Homework 2: Design Project Proposal

Team Code Name: The White Ninjas   **Group No: 2**

Team Members (#1 is Team Leader):

#1: David Estes   **Areas of Expertise:** Team Lead, Software Lead, Audio Guru

#2: Adam Johnson   **Areas of Expertise:** Hardware Lead, Software Support

#3: Susanne Schmidt   **Areas of Expertise:** Documentation Lead, Hardware Support

#4: Levi Cowsert   **Areas of Expertise:** Packaging Lead, Hardware Support, Audio Guru #2

Project Abstract:

The "Drink Mixer" will be a digital audio mixer capable of digitally mixing 6-8 channels. The digital systems will provide capabilities such as individual channel equalizers as well as master effects processing for main output.

Design/Functionality Overview:

Motivated by a desire to simplify audio mixing equipment, we will create a digital audio mixer as our senior design project. Our design will eliminate extra components and reduce the complexity compared to existing analog designs. This project will be able to mix 6-8 channels of audio to produce monitor as well as stereo output. The board's features will include individual channel equalizers as well as a main effects channel that will be processed for the main output. The board will also be able to display a visual representation of the output on the board. The approximate development cost of the project prototype is $1000.00.
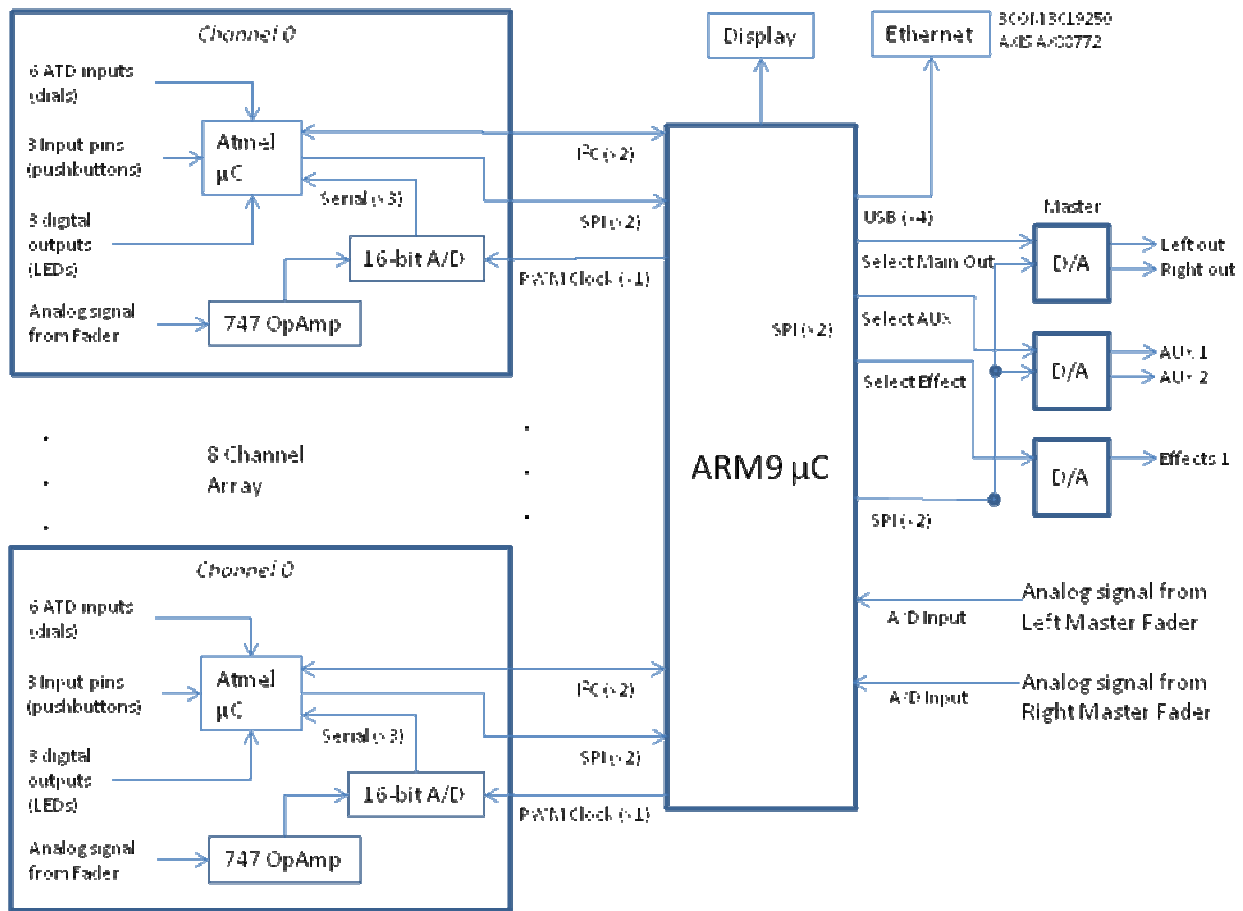
In this project, David will contribute by providing a top down view of the project and experience in audio processing. Adam will provide contributions in schematic and PCB design as well as programming. Susanne will provide programming support as well as debugging. Levi will contribute to hardware design as well as lead the product packaging.

Project-Specific Success Criteria:

1. An ability to digitally mix audio and adjust levels

2. An ability to adjust equalizer settings for the output channel

3. An ability to add an effect to a channel

4. An ability to save and load settings (from flash or EEPROM)

5. An ability to display spectrum of a channel (or output)

Block Diagram:

The Drink Mixer – Block Diagram 0.1

Division of Labor:

Design Component Homework		Professional Component Homework	
4-Packaging Design and Specs	Levi	3-Design Constraint Analysis/Parts List	Davey
5-Hardware Narrative and Prelim Schematic	Davey	10-Patent Liability Analysis	Adam
6-PCB Narrative and Prelim Layout	Adam	11-Reliability and Safety Analysis	Levi
9-Software Design Narrative	Susanne	12-Social/Political/Environmental Analysis	Susanne