Lab 3: Fuzz Face

Due: Tuesday 02/19/2019

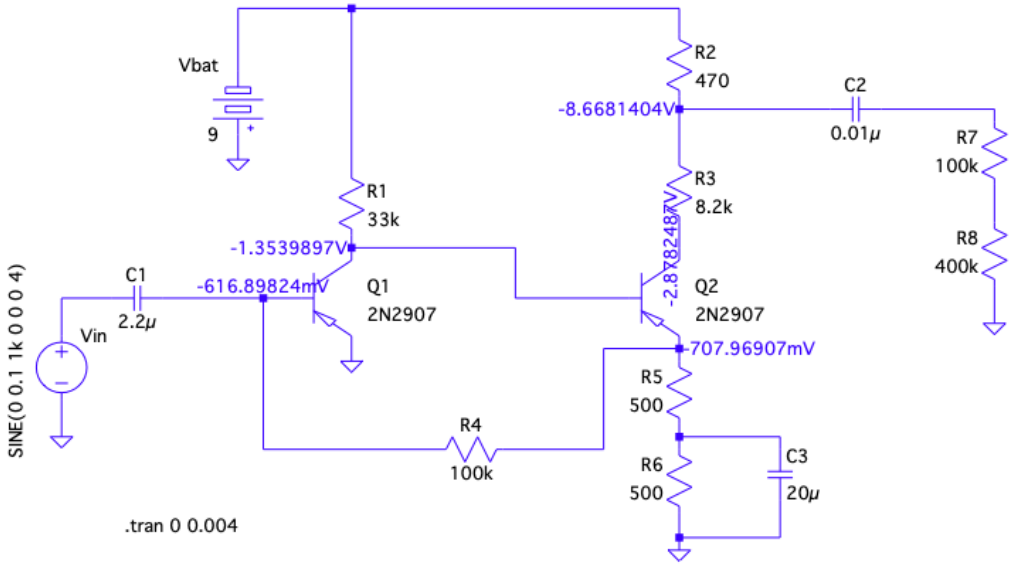
Objectives

1. To understand the analysis of a transistor amplifier circuit
2. To build and test a transistor amplifier circuit
3. To design, implement and test PCB circuits

Procedure

Week 1

- Read the Fuzz Face Analysis found at `https://www.electrosmash.com/fuzz-face`
- With the values shown, confirm the bias points specified by calculation
- Build an LTspice model of the circuit, using the 2N2907 pnp transistor as shown below.
- Run a DC operating point analysis using the .op command.
- Run a transient analysis using the .tran command. Do so for a few frequencies and a few amplitudes. Document your trials through screen shots and in your lab notebook.
- Build the circuit.
- Test bias points and record data.
- Test AC operation in the same way that you did in LTspice and document the results.
- Try replacing the silicon transistors with germanium. How does this impact the results? Record your observations.
- Test the operation of the circuit with the guitar and amplifier provided. Adjust the values of R1, R2, and R3 until you are happy with the sound.
- Design and mill a PCB for this circuit for next week.



Week 2

- Populate your PCB.
- Test your PCB and verify its operation through all the means for week 1.
- Document all tests and design procedure in your lab notebook

Submit a lab notebook (one per group) that documents all analysis, measurement, and test procedures and results. You should include in the notebook screen shots of simulation and your PCB layout. This lab notebook can be physical or digital.