EE/CprE/SE 491 WEEKLY REPORT 6

17/10/24 - 24/10/24

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 Hulinksy, Ryan Ellerbach

- **Weekly Summary:** This week the team decided to see if we could get a desirable frequency response after changing the values of the coupling capacitor. The first value we tried was the 10-microfarad capacitor, but the output voltage still clipped. We then tried a 100-microfarad capacitor. The capacitor showed some minor improvement, but the voltage still was clipping. These results prompted us to re-evaluate the circuit. After some testing we realized the biasing voltage was too low. Too solve this we are simulating the circuit using Ni Multisim but instead of 5V one of the amplifiers will have a biasing voltage of 10V
- **Past week accomplishments** Member 1: Worked on… □ Team Member 2:
    - Yash Gaonkar: Did trouble shooting to see what biasing voltage the circuit needs.
    - Ethan Hulinsky: Ran tests to see if the output voltage showed clipping with a capacitor value of 100 micro-farad
    - Ryan Ellerbach: Ran simulations in Ni-Multisim where one of the amplifiers has a biasing voltage in 10V.
    - Jon Wetenkamp: Ran tests to see if the output voltage showed clipping with a capacitor value of 10 micro-farad

  Pending issues
- As mentioned above the dc bias voltage is too low and this causes clipping in the output voltage. We have also not achieved the desired bandwidth for the amplifier.

- **Individual contributions**

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**

Jonathan Wetenkamp	Ran tests to see if the output voltage showed clipping with a capacitor value of 100 micro-farad	4	19.5
Yash Gaonkar	Did trouble shooting to see what biasing voltage the circuit needs	4	19.5
Ryan Ellerbach	Ran tests to see if the output voltage showed clipping with a capacitor value of 10 micro-farad	4	21.5
Ethan Hulinsky	Ran tests to see if the output voltage showed clipping with a capacitor value of 100 micro-farad	4	25

- **Plans for the upcoming week**

  Next week we are going to test diferent biasing voltages. We might also try different transistors to build the amplifier in the simulations.