

Abstract

On the technological developments in Indonesia today, the science of room acoustics is required in the design of a room like a concert hall. Acoustic is intended to maintain sound or speech in an enclosed space to stay comfortable hearing or in some circumstances concerning the performance of music, to be better. This is done because in an enclosed space, voice prone has reverberation (reflection), and human perception of a sound or speech is dependent of the reverberation time of a voice.

Reverberation is a phenomenon that mixing the original voice signals with the reflected signal so it produced an effect due to the reflected sound in a room. This effect can improve and also degrade the quality of sound on the human's hearing. Therefore, a method is needed to overcome the effect of reverberation so it will not damage the sound, i.e. by dereverberation that will minimize the effects of reverberation on the sound.

In this final task will be done a research to overcome problems that mentioned above, namely by reducing the effect of sound reverberation so that sounds more pleasant to hear like the original sound which does not contain the reverberation effect. Dereverberation method that will be used in this final task are envelope filtering and cepstral analysis. In this method, the analysis synthesis will be done using the concept of DFT, the logarithm in the frequency domain, and IDFT. From this simulation is expected to obtain output that the reverberation sound effects have been minimized so that the voice sounded more clear and pleasant voice, although it previously had been degraded by the effects of room reverberation.

Keywords: reverberation, acoustics, envelope filtering, cepstral analysis