

## ABSTRACT

*The growth of information technology nowadays make people can easily transfer any of digital information. But at the other side, the security of the data become a critical issue. To accommodate the need of secret communication, like in military or spies field, we need other solution. One of the choices is using steganography. Steganography is the art and science of hiding information on a media, but the presence of the message cannot be detected by other people except the sender and receiver.*

*Steganography has been developed in many methods, but it's still difficult to find a method which can produce a steganography with high imperceptibility and high robustness. Mostly, there's trade off between the level of imperceptibility and robustness. In this final task the steganography is done by using Modified Discrete Cosine Transform (MDCT), and the result will be optimized using genetic algorithm. The embedding process will be using Quantization Index Modulation (QIM), and to increase the secret level, we attaching a key in the message using PN Code. The overlapping frames on MDCT process will increase the level of imperceptibility and the genetic algorithm process will optimizing the robustness of the steganography.*

*This research can obtained the average of SNR values up to 19 dB and ODG up to  $-0.059$ . From subjective test performed on five songs, the system can obtain average MOS value up to 4.22. The system is able to withstand the attack of MP3, BPF with an upper limit frequency  $\geq 14$  kHz, and noise with intensity  $\geq 10$  dB.*

*The use of MDCT in steganography can obtain a really good imperceptibility. Moreover, genetic algorithm can optimize embedding parameters, and increase the robustness level of the system.*

**Keyword :** MDCT, Audio Steganography, Genetic Algorithm, Imperceptibility, Robustness