ABSTRACT

This Final task is about the reverberation music signal from the reflection and diffraction from the walls and objects in the acoustics room. Reverberation is the process of multipath propagation of sound from the source to the receiver. Reverberation important effect of the sound that must be considered is the existence of spectral superposition between the original sound source with a reverberation spectral signal. Spectral energy of the mixed signal will obscure the spectral of the original voice signal. As a result the listener receives the sound becomes fuzzy, unclear and not understood as increase as the dimensions of the room. To reduce the effect of reverberation in a closed room is used dereverberation method. Dereverberation methods which is used in this final task is the Minimum-phase and All-pass Component based cepstral modifications and microphone array. Input which is implemented in this final task is a single music signal without noise. Signals are separated into Minimum-phase and All-pass Component and then measured MSE (Mean Square Error) and R_T (Reverberation Time) values.

Test are done by using 10 music signals (.wav) are tested on three types of room (small, medium, and large) with window hamming's lengths 1024, 2048, 4096, and α=0,7-0,9. The result by objective measurement, shows that for all music genres and window hamming's length (1024, 2048, and 4096) received that in small room, average MSE value is 0,002107729 and average R_T is 0,001545729. Whereas in medium room, average MSE value is 0,001066153 and average R_T is 0,003374908. In large room, average MSE value is 0,00137605 and average R_T is 3,23E-03. On the other hand, DCR subjective measurement shows that DCR value in small room is 3,930, in medium room is 2,910, and 1,867 in large room. Thus, Minimum-phase and All-pass Component dereverberation method is effectively if applied in small room size, because of the subjective and objective measurements.

Keywords: reverberation, Minimum-phase and All-pass Component, cepstral, microphone array, MSE, and R_T.