

Team Aztec Audio

Smart Sound System (SSS-555)

Mubarak Aljidei | Maximilian Guinto | Lana Pantskalashvilli | Alexis Llamas | Nazreth Negash

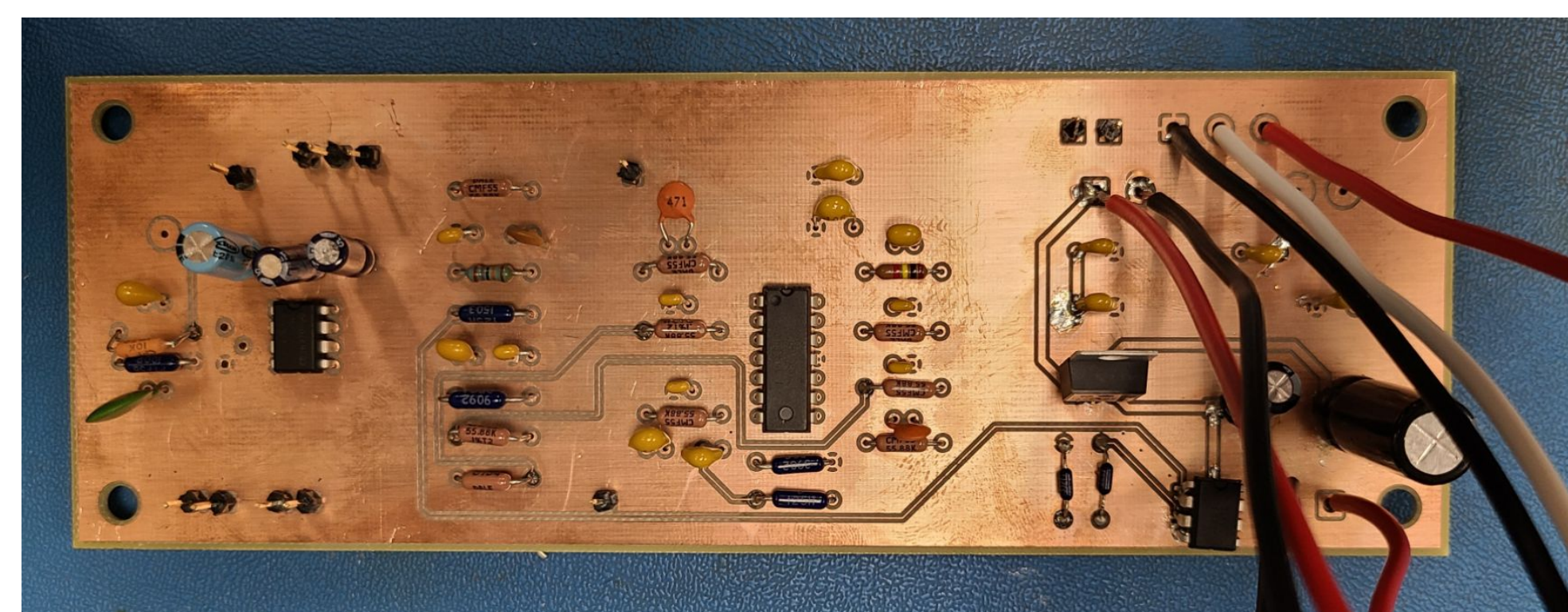
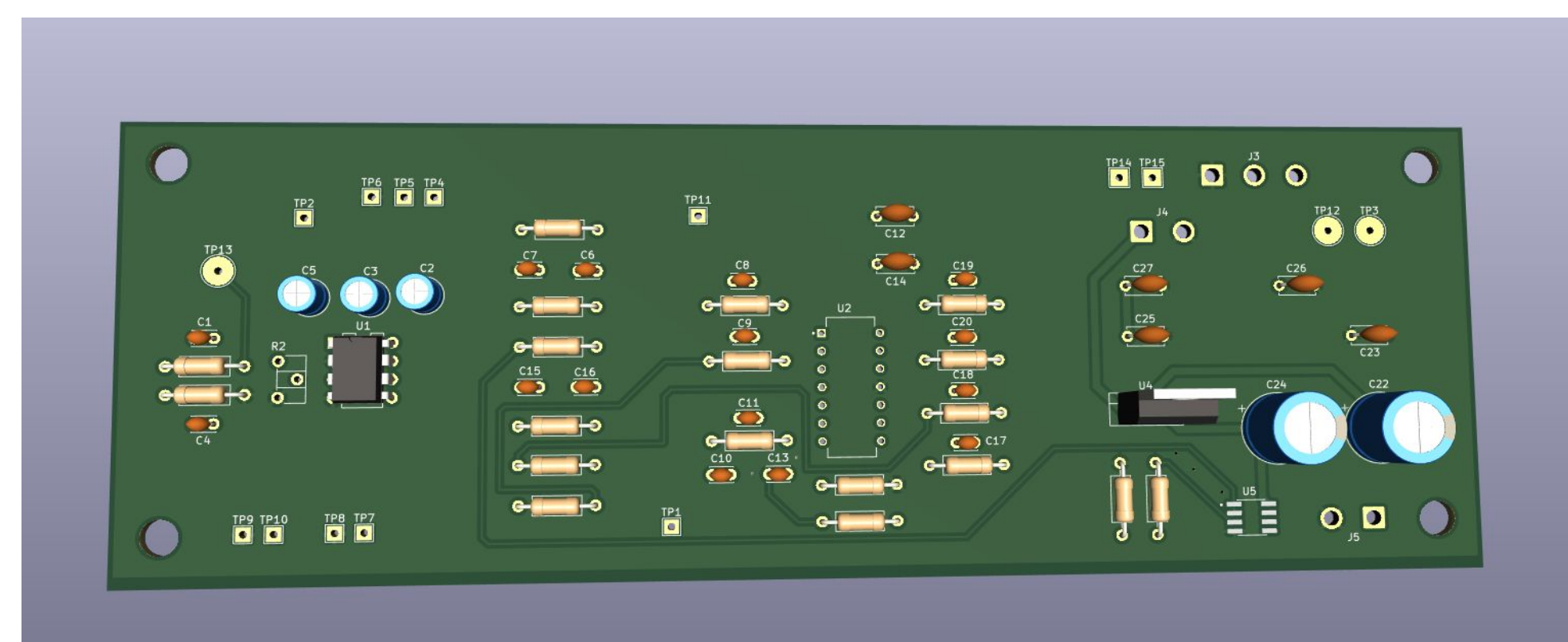
Background

Sound systems abound in the market, just as loud noise does. It is annoying to have a loud outside source of sound interfere with the pleasant sound of your sound system. The SSS-555 takes care of this, allowing the user to enjoy clear sound from any media device even when there is loud ambient noise surrounding the system.

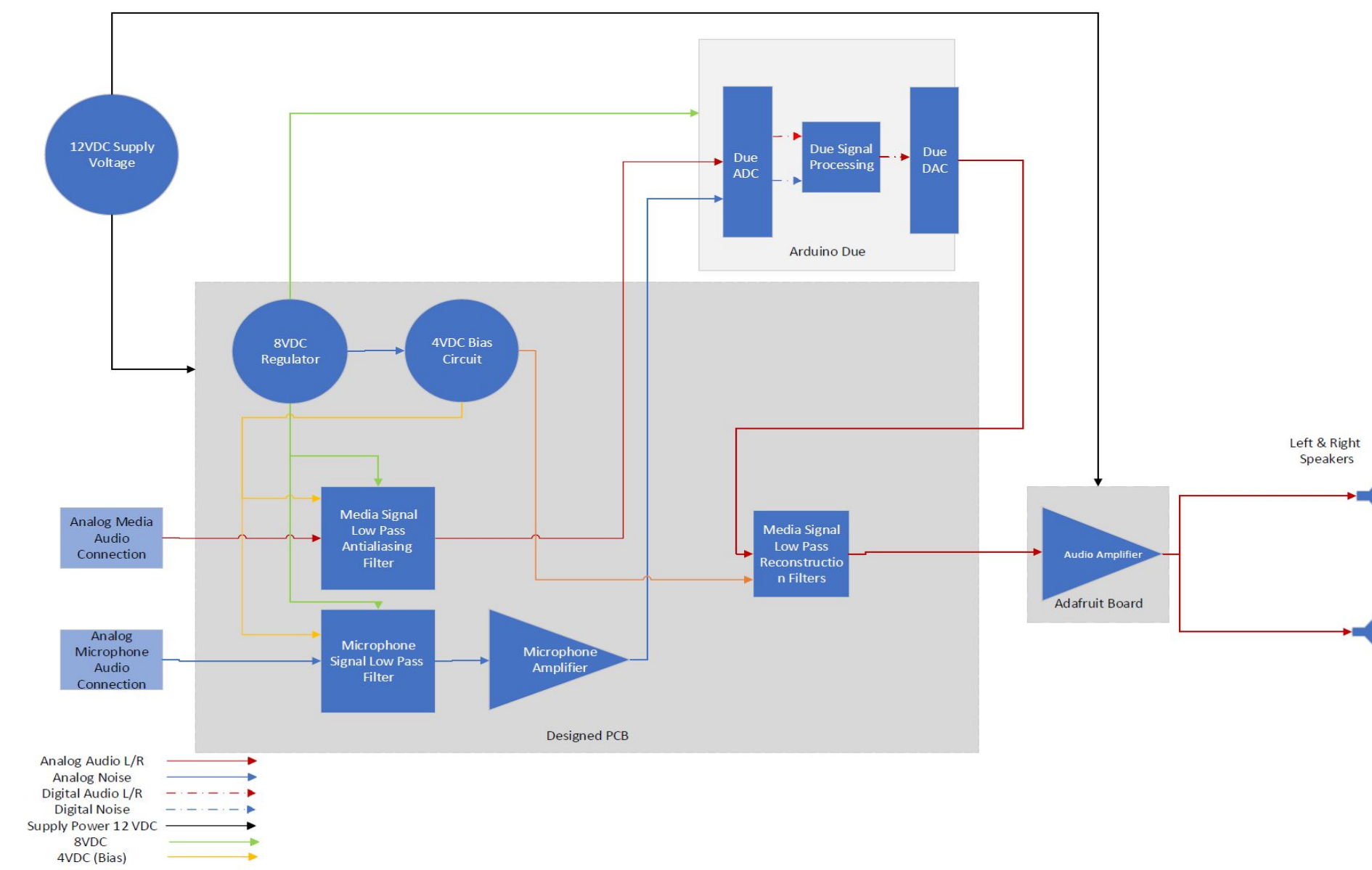
Abstract

The Smart Sound System utilizes an external microphone to detect ambient noise levels and compare it to the level being output by the 4-Ohm 20 W speakers in real time so as to overcome outside noise levels. To achieve this, the brain of the system, the Arduino Due, is in charge of performing ADC/DAC and comparing signals in real time. The Arduino Due also acts as an additional voltage regulator among external voltage regulators to supply stable voltage to filters and audio amplifiers. A series of butterworth filters were integrated into the inputs and outputs of the Arduino Due to eliminate any noise injected by the Due and set the cutoff frequency to 11 kHz.

Designed and Assembled PCB of power and filtering circuits



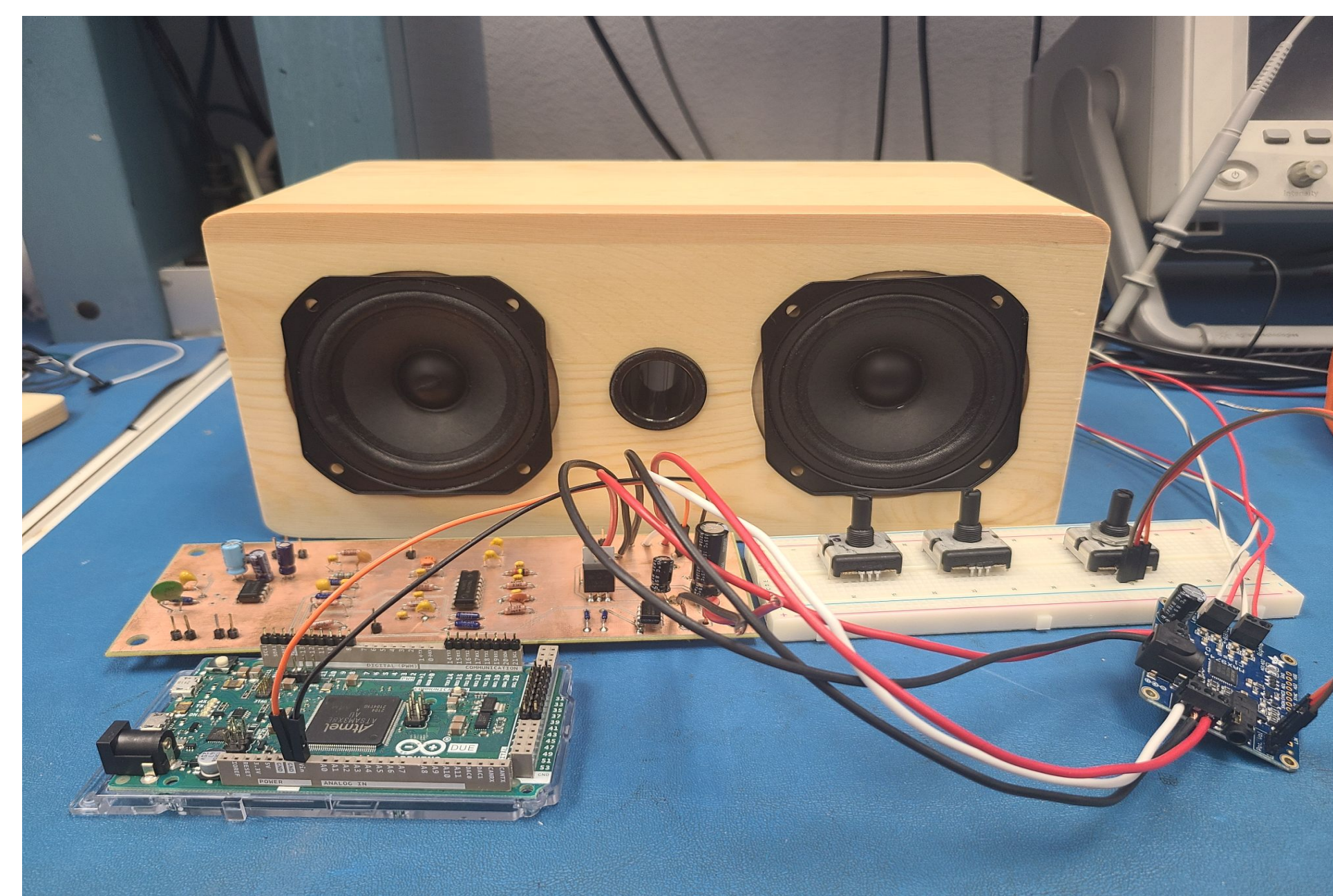
Block Diagram



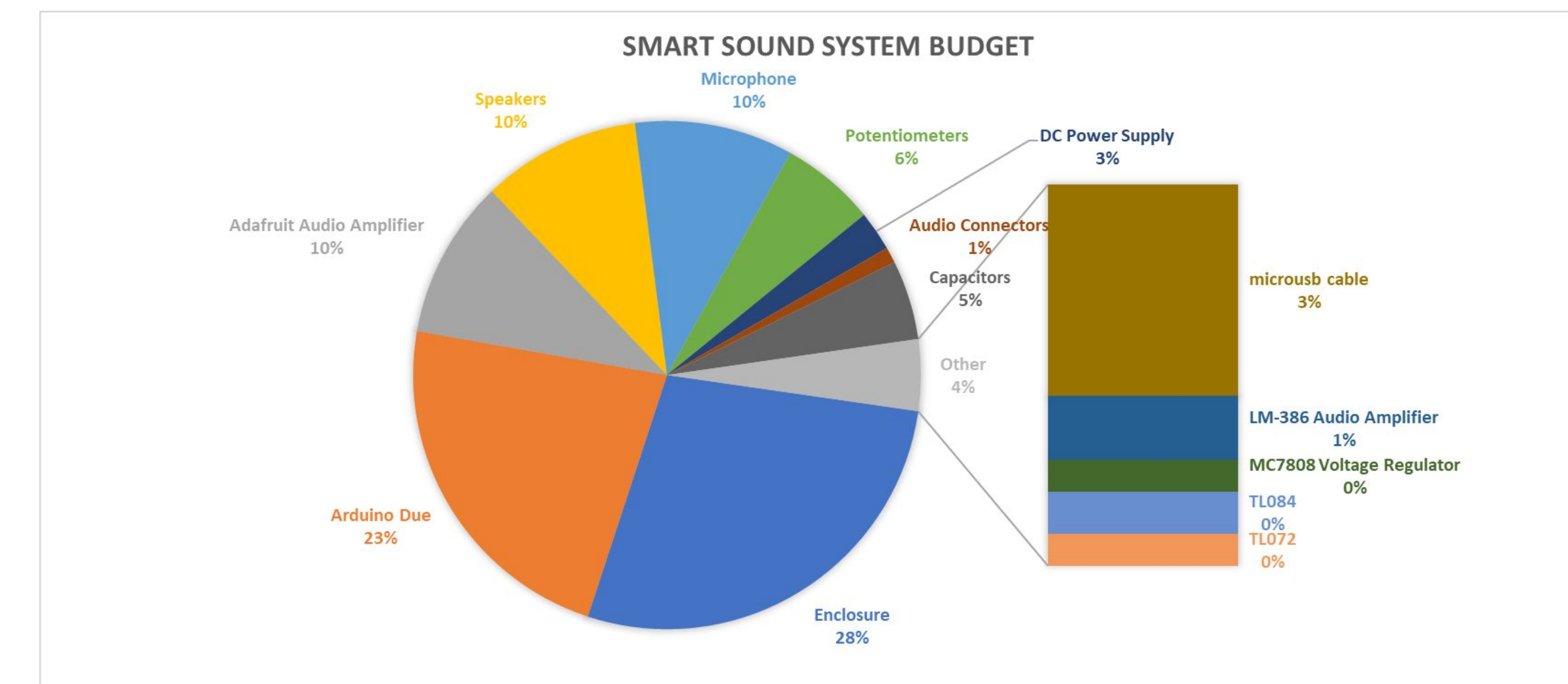
SSS-555



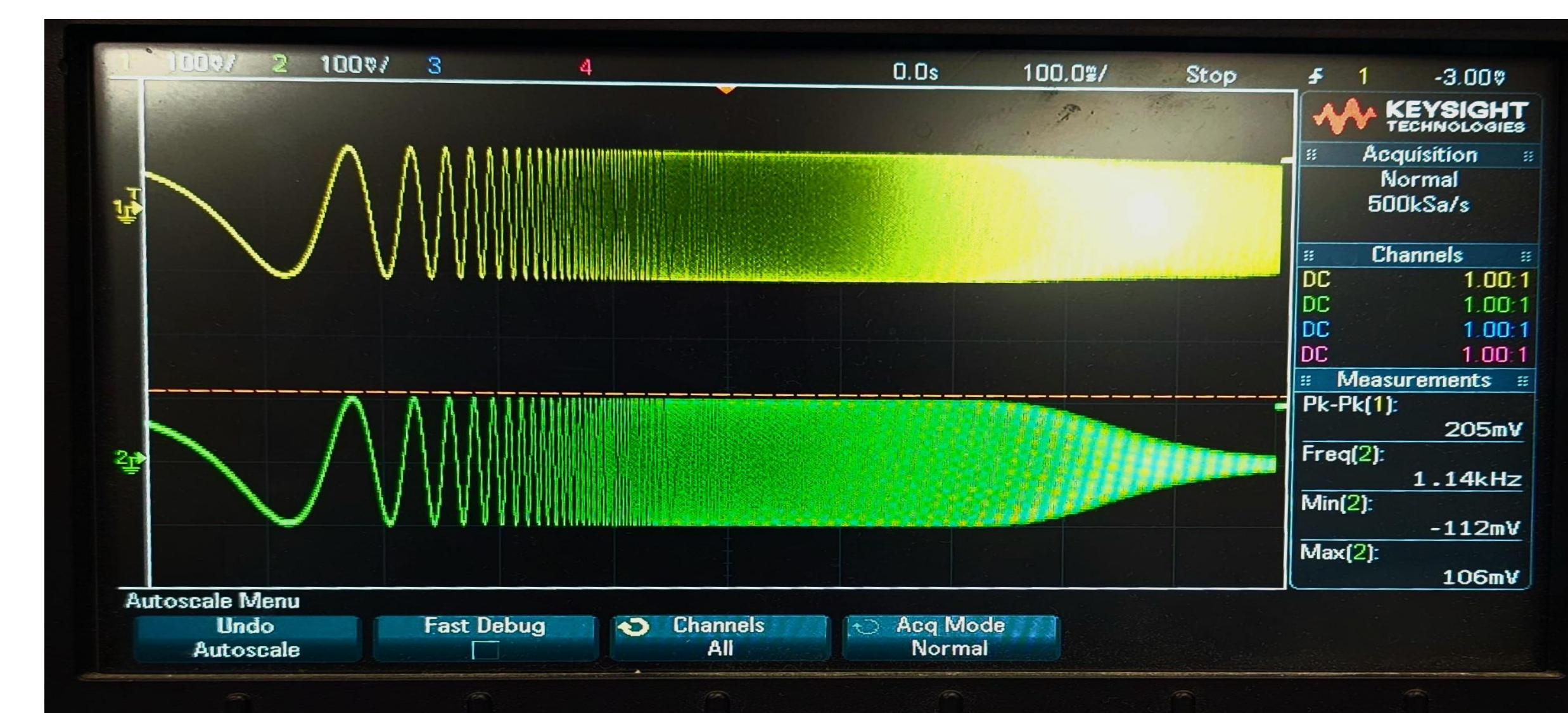
CAD Design



Design Team



Filter Frequency Response 1Hz to 10kHz



Acknowledgements

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