
EE/CprE/SE 491 WEEKLY REPORT 5

10/10/24 - 17/10/24

sdmay25-16

Project title: Multi-Channel High-Gain Low Noise Amplifier for High-Frequency Ultrasound Signal Acquisition

Client &/Advisor: Manojit Pramanik

Team Members/Role:

Jon Wetenkamp, Yash Gaonkar, Ethan Hulinsky, Ryan Ellerbach

- **Weekly Summary:** This week we worked on the actual amplifier. Avishek, our project contact had already built a prototype of the amplifier but wanted me and my team to run tests on it. The goal of the tests was to see the frequency response of the amplifier and to make sure it did not clip at higher voltages. The reason we had to work on the actual prototype was because the company that makes the MAR-6SM refused to give us the spice files. To run the tests, we used the software lab view.
- **Past week accomplishments** Member 1: Worked on... □ Team Member 2:
 - Yash Gaonkar: Ran tests to see if the frequency response of the amplifier was valid for an input voltage of 0.005 microvolts
 - Ethan Hulinsky: Ran tests to see if the frequency response of the amplifier was valid for an input voltage of 0.008 microvolts
 - Ryan Ellerbach: Ran tests to see if the frequency response of the amplifier was valid for an input voltage of 0.010 microvolts
 - Jon Wetenkamp: Ran tests to see if the frequency response of the amplifier was valid for an input voltage of 0.015 microvolts

Pending issues

- After running the tests, we realized the frequency response clipped when we are using an input voltage of 0.01microvolts and higher. Since we need to make sure the amplifier needs an output of 3.5V we need high input voltages. To solve this issue, we are going to change the coupling capacitors to capacitors with different capacitance
- **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Jonathan Wetenkamp	Ran frequency response	3.5	15.5
Yash Gaonkar	Ran frequency response	3.5	15.5
Ryan Ellerbach	Ran frequency response	3.5	17.5
Ethan Hulinsky	Ran frequency response	3.5	19.5

- **Plans for the upcoming week**

Next week we are going to solder different capacitors to see if the frequency response clips or not at higher input voltages

- **Comments and extended discussion** *(Optional)*

- Using LabVIEW for the first time was a little challenging.