EE - 211L Basic Electronics

spring 2024

Project Proposal

Cascaded Amplifier

team members:

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instructor:

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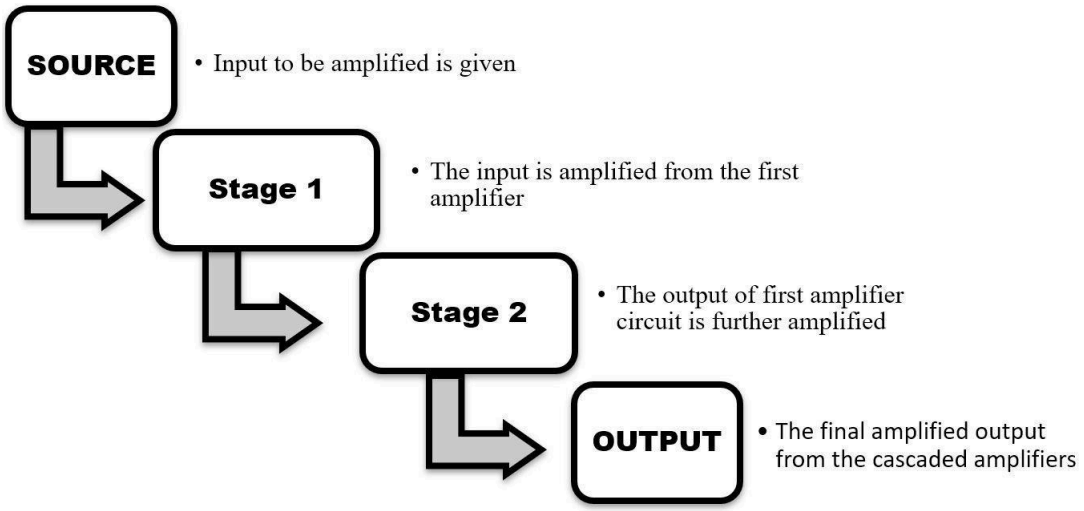
Objective:

The purpose of this project is to design a high gain cascaded amplifier using Bipolar Junction Transistor (BJT).

Introduction:

A Cascaded amplifier combines two or more amplifier stages with varying gains, multiplying their individual gains to achieve a final output gain. Single amplifier stages have a limited capacity for current or voltage gain, prompting the use of multiple stages in cascade for most applications requiring higher gain. These stages are interconnected, with each stage's output serving as the input to the next. Consequently, amplifiers with numerous cascaded stages have the potential to provide greater voltage or current gain. Transistors in such amplifiers may be connected in one of three ways: common emitter (CE), common base (CB), or common collector (CC). However, in a cascaded amplifier, only one stage typically a CE amplifier connected in cascade is utilized to deliver high gain.

Block Diagram:



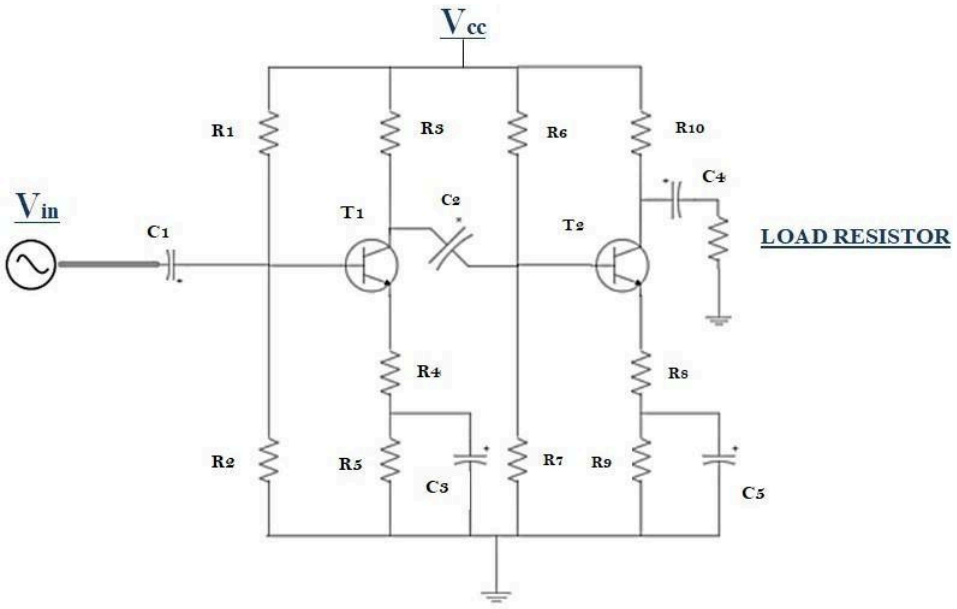
The source will give an input of *10mV pk-pk*.

The First stage will provide some amplification of the input signal.

The second stage will take input from the output of the first stage and provide further amplification.

There will be an output voltage of *15V pk-pk* on the output load.

Proposed Schematic:



List Of Components:

Following is the list of components that will be required in the amplifier:

1. 2n3904 Bipolar Junction Transistors
2. Bypass and Coupling Capacitors
3. Resistors

Expected Outcomes:

The Cascaded Amplifier will give an output voltage gain of *1500*. When input of *10mV pk-pk* will be given to the amplifier then it should give an output of *15V pk-pk*.

Task Division:

S.No	Task	Name
1	Pspice Simulation	basil khowaja
2	Hardware Implementation	both
3	Design	saif nazir