A. Rasmussen
1/10

Project #3   Mosfet Amplifiers

✓ Do your own work.
✓ Clearly present your work.
✓ All printouts must be readable.

OBJECTIVES:

• Design MOSFET amplifiers

• Establish a dc bias point by selecting appropriate values

• Design for a large gain, low output impedance, and high input impedance

• Investigate the frequency response of a two-stage amplifier

REQUIREMENTS:

❑ Design a multi-stage amplifier as shown in **Fig. 1** as 'Amplification' box.

❑ You need to have enough gain to amplify your voice signal to hear it at a normal level out of the speaker. (It must not sound like a whisper. Your voice input may be around 1mV.)

❑ You will need to have enough power to drive the speaker.

❑ You cannot have any clipping or distortion.

❑ Your low frequency 3dB should be less than 100Hz.

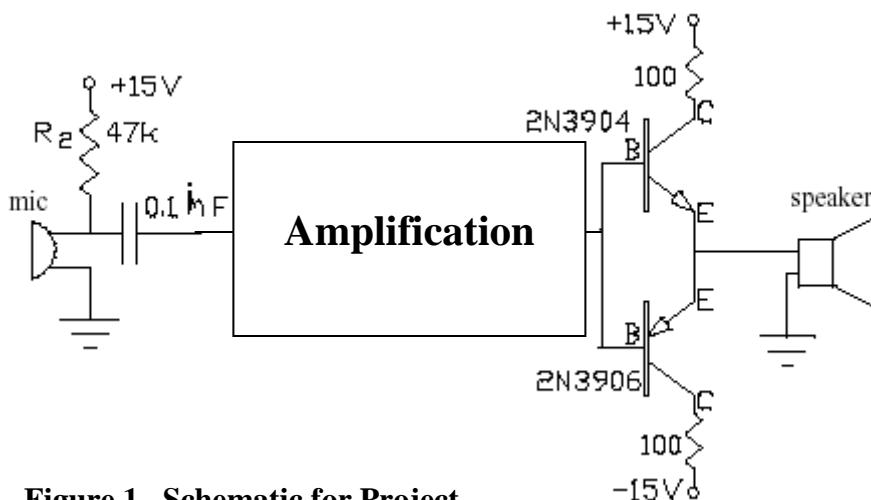❑ You need to use at least 1 MOSFET amplifier (any configuration).

Figure 1. Schematic for Project

HINTS:

1. The CD4007.OLB and the fairchild.olb files can be downloaded for the simulation part of this project. They contain symbol and models for the NMOS and the PMOS on the CD4007 chip and the 2N7000 NMOS that you have been using in the lab.

2. To aid in solving for unknown variables, you may want to use Matlab. You will still have to pick several values arbitrarily. Matlab just makes it easier to adjust variables without having to solve all the equations again.