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**PRODUCT DEVELOPMENT
TECHNOLOGY**

BERL1125

SEMESTER 1

SESI 2023/2024

ASSIGNMENT 1

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EXAMINER'S COMMENT(S)	TOTAL MARKS	

1.0 INTRODUCTION

This project will teach about the function of Op-Amp component and how this component can amplifier our sound by construct audio amplifier circuit using Op-amp.

The objective of this assignment is to provide students with a practical opportunity to design and construct a microphone circuit that applies any of one of this subject's topics. The design of this circuit have low noise with high quality sound by using mic, speaker, Op-Amp, capacitor and resistor.

2.0 EXPLANATION DESIGN

Simple Non-inverter audio Amplifier Circuit using Op-Amp that using:

- Op-Amp
- 2 Resistor
- 2 Electrolyt capacitor
- 2 ceramic capaitor
- 1 mic
- 1 speaker
- Power supply 9V & GND

The input signal, V_{in} , is applied to the non-inverting terminal of the op-amp. R_1 is connected between V_{in} and the non-inverting terminal. This configuration is non-inverting because the output signal is in phase with the input signal.

The output voltage (V_{out}) is taken from the output terminal of the op-amp. The output is a scaled and amplified version of the input signal. An input capacitor is often used to block any DC component in the input signal, allowing only the AC audio signal to pass through. The op-amp requires a power supply with a positive voltage ($+V_{cc}$) and a ground (GND).

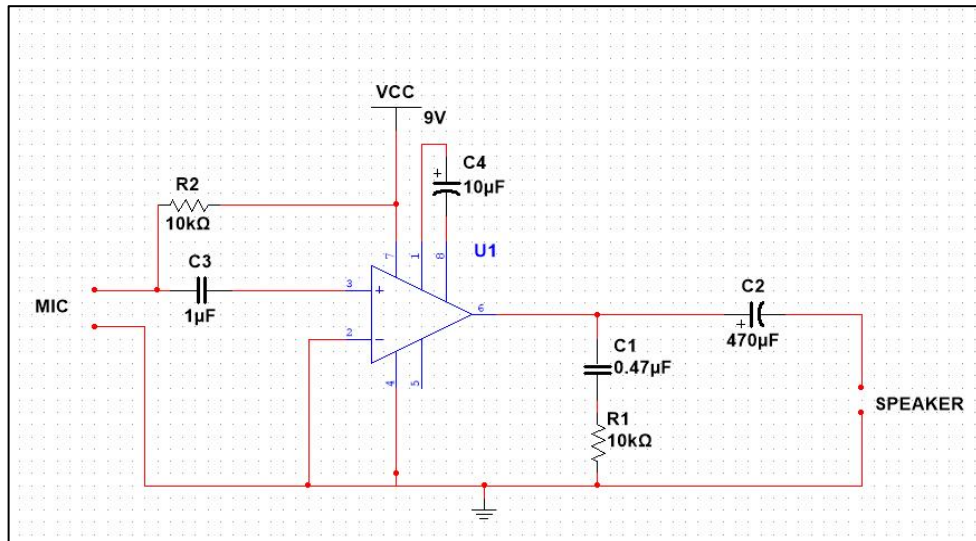


Figure 2.1: Audio amplifier circuit in multisim

Operation:

When an audio signal is applied to the input (V_{in}), the op-amp amplifies it according to the gain set by the resistor values (R_1 and R_2). The amplified audio signal is then available at the output (V_{out}).

It's important to choose appropriate resistor values and ensure that the op-amp is powered within its specified voltage range for proper operation. Additionally, capacitors and other components may be added for filtering or fine-tuning the amplifier's characteristics.

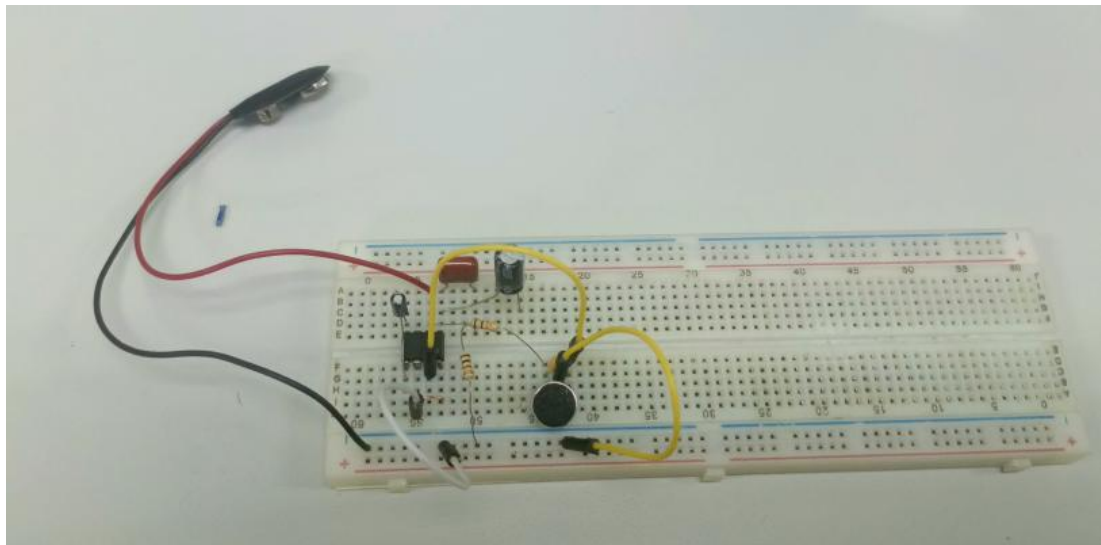


Figure 2.2: Audio amplifier circuit assembly on breadboard

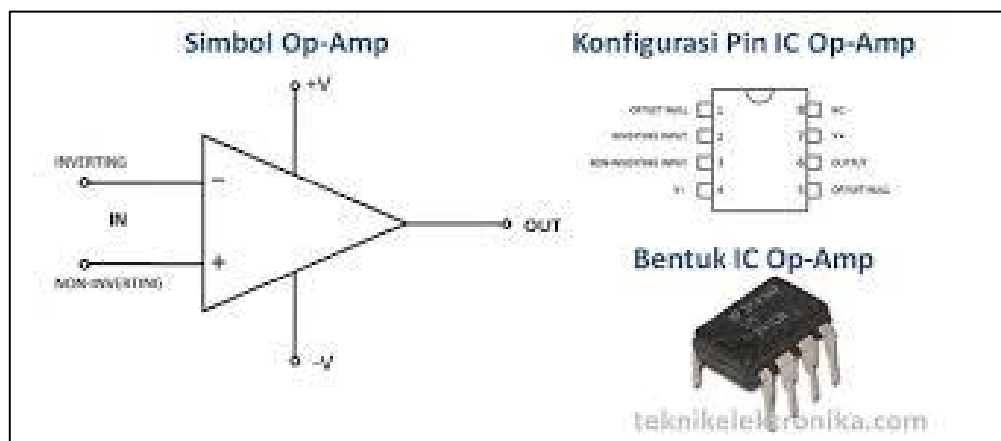


Figure 2.3: Op-Amp symbol and configuration

3.0 CONCLUSION

In this project, I learn details about how Op-Amplifier work. I learn how to amplifier audio frequency by construct this audio amplifier circuit. I also can detect something problem for this circuit and know how to solve it. I can calculate total gain in my circuit.