ABSTRACT

In an increasingly advanced digital era, the issue of copyright protection for audio content has become increasingly complex. The ease of distribution and unauthorized copying of audio content has caused great harm to copyright owners. Many audio contents are misused by unauthorized parties, making it difficult to determine the authenticity of a digital audio file and prevent stealing or piracy. One way to solve this problem is to use quantum audio watermarking technology. However, the development of quantum technology in Indonesia is still relatively slow because there are still few people who have knowledge about quantum. Therefore, efforts are needed to provide demonstration media so that the development of quantum audio watermarking technology can further develop in the future.

In this Final Project, demonstration media is developed based on android applications and websites that can expand the understanding of quantum technology in audio watermarking. The discussion will include three quantum audio watermarking methods, which are quantum Least Significant Bit, quantum Discrete Cosine Transform-Spread Spectrum, and quantum Wavelet-Spread Spectrum, as well as the creation of android and website-based applications as demonstration media. The android application and website will help users to understand and implement quantum audio watermarking technology.

The result of this Final Project are android and website-based application that have successfully developed as demonstration media for users. The android application and website provide embedding, extraction and education features regarding the methods presented. Embedding feature is used to insert watermark in audio, and extraction feature is used to separate watermark from embedded audio. The results of the user experience survey show that the system has a good user interface, easy to use, and easy to understand, so that android applications and websites can help users understand quantum audio watermarking technology. In addition, system testing produces a good Signal-to-Noise Ratio (SNR) values for the three methods, which are 44.40 dB, 52.94 dB, and 52.94 dB, as well as Bit Error Rate (BER) with values of 0.00 for quantum LSB, quantum DCT-Spread Spectrum, and quantum wavelet-Spread Spectrum methods.

Keywords: Android application, Demonstration Media, Quantum Audio Watermarking, Website.