

## **Abstract**

Watermarking is a concept of embedding data into a document or cover signal so a piece of information like ownership or consumer identity is hidden in it. The information which is embeded is known as watermark.

This final project implements audio watermarking using phase coding and echo data hiding. Phase coding embeds watermark by changing the initial phase with the phase which represents the watermark. Echo data hiding embeds data by introducing echoes which represent the watermark.

The experiments and the analysis shows that phase coding has more data rate then echo data hiding. In the other hand, these methods are robust in facing the low/high pass filtering, but not robust in facing the compression and resampling.

Keywords : phase coding, echo data hiding, phase, low/high pass filtering, compression, resampling