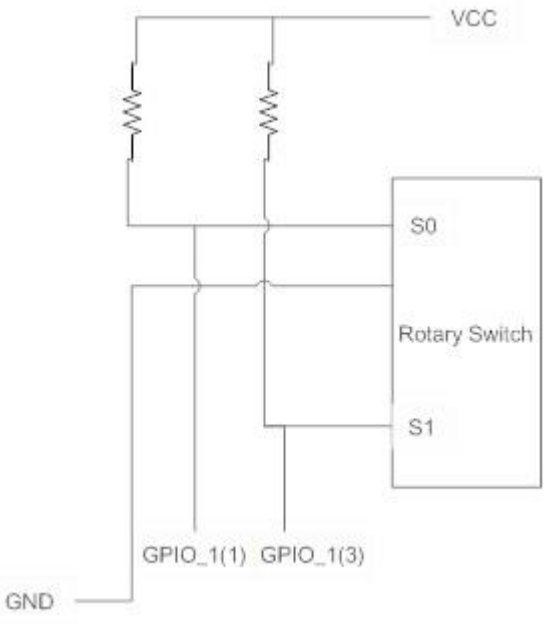
Rotary Controller



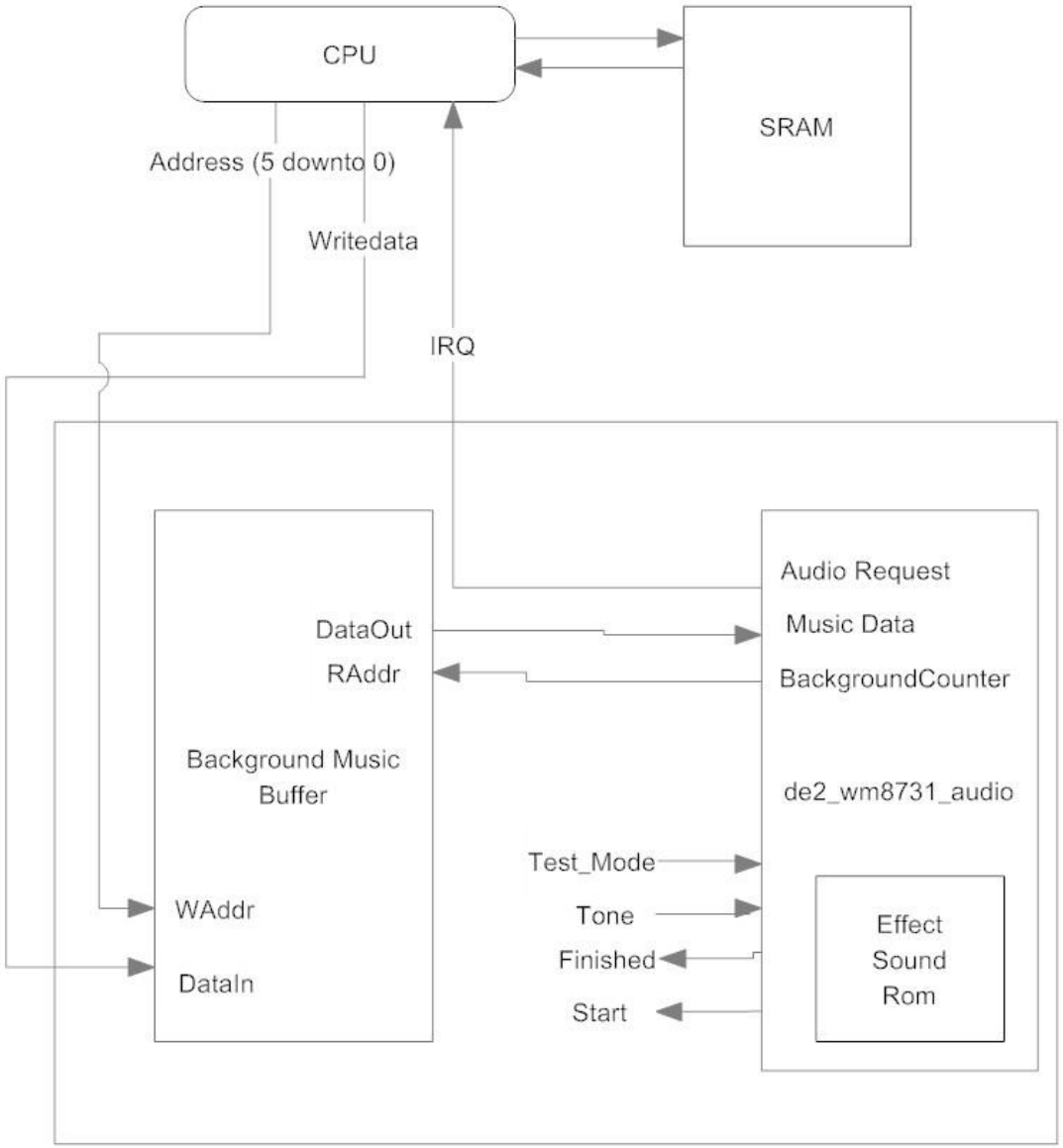
FSM State Diagram



Circuit Diagram



Audio

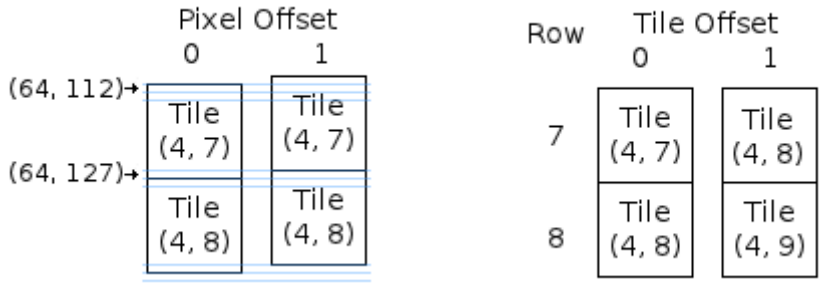

CPU
SRAM
Address (5 downto 0)
Writedata
IRQ
Audio Request
Music Data
BackgroundCounter
DataOut
RAddr
Background Music
Buffer
de2_wm8731_audio
Test_Mode
Tone
Finished
Start
WAddr
DataIn
Effect
Sound
Rom

Audio

- Configuration
  - 6000 Hz for background music
  - 3000 Hz for effect sound
- Software
  - Interrupt CPU to ask for next 32 background music data

Video

- Tile Based Architecture
  - 30 rows x 40 columns of 16x16 pixel tiles
  - Tiles scroll at varying speeds



- Player is a sprite that can be placed anywhere

Game Control

- Main Loop
  - Platform Generation
  - Player Position Updates
  - Score and Health Updates
- Screen Refresh
  - Draw Score and Health
  - Draw Player
  - Draw New Platforms
- Audio Refresh
  - Feed new data to buffer from SRAM

Contribution

- Zach
  - Video
  - Software
- Shangru
  - Audio
  - Rotary Controller

Conclusion

- Well-designed Tiled-base Architecture
- Reasonable SW-HW workload allocation
- Interesting Game
- Had Fun and Cooperated Nicely

Demo

Have Fun!