

Class D Amplifier

15-24

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Executive Summary

Our team is design, build and test an audio system. This system will be comprised of a class D audio amplifier and a 5 band equalizer. With the increasing popularity of personal consumer electronics efficiency is more important then ever.

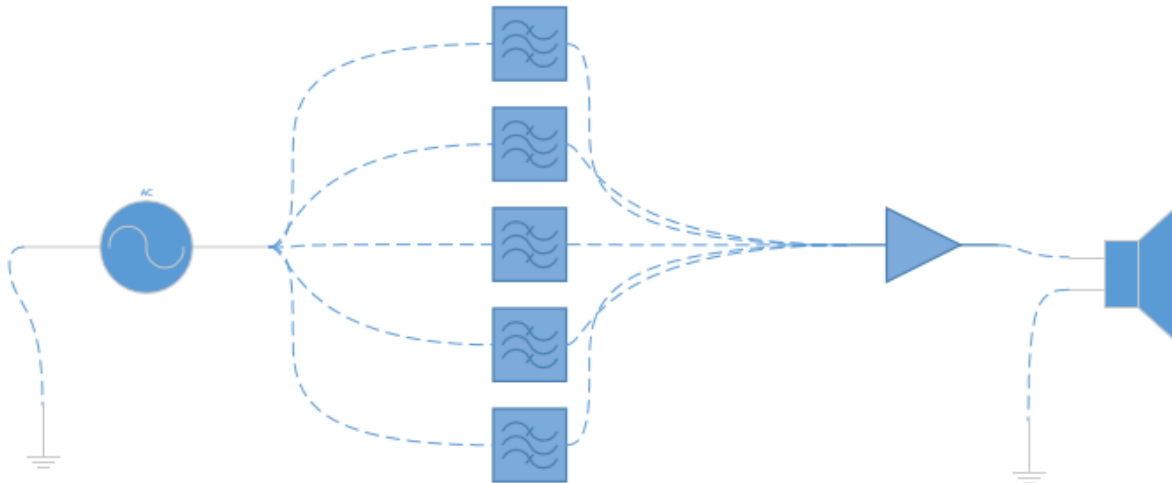
Objective Statement

The team will complete a the full lifecycle process of building an audio amplifier with a 5-band equalizer. This will consist of five stages. This consists of research stage, design stage, simulation stage, assembly stage, and testing stage.

Work Assignment

Alan Stewart	(Team Leader)	Ensures project stays on schedule while coordinating with each team member to help solve concerns.
Troy Bowers	(Communication Leader)	Oversees administrative documentation and keeps the team up to date with concerns and handles meeting coordination.
Xilu Wang	(Webmaster)	Creates and Maintains a website for the project. Updates with progress and developments as the project proceeds
Jing Li	(Key Concept Holder)	Works with the team members to ensure the project remains inside the bounds of the original requirements and meet those needs as a primary condition.
Dana Conrad	(Amp Expert)	Expert in the design and implementation of the Class D amplifier. Determines components and calculations required to meet project demands.
Kyle Maginot	(Equalizer Expert)	Expert in the design and implementation of the 5-Band Equalizer. Determines components and calculations required to meet project demands.

Concept Sketch



Deliverables

First Semester:

- Design for 5-Band EQ and Class D Amplifier
- Summary Bill of Materials to build as designed
- Estimations for Power Efficiency and Output
- Cost for Amplifier and Equalizer as Designed

Second Semester:

- Working Class D Amplifier w/ 80% overall efficiency
- 5 - Band Equalizer w/ 96dB Signal/Noise Ratio
- Data Sheet for the Amplifier and Equalizer

Schedule

Activity	Time line												
	Sept			Oct			Nov			Dec			
Define requirements													
Block Diagram of systems													
Power and Signal Intial Design													
Models and Simulations finished													
Project Circuit Design finalized													
Bill of Materials													
Final Project Design													
Submit Part Orders													

Concerns

Some of our concerns include the phase shift from passing the signal through the equalizer. Also we have to take into account the possibility of of current pass through current on the Mosfets. We must also be careful to order spares in case of components being damaged during testing. And finally budget constraints due to the purchase of a pre built power supply