

Medical mask with built-in a microphone and a loudspeaker

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Abstract

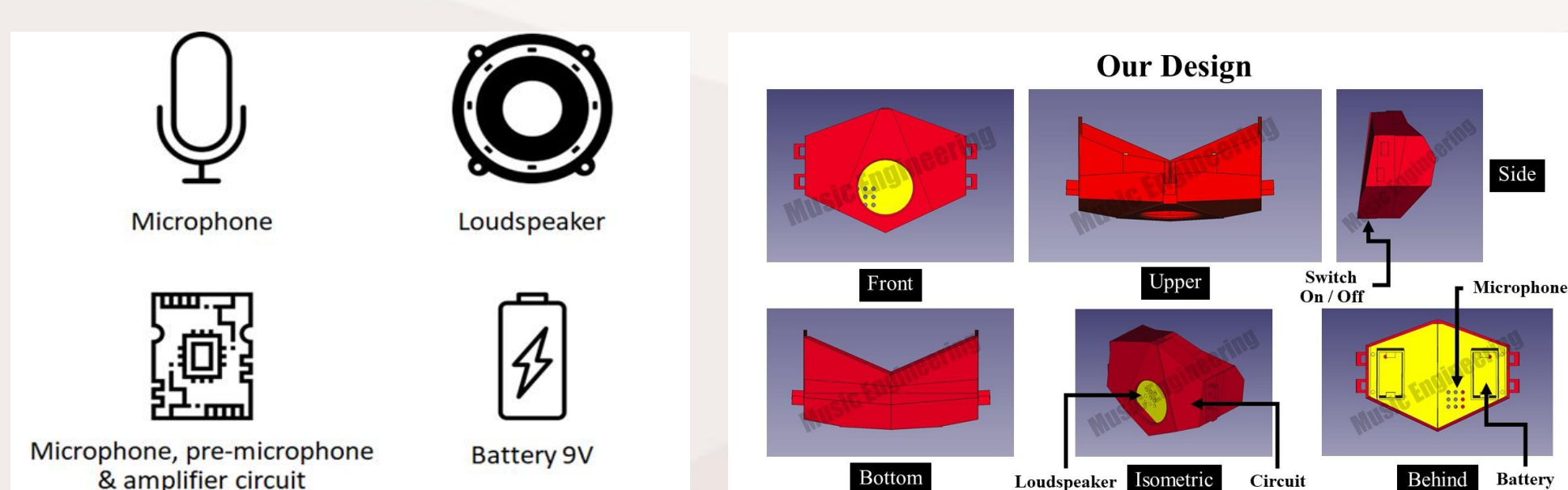
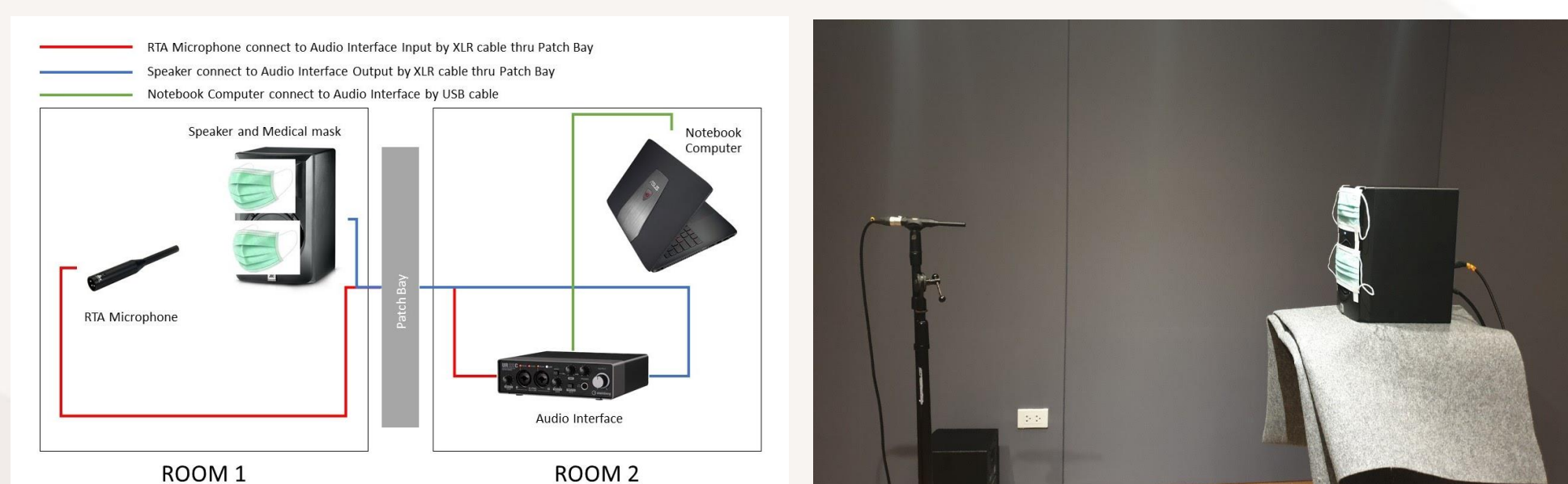
In this project, we aim to create a medical mask with built-in microphone and loudspeaker. To solve the problem of unclear communication while wearing the mask of medical personnel. In addition, we also measured the frequency response in different mask filters by using sine sweep as the sound source. To analyze and observe the characteristic changes in the frequency components of speech through a mask. Finally, we conclude that wearing a mask can make the voice unclear and our mask can increase the volume of speech. Use less energy to speak and can be used for further development in the future.

Introduction

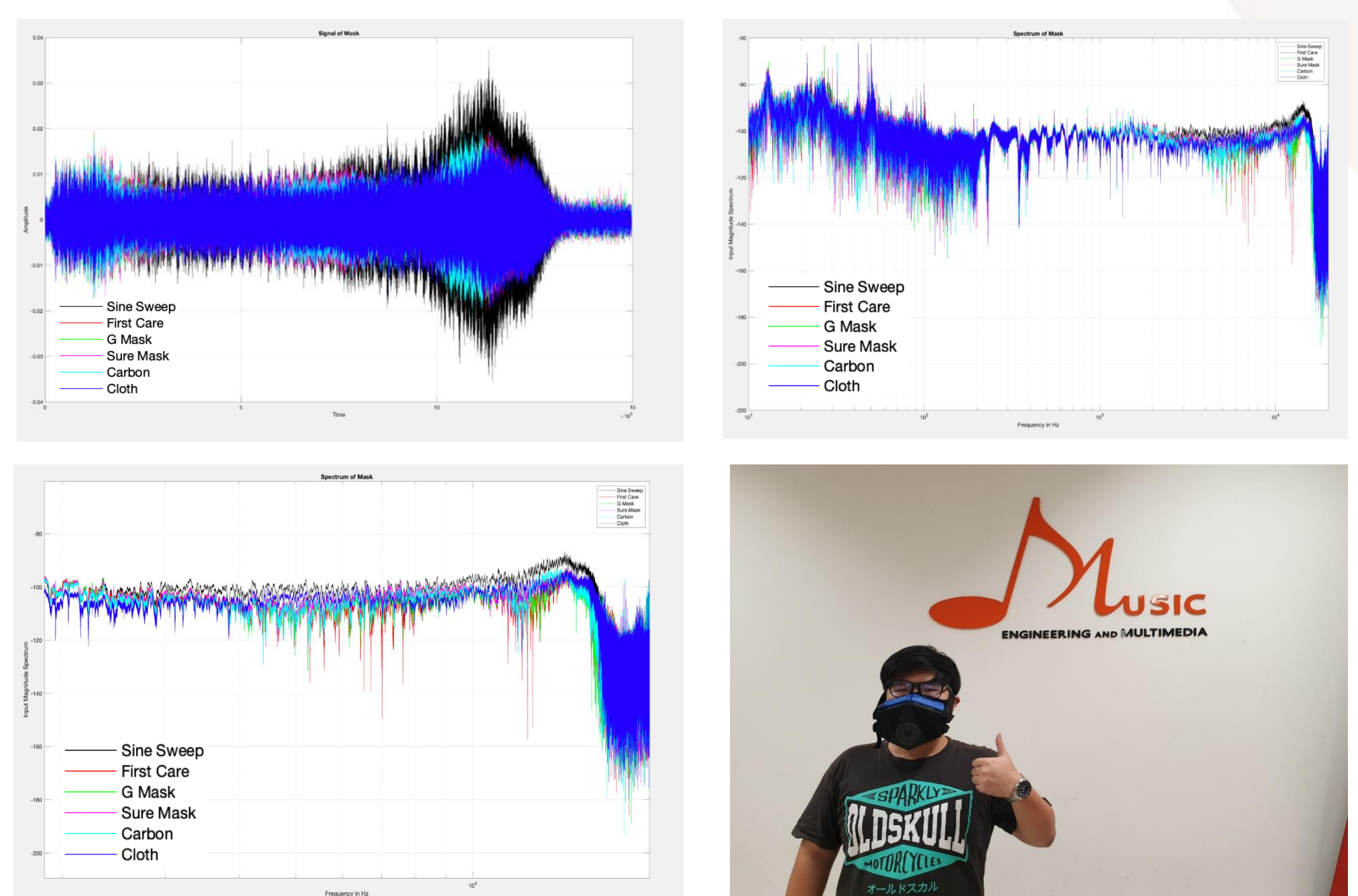
The COVID-19 crisis has completely changed the daily life of mankind. Not exempting even people in Asia and Thailand. Wearing a mask to prevent infection has become an imperative routine. But wearing a mask can cause problems with unclear voices. Which degrades hearing performance of the listener. This can lead to miscommunication as well as a significant loss of communication energy, which is directly affected to those who need to wear a mask for extended periods of time such as medical personnel.

Methodology

1. Survey comment and information about the usage of medical masks by medical personnel.
2. Study the characteristics of aboard medical masks to help us design our mask.
3. Choose equipment, design circuits and assembly parts of our mask.
4. Measure frequency response in different mask filters by using sine sweep as the sound source
5. Test performance of our mask by wearing and speaking.



Results



Conclusion

We can prove that wearing a mask that has a filter causes an unclear voice. We can create and use the medical mask with built-in a microphone and a loudspeaker. Microphone and speaker may not perform as well as expected by the budget. In addition, due to the time limit and inconvenience, it cannot be used for the medical personnel now. But if this project is used for further development with a larger budget. We will be able to create a smaller mask. Moreover, the improvement of the loudspeaker, the electronic circuit parts and the microphone by replacing each one with some better quality or the one that has a better response to the effective signal's frequency that has been defined in the study can be done as well.

References

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