DIGITAL HEARING AID USING DSP

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A Project Report
submitted in partial fulfillment of the requirements
for the award of the Degree of
Engineering in Bio-Medical
of the Visvesvaraya Technological University, Belgaum

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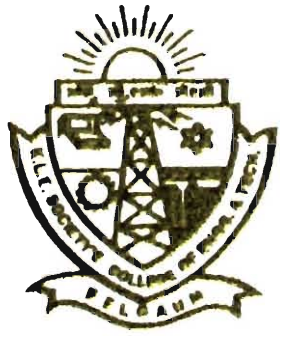

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ABSTRACT

A hearing impairment is a full or partial decrease in the ability to detect or understand sounds, caused by a wide range of biological and environmental factors. Sound waves vary in amplitude and in frequency and loss of the ability to detect some frequencies, or to detect low-amplitude sounds that an organism naturally detects, is a hearing impairment.

In this project we focus on bring the frequencies that the user no longer hear due to hearing loss to range which is audible to him.

Sound signal is received by the microphone, which will be connected to the DSP chip. The chip has a built-in analog to digital converter and digital to analog converter. It converts sound waves into numerical codes, similar to the binary code of a computer, before amplifying them. Because the code also includes information about a sound's pitch or loudness, it can be specially programmed to amplify some frequencies more than others. Thus the digital signal is modified, in ways of compressing or shifting the frequency, so that all the speech frequency will be in hearing range of the person.