

ABSTRACT

Reverberation is a phenomenon in which characteristics of original audio signal mixed with noise signal that is emerged due to reflection effect. Reverberation characteristic of a signal is corresponding room impulse response that cause reflected signal to have certain delay times related to room dimension. This reverberated can be hardly cleaned since the reverberation signal is correlated to the original signal, so the method used to clean this reverberated signal is different from usual noise reduction method. Method used for cleaning this reverberated signal is called dereverberation..

Dereverberation is a method to reduce the reverberant signal so that the signal quality improved. One kind of dereverberation method that is discussed in this final assignment is spectral subtraction method. Input that is used in analysis is noiseless speech signal, and the expected output is signal with less reverberant so that the signal quality can be improved.

From simulation process using spectral subtraction method some good performance value are obtained. The performance consists of several parameters which is Mean Square Error (MSE), Energy to Late Reverberation Energy Ratio (ELR), Early to Total Reverberation Energy Ratio (ETR), and Mean Opinion Score (MOS). For small room simulation maximum MSE performance is 0,0943%, maximum ELR performance is 0,0022%, maximum ETR performance is 0,0018%, and maximum MOS is 4,0333.

For medium room simulation maximum MSE performance is 11,0213%, maximum ELR performance is 2,402829383%, maximum ETR performance is 2,3858%, and maximum MOS is 3,7333. For large room simulation maximum MSE performance is 48,5678%, maximum ELR performance is 14,1619%, maximum ETR performance is 14,0263%, and maximum MOS is 3,8333. Those maximum performances are all obtained in woman's speech voice sample.

Keywords: speech signal, reverberation, dereverberation, spectral subtraction