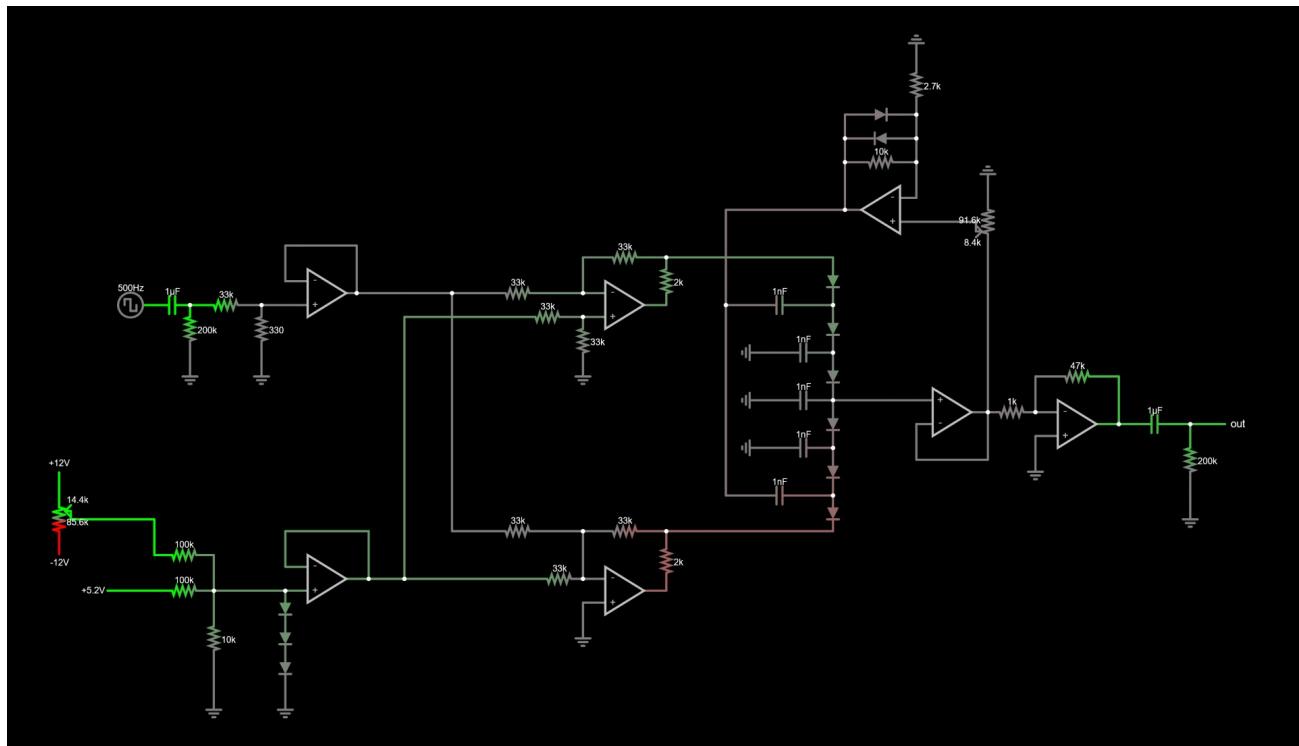


# PHSX 536 Final Project Proposal: Voltage Controlled Filter

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Voltage controlled filters are a classic component in audio engineering, and were originally created in the late 20<sup>th</sup> century. They provide ways to shape a simple waveform, such as a square or triangle wave, into anything from a classic rock guitar sound to a kick drum. I aim to implement an op-amp based design, popularized in Moog synthesizers during the late 20<sup>th</sup> century. This design deviates from the classic ladder filter by incorporating a diode ladder to maintain a more uniform voltage-dependent control.

Circuit Schematic in Falstad



# Parts List

## Semiconductors

- 11x 1N4148 diode

## Capacitors

- 2x 1uF film capacitor (or 2x 0.5uF)
- 5x 1nF film capacitor (or 2x 0.5uF)

## ICs

- 7x TL074

## Resistors

- 2x 200k resistor
- 2x 100k resistor
- 1x 47k resistor
- 8x 33k resistor
- 2x 10k resistor
- 1x 2k7 resistor
- 2x 2k resistor
- 1x 1k resistor
- 1x 330 resistor

## Potentiometers

- 2x 100k linear mono potentiometer

## Misc

- 3x audio jack socket