

## ABSTRACT

*The development of information technology is very rapid allowing people to exchange data and information. The more easily a person to exchange data, the greater the potential for duplication of data. Watermarking techniques to provide solutions to the problem of authenticity of digital data. Watermarking is a technique of hiding data or digital information on digital media, but it is unknown presence by human senses (imperceptible). Audio watermarking is one implementation of watermarking techniques to protect the copyright of multimedia audio file. Basically the information in the form of digital legitimate stamp inserted into the audio file to keep its authenticity.*

*In this thesis the author designed audio watermarking with Spread Spectrum method modified or better known as the Improved Spread Spectrum (ISS), which has been optimized by the genetic algorithm to the audio file. Genetic algorithms are used to determine the quality evaluation parameters to be modified so that the watermark data still has good imperceptibility and robustness. Then to judge the quality of the audio file that has been inserted therein watermark done with some appraisal methods such as BER, ODG, SNR, MSE, MOS and computation time.*

*The end result of this thesis is shaped in Matlab application with watermarking scheme which has a value of BER (robustness) to below 1.2% and the average value SNR of 50 dB. By using this method, watermarked audio performance can have a smaller probability of error and also the computing time more efficient than the traditional method of spread spectrum that already exists. In addition, the system also showed resistance to some of the attacks were given.*

**Keywords:** *copyright protection, audio watermarking, improved spread spectrum, gentika algorithm, robustness, imperceptibility.*