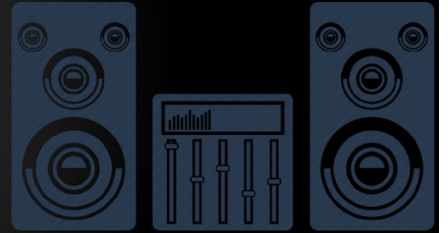


Presentation

by Adam Bedner

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TIME SUBMITTED	05-FEB-2019 04:11PM (UTC+0000)	WORD COUNT	482
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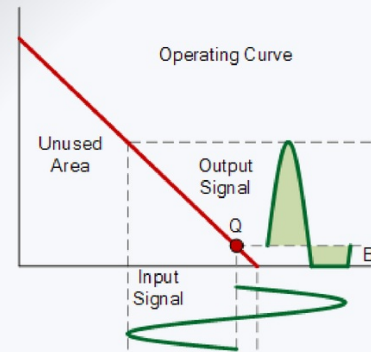
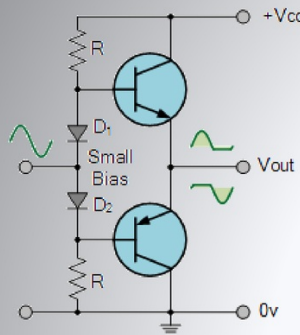
The problem

Most of the quality HI-FI systems uses push-pull class AB amplifiers.

While those can achieve incredible sound quality, the efficiency of such system is of about 50-60%.

Meaning that only around half of the power is used to produce sound, the rest is lost as heat in the components.

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The Aims and Objectives

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The main objective is to improve the efficiency of the amplifier without affecting the quality of the sound.

A research will be done for improvements to the existent systems or possible alternatives for the class AB push-pull power amplifier.

A research will be done for existing pre-amplifier stages.

Appropriate solutions will be chosen from the research, built and tested individually.

Then the subsystems will be implemented into one system and tested.

The Specifications to be achieved

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- High quality Audio output
- Power output of 150W+
- A minimum of 85% of efficiency of the system
- low production costs
- Output rated for both 4 and 8Ohm Speakers
- Multiple audio Inputs

The Researched Solutions

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Push-Pull Class AB Valve Amplifier

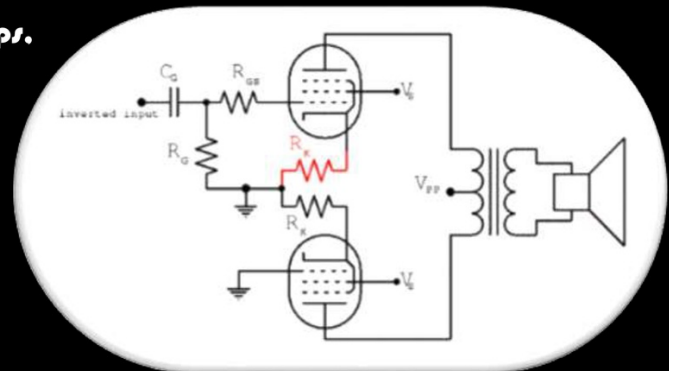
Very poor efficiency.

Specific sound output, often associated with quality.

Poor reliability.

Very expensive to produce and maintain.

**Main applications includes: Stage guitar amps.
Audio enthusiasts' equipment.**



The Researched Solutions

Push-Pull Class AB Transistor Amplifier

Efficiency of between 50% and 65%.

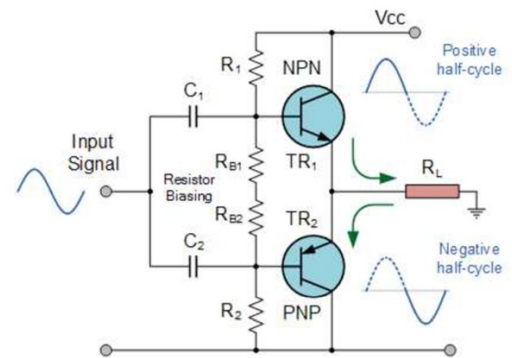
Good reliability.

Relatively cheap to manufacture and maintain.

Excellent sound quality and low distortions of the audio signal.

Wide application that includes car stereos, home cinema systems, Hi-Fi systems.

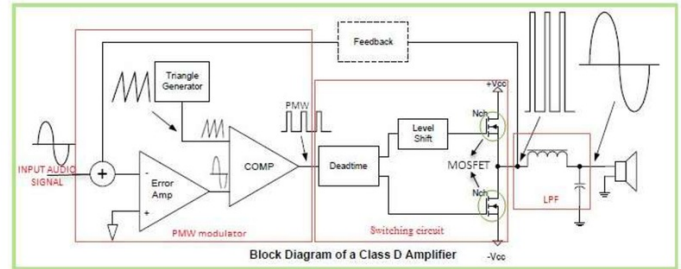
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The Researched Solutions

Class D Amplifier

Used mainly in newer technology as TVs, some home cinema systems etc.

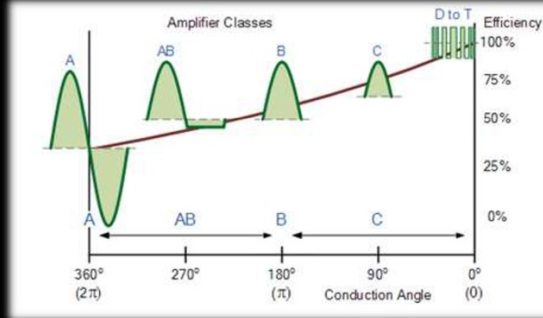


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**Excellent efficiency of up to 95%.
Good reliability.
Good quality of sound.
More compact and lighter than other types of audio amplifiers.**

The Chosen Solution

Class D Amplifier



The chosen solution is the Class D amplifier. It is reliable, and very efficient.

The quality is relatively good, and it can be boosted up with the pre-amp stage and output passive filters.

The expected budget for the project is around £1,500. That's including all components and possible printing of the PCB.

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HIFI

Design, prototyping and testing



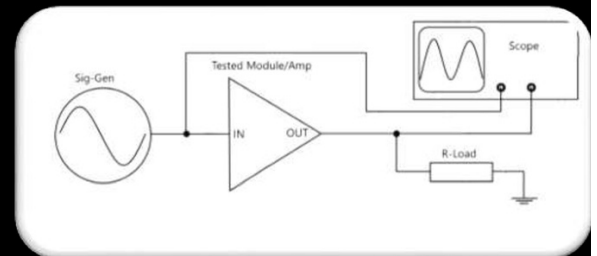
The design will be done by researching and modifying existing modules.



Every module will be built and tested separately as prototypes. Those will be built on prototyping PCBs.

Every module will be tested using signal generators, oscilloscopes and artificial circuit loads.

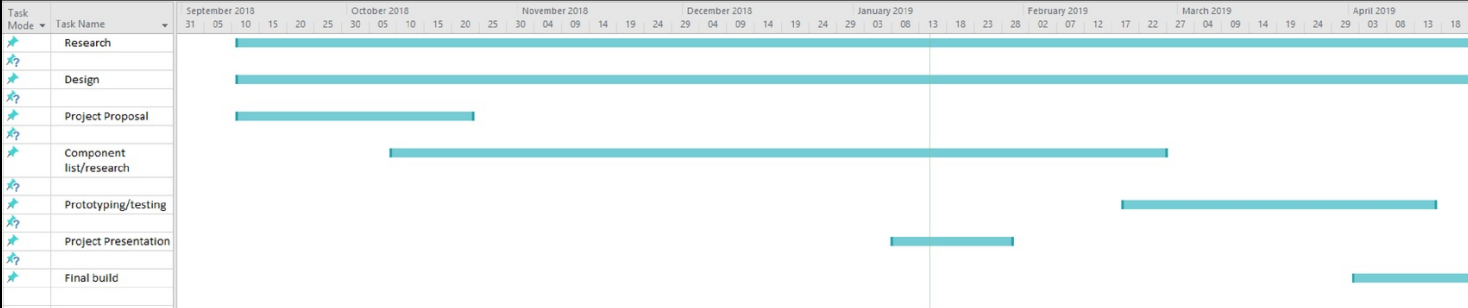
Once all modules are build and tested, those will be put together and tested for performance as one system.



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The expected time-line for the project

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*Thank You For Your
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Presentation

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

77 /100

Instructor

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GRADING FORM: CSG-RUBIC

ADAM BEDNER

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RESEARCH-INFORMED LITERATURE

 The presentation demonstrated extensive research and background reading. 8.5/10 Engagement with research was very evident with a very professional review of solutions. 8.5/10 **17/20**

KNOWLEDGE AND UNDERSTANDING

 Problem definition and its complexities were explained clearly. 4/5 Constraints and codes of practice were explained and relevant due to part of the design being based on an existing system. The legal requirements were also reviewed. 3.5/5 There are limitations with this project which were identified and answered in the questioning part of the presentations. 3.5/5 Functional design was logical and explained thoroughly. 4/5 Response to questioning was good. 8/10 **23/30**

ANALYSIS

 Problem was defined and reasons for solution was clear. 4/5 Functional design spec was explained an questions were answered clearly and logically. 8/10 Justification of the solution was clearly defined. 4/5 **16/20**

PRACTICAL APPLICATION AND DEP.

	Design spec from a practical point was clear and some constraints were highlighted. 3.5/5 Choice and justification of final solution was clear and a good technical argument was presented for this. 7/10 Project plan was clear but the work breakdown was vague. 2.5/5	13/20
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SKILLS FOR PROFESSIONAL PRAC.

	Quality of the slides was very good. 4/5 Delivery of presentation was very professional. 4/5	8/10
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