CYREN

MUSIC EFFECTS DEVICE

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Faculty Advisor & Client: Dr. Chen & Dr. Geigar

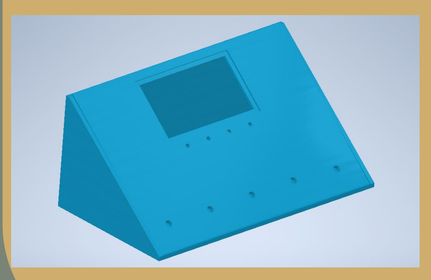
Motivation:

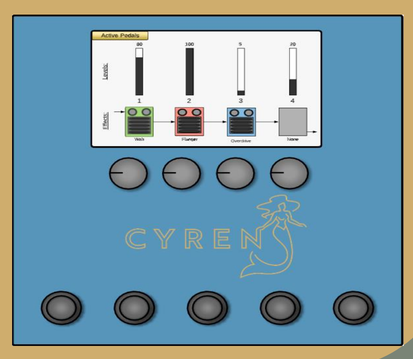
Problem:

- Current guitar pedal designs are limited to one effect
- Guitarists require many pedals to receive desired sounds
- Specific ordering of pedals

Solution:

- Cyren allows for multiple effects in one device
- Enables the user to reorder the effects





Design Requirements:

Functional:

- Programmable Effect Pedals
- Effect Chaining
- GUI

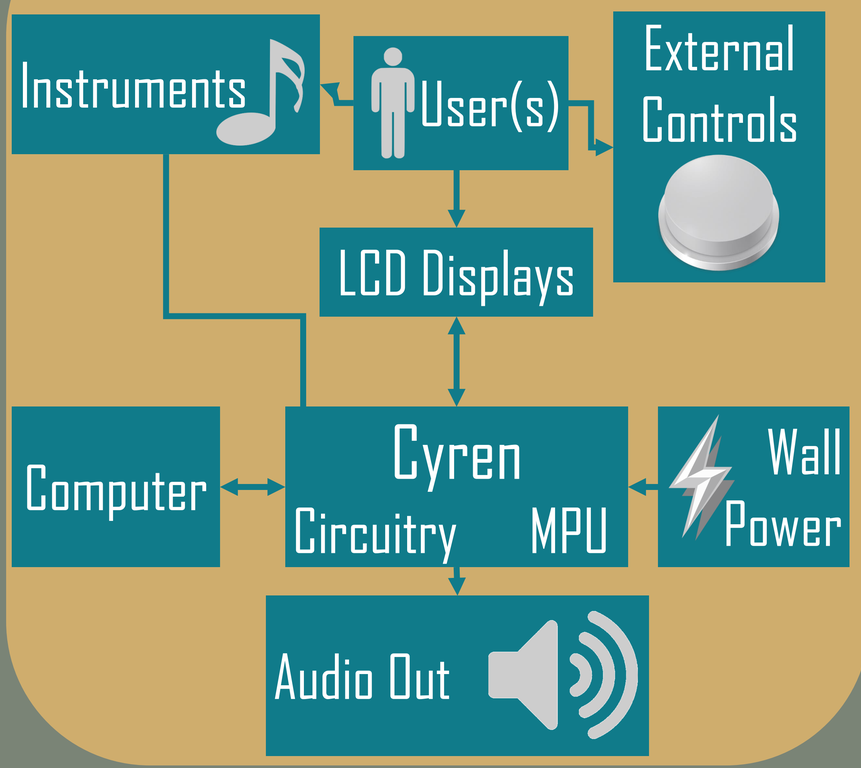
Non-Functional:

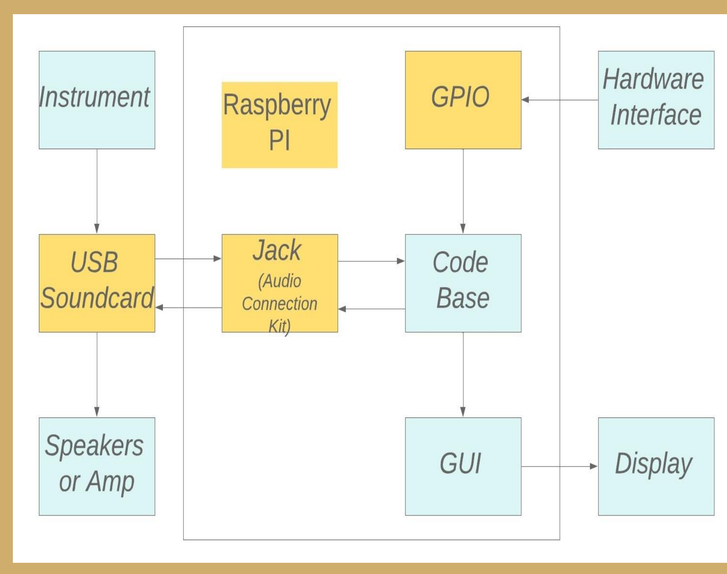
- Usability
- Durability
- Performance
- Scalability

Operating Environment:

- Guitar
- Floor Mounted
- Standard Wallplug
- External Speakers

Design Approach:





Technical Details:

Hardware:

- Raspberry Pi 3B+
- Rotary Encoders
- Stomp Switches
- LCD Screen

Software:

- C Programming Language
- LittleVGL
- Linux
- JACK

Testing:

Environment:

- Visual Studio (Waveform)
- Detached LCD Screen
- Audio Interface

Strategy:

- Troubleshoot isolated modules
- Pinpoint areas of failure