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. Reverberated signal is a complex problem that hard to find a solution, because the original voice signal is correlated with reverberation effects. This will greatly disturb the audience's perception of the information presented, so that required a system of tools that can reduce the effects of these reverberation.

Dereverberation is the way that used to reduce the effects of reverberation. In this Final Project will be implemented dereverberation process research using Blind dereverberation method based on autoregressive modeling which used music signal as input signal. It's called 'blind' because the system didn't have an information about the characteristic of input signal. System will work itself by estimated the prediction error from autoregressive process. After dereverberation process has done, quality of dereverberated signal will measure by subjective method and objective method. In objective, MSE (Mean Square Error) and RT (Reverberation Time) are the parameters while in subjective, DCR (Degradation Category Rating) is the parameter.

The system can reduce the effects of reverberation maximumly in small room with reverberation time reduction ration 0,505 and also on length of window 125 ms with minimum average reverberation time 0,454 seconds. Bass guitar in large room has the best MSE score with 0,079. Audio quality of dereverberation signal was the best in small room on 125 ms window's length with average DCR score 3,003(Fair).

Keyword: reverberation, blind dereverberation, prediction error, autoregressive, music signal