Project Description:

This project aims to use the studied devices through the semester to develop a very popular circuit "audio amplifier". The target of this project is to ensure that you can fully understand the concepts of BJT amplifiers and how they work, different BJT amplifier topologies and the usage of each. The project task is to build the circuit in figure 1 to realize a voltage gain between the input sound signal and the speaker.

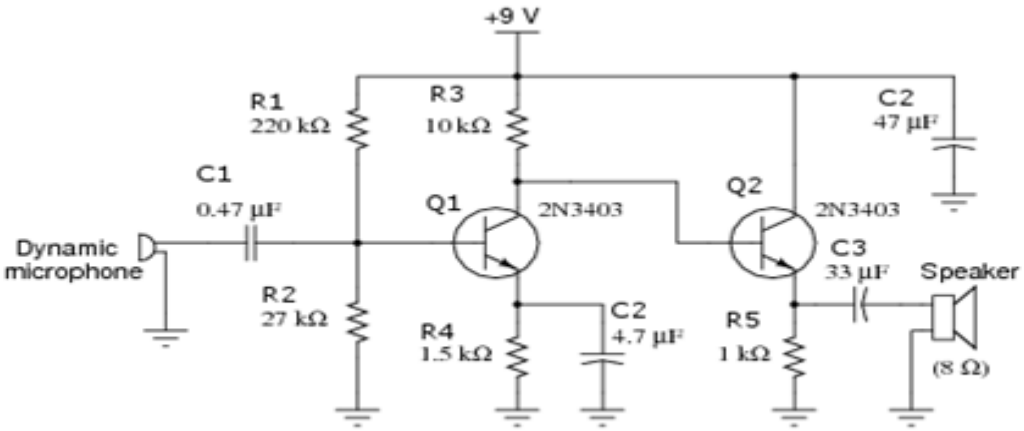

Figure 1 BJT Audio Amplifier

As shown in Fig. 1, a detailed design of the audio amplifier. It is required to do the following in a group of (3 students or less):

1- **Simulate the circuit on any preferred simulation tool of your choice (SPICE, Proteus). You can use AC-source as the input signal, also you can use a regular resistive load as a speaker.**
   - **Perform DC-Analysis to calculate all currents and voltages for all circuit elements.**
   - **Perform AC-Analysis to calculate the amplifier's voltage gain.**

2- **Implement the circuit using discrete components. (Replace unavailable components from Fig. 1 with commercial ones)**

Deliverables:

1- **Working hardware circuit (Breadboard is Obligatory)**

2- **Well-written report about all your simulation and circuit analysis results (All group members info must be stated clearly in the report cover page).**

3- **In case the group is made of 5 students a PCB must be done otherwise the project grade will be deducted by 35%**

Project Instructions:

1- **Evaluation time slots will be announced by the T.A (Maybe online zoom of on-campus).**

2- **Deadline is on 23rd of June 2021, early submission will earn bonus grades**