Abstract

Reverberation (multiple echo) is the acoustic noise signals that appear in an enclosed space due to a superposition of multiple reflections and diffraction from walls and objects in the room. Reverberation signal is a complex problem that hard to find a solution, because the original voice signal is correlated with reverberation effects.

Reverberation effect will cause the original voice signal degradation and also the characteristics of the spectrum. This will greatly disturb the audience's perception of the information presented, so it is required a system that can reduce the effects of these reverberation.

In this Final Project will be carried out the research process dereverberation, that use analytical synthesis method Overlap and Add Short Time Fourier Transform (STFT) using multi microphone system (two microphones) in a variety of room sizes (small, medium, and large). This system uses multi microphone as appropriate for applications hands-free telephony and audio conferencing.

Multi microphone system will produce two sounds that have spectral characteristics that correlate to each other. Working principle of this system is to compare the two signals that have been given reverberation. Spectral characteristics of the two signals, that have been given reverberation, have coherent characteristic, which have a high correlation to the original signal and will have a low correlation to the reverberation signal.

From this research are expected that system which uses small gain and overlap 75% give optimum dereverberation signal output in small and large room where in this state, system can get small value of Mean Square Error and Reverberation Time.

Keywords: spectral of sound, coherent, reverberation, correlation, multi microphone, STFT.