### Project Goals

**Main Goal:**
To preserve the integrity of the analog sound signal by amplifying an analog recording by using a non-digital process.

**Design Considerations:**
- Pre-amp design for voltage gain and master volume control
- Equalizer/Power-amp design for power gain and speaker drive
- Filter design to implement the equalizer
- Master and equalizer volume implementation
- Bridge rectifier center tap implementation for ideal split voltage supplies
- Optimizing Circuits

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### Project Overview

**Overall Operation**

#### Pre-Amp Design

- **Filter Band:** 20kHz
- **Filter Band:** 120kHz

#### EQ Amp Design

- **EQ Band:** 2.5kHz
- **EQ Band:** 5kHz
- **EQ Band:** 11kHz

#### Impedance Matching

#### Speaker Matching

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### Design & Results

**Pre-amp Design**

- **VCC:** 12V
- **VEE:** -12V

**Range of Frequencies**

- **Filter 4:** 2.5kHz - 5.2kHz

**Power-amp Design**

- **VCC:** 12V
- **VEE:** -12V

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### Background Information

Ever since the world went digital there has been a continuous debate on whether audio signals should be amplified and recorded using digital or analog techniques. Some prefer digital because of the absence of noise and low power consumption. While others prefer analog because of warmth and integrity of the sound. The digital recording and amplification process involves digital to analog converters as well as analog to digital converters. This process employs sampling which leads to a loss of signal and information.

We plan to implement an analog sound system with a series of equalizers, each of which will individually control the amplification over a given frequency range.

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