ABSTRACT

Steganography is an art and science to embed information into a particular cover medium in order to keep the information remained hidden so that the information would be unnoticed by unrightfully party, although the deliverance is done through public communication means. According to message embedding domain, steganography methods can be grouped as time (spatial) domain method and frequency (transform) domain method. From the view of the performance of steganography against attacks, the performance of the transform domain methods are considered better than that of the time domain methods [11]. Therefore, in this graduation project, it will be implemented an audio steganography system using Discrete Wavelet Transform (DWT) to transform audio signal. DWT can produce different resolutions for different frequencies. The data is embedded in singular value matrix that is produced by using Singular Value Decomposition to DWT process' output. As the cover medium, audio file in wave format will be used and message that will be embedded is a text file.

Test and analysis to implementation result was done objectively based on SNR (Signal to Noise Ratio) value and CER (Character Error Rate), and also subjectively based on MOS (Mean Opinion Score). The test and analysis results show that the quality of audio stego is subjectively has good quality for SNR value of larger than or equal to 28.2998 dB. SNR value is affected by message size and multiplier coefficient. Meanwhile, extracted message quality is perfect with CER = 0% for any input parameter combination with condition there are not signal processing attacks. The text file is not robust against resampling, relatively robust against noise addition for large message size, and also relatively robust against dequantization with small multiplier coefficient value.

Keywords : discrete wavelet transform, singular value decomposition, audio steganography, data hiding.