ABSTRACT

Compression is a size reduction of a file into smaller size than the original file. Compression is needed to minimize the storage and minimize the sending data time from one place to another. Compression is divided into two kind, *lossy compression* that allows loss of unsignificant information, and *lossless compression* that reconstruct data which is similar to the original data. *Lossless compression* is used for text compression and several of image compression. *Lossy Compression* is used for image and audio compression.

In this final task, it has been formulated an audio compression technique which is named *SaRWa Compression (Sample-Reduced Wave Compression),* and designed a new audio file with SAR format. *SaRWa Compression* consists of several compression. In this final task, there are only five experiments for compressions. The compressions that have been experimented are *Basic SaRWa Compression, Triplets Level 1 SaRWa Compression, Triplets Level 2 SaRWa Compression, Folded SaRWa Compression,* and *Double-Folded SaRWa Compression.*

Base on experiments results, *SaRWa Compression* needs two variables for reconstructing. The two variables are *deviation (dev)* and *vediation (ved).* From the experiments, the optimum value for *deviation (dev)* is 1, and the optimum value for *vediation (ved)* is 0.5. In *Mean Opinion Score* (MOS) method (scale 5.0), the best compression of *SaRWa Compression* is *Basic SaRWa Compression* with MOS = 4.8, and the worst is *Double-Folded SaRWa Compression* with MOS = 2.7. The other compression types have MOS value between 3.5 to 3.7.

In the research, *SaRWa Compression* can be merged with the other compression such as DPCM (*Differensial Pulse Code Modulation*).

Keywords : audio compression, lossy, SaRWa Compression, SAR file format