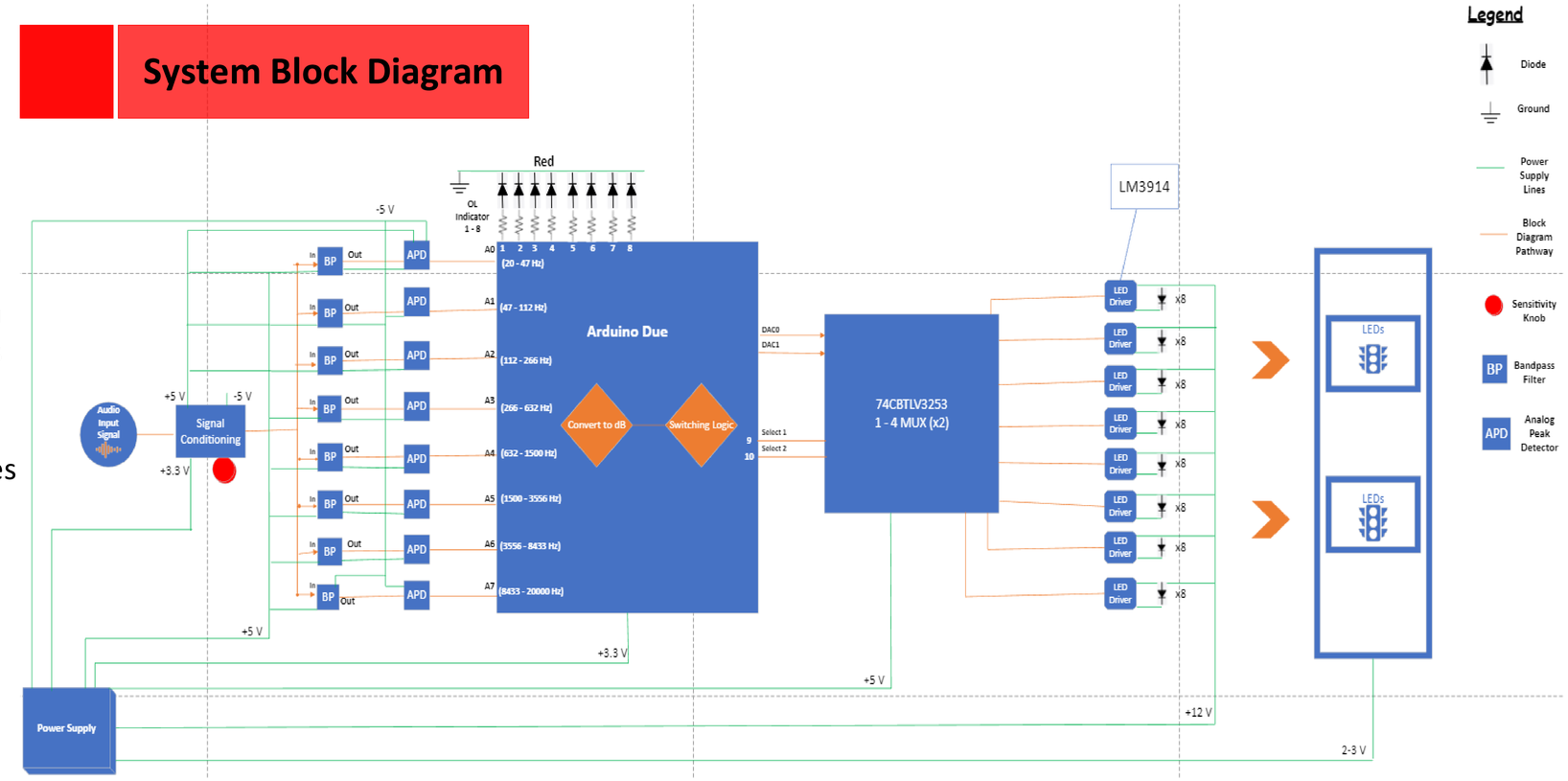
The VU-inators: Audio VU Meter

San Diego State University

Project Overview

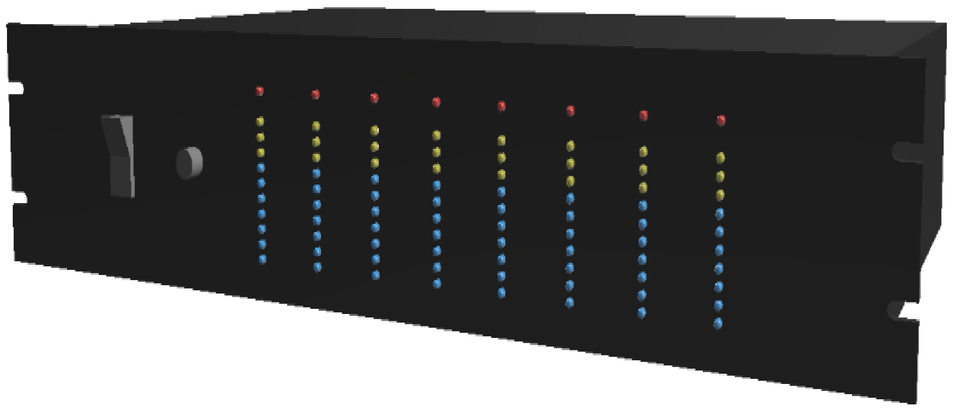
The VU meter is designed to aid in refining audio production or for users that wish to see a visual representation of audio volume. It can connect to any audio device, using a ¼” jack, and display the peaks of that audio across a frequency spectrum limited to the range of human hearing (from 20 Hz to 20 kHz) via 8 columns of LEDs powered by LED driver IC components. It uses the Arduino Due to gather audio information from the ADC, trigger signal decays on the device’s analog peak detector, and output the results through the DAC into a MUX whose select lines come from the Due. Our system is meant to be used hands-free, so our team had to take into consideration using a short attack (rising time) and long decay (falling time) to allow the user time to observe the peak value in each respective frequency range.

System Block Diagram



Major Components

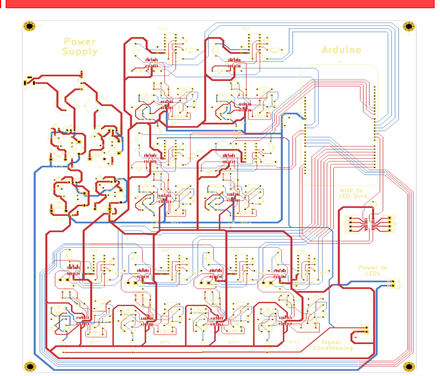
Arduino Due	$48.40	
Rack Mount Enclosure	$71.00	
LED/LED Drivers	$25.00	



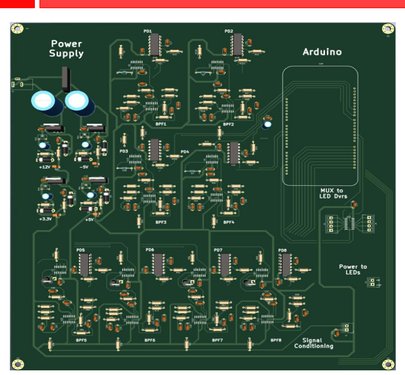
VU Meter

The team integrated a design choice to include red, yellow, and blue LEDs as a part of our LED display. This choice was made with the intent to adhere to individuals with colorblindness, as the red-yellow-blue color scheme is easier for them to indicate low, medium, and high/overload decibel levels respectively.

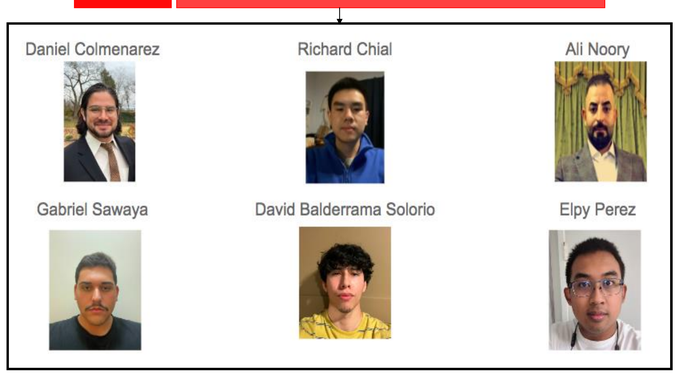
PCB Schematic



PCB Circuit Design



The Engineering Team



Project Advisors

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