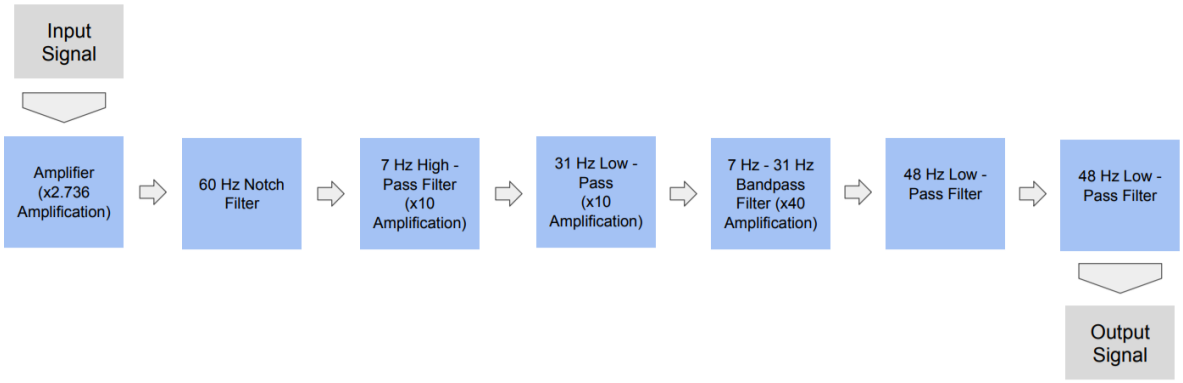
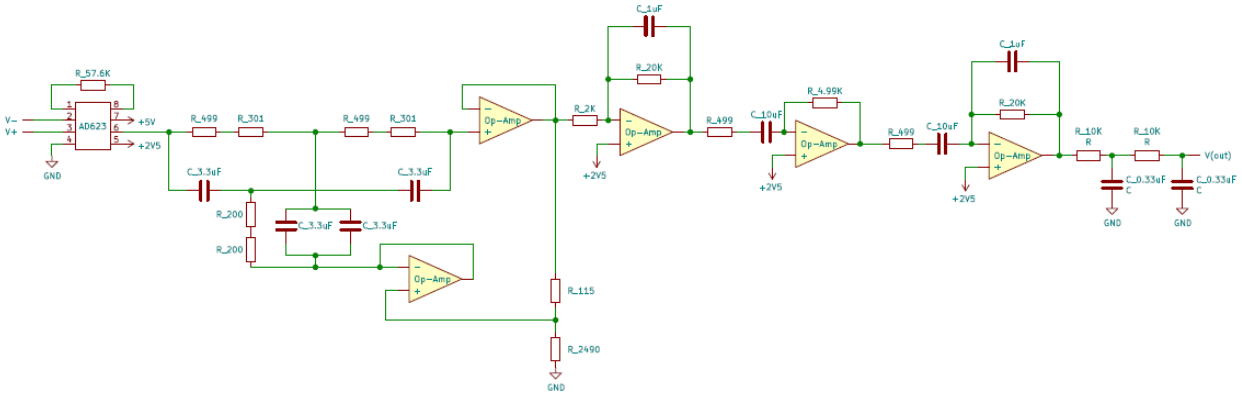
Thomas Jagielski, Jack Mao, Seungu Lyu

EEG Report

Functional Block Diagram:

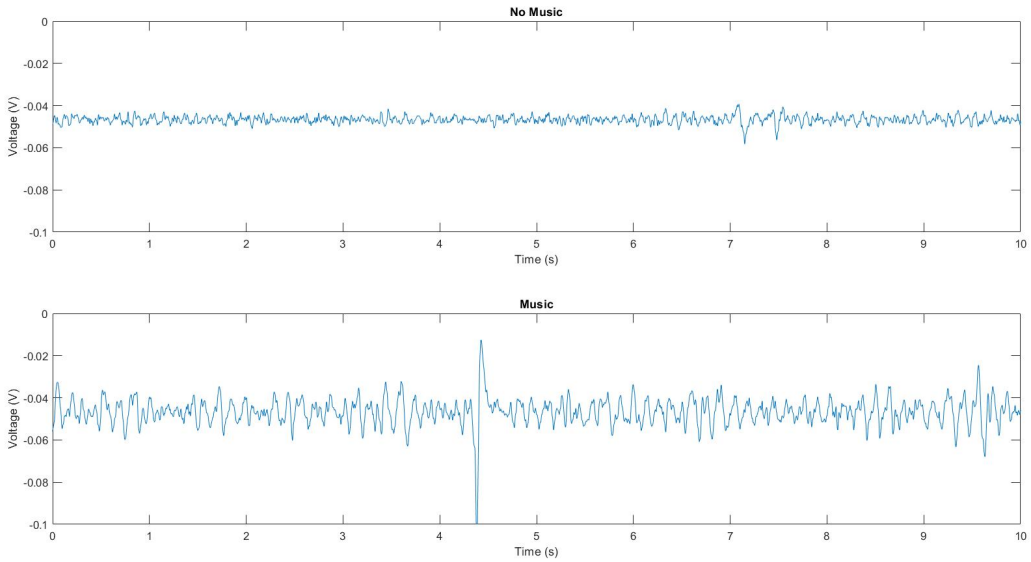


Circuit Diagram:

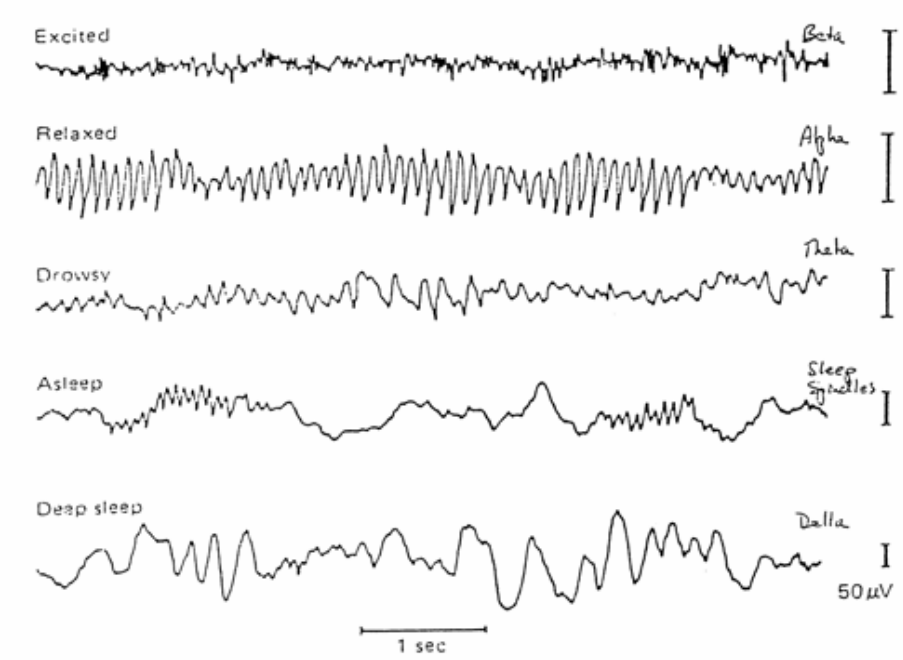


Using this circuit we achieved a total amplification of 438,655 times. We also tried to record alpha and beta waves. Alpha waves are commonly in the range of 8 to 12 Hz, and beta waves can occur at a frequency of 12 to 27 Hz. Most of the noise would come in the 60 Hz range; thus, we added a notch filter centered at 60 Hz.

Results:



The first plot shows brainwaves without music being played. The second plot was taken when classical music was being played. The spike in the plot with music corresponds with a loud entrance in the music. The following charts show expected signals for different brainwaves,



The first chart shows beta waves; whereas, the second plot shows alpha waves. This is shown through both the increase in amplitude of the wave as well as a lower frequency. Both of which are aspects we

can see when the signals, with and without classical music, are plotted on the same scale. This is shown below,