

## ABSTRACT

*Watermarking is a way to hiding secret message into a digital data information (host). Insertion of information into host must not to damage the quality of host and the secret message can extract again.*

*In this final project, is made a watermarking system in the audio file that can be used for copyright protection. This system aims to insert a text message into an audio file format. \*.wav Where the first text message is converted into a binary. Watermarking system built applying Empirical Mode Decomposition (EMD) method to decompose a signal into components called Intrinsic Mode Function (IMF) and residu. Then the message bits will be inserted at residue to reduce the impact of changes in the signal. Insertion technique is done by changing the residual value adding or subtracting with a certain value according to the input message bits and for the extraction process the sum value of the residual component will be used as an indicator that the bit '0' or '1'*

*In this final project is made a watermarking system in the audio file. the process audio quality testing using parameters, SNR, MOS obtained good results where the average  $SNR > 20$  db and the average MOS 3.93 and for testing the quality of the message using BER parameters system can reach BER 0%. For the robustness the system is not robust to resampling attack but still robust to AWGN attack with noise 20dB. And computing time is long enough for the system over 30 seconds.*

*Keywords: Watermarking, Empirical Mode Decomposition, Intrinsic Mode Function*