DSAA Project Proposal

Group-51
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Topic:

For this project, we'll be designing a digital hearing aid system.

Description:

Approximately 10% of the world's population (760 million people) suffers from some level of hearing loss, yet only a small percentage of this statistic use a hearing aid. A hearing aid has three basic parts: a microphone, amplifier, and speaker. The hearing aid receives sound through a microphone, which converts the sound waves to electrical signals and sends them to an amplifier. The amplifier increases the power of the signals and then sends them to the ear through a speaker. The traditional hearing aids are of two types: 1) Analog: Analog aids convert sound waves into electrical signals, Which are then amplified, 2) Digital: Digital aids convert sound waves into numerical codes before amplifying them. Because the code also includes information about a sound's pitch or loudness, the aid can be specially programmed to perform certain functions on the input audio signal. For this project we plan to perform functions such as noise reduction, signal refining, amplifying some frequencies more than others etc, to amplify the audio signal and make it more comprehensible to the hearing-impaired person.

Application:

Hearing Aids are vastly used by hearing-impaired people world-wide. It helps them in hearing the sounds which they can't typically hear.

Existing Solutions:

There are various types of analog/digital hearing aids in use around the world. We intend to make a digital hearing aid which is far more superior and convenient than ones currently used.

Evaluation pattern:

Evaluation could be done based upon the clarity and the amplification of the output signal.