This week, we received an email from Dr. Ortega explaining the people he has been in contact with at Mercy Virtual for the project. He let us know that they are looking into using the Clinicloud stethoscope, so we will be researching that to see if this is a possible solution to our problem. He also said that he believes the best option is to design a device that will be used bedside with patients and require minimal or no healthcare providers to use. Developing a wearable device will require us to think about the device’s functionality when combined with movement, so this is a next step for us.

We have done some research this week on the quality of sound in tele-auscultation and learned that packet loss and packet delay variations are the main factors in the quality of a sound transmitted over the internet. We also learned how diseased tissues change the quality of sound and that the lung is a low-pass filter for respiratory sounds. We will continue to research the Clinicloud and Eko Core stethoscopes as well as sound quality and what designs were used to obtain the best sound quality in tele-auscultation.

On October 31st, we met as a group during normal class time and worked together to list our design options and pros and cons of each. This will be used to create our Pugh Chart later. We also created a user experience survey to provide to Mercy Virtual patients to evaluate the comfort/difficulty of using for each design option.

Finally, we performed more thorough and in-depth research on algorithm analysis for audio classification. For each algorithm that we’ve consistently seen in the literature, we found its run time complexity, space complexity and accuracy at a specific task. These parameters can also help us in the future with the Pugh chart for software.