Audio Watermarking Based Data Cryptography

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ABSTRACT: The various aspects of audio watermarking with its properties and algorithms have been studied in this paper. Fourier domain based methods have been used to present robust watermarking of audio data and reflect the security properties of the technique. The methods on being experimented in the Matlab software have shown good robustness as compared to MP3 compression and other common techniques.

KEYWORDS: Audio Watermarking, Wavelet Transform, Digital Media and Communication Network

I. INTRODUCTION

The motivations for embedding hidden markers or messages in any reasonably media content are basically taken for granted. putting a 'secret' mark in an object will enhance security or alter a lot of reliable identification. This method is often called "watermarking". one amongst the earliest documents describing the transmission of a hidden message comes from historian, 440 BC. Later, it became wide used throughout WW II [1] At that point, steganographic technology consisted nearly solely of invisible inks. within the audio trade nowadays there's a lot of interest in copyright management and protection. Embedding some kind of 'hidden signal' or watermark within the audio stream is seen as a possible methodology for managing the utilization of the fabric. However, there ar several serious issues with this idea. a number of them are listed here: a) Audio quality - some individuals argue that any alteration of the initial sound is unacceptable which there are still plenty of enhancements required before it can be represented as an ideal digital sound, b) hardiness - to forestall unauthorized access, a watermarking system needs to be immune to vital degradation of the fabric, like filtering or noise addition, c) responsibleness - any watermarking system used for access management would ought to discover the watermark quickly and dependably, particularly if it serves for business functions. The hardiness of some watermarking algorithms is closely mentioned in [3]. the remainder of this paper worries with the technology of audio watermarking

II. CONCEPT OF SIMPLE DATA HIDING IN AN AUDIO SIGNAL

The process of embedding further information in audio signals may well be divided into many steps. This section details the implementation of easy digital watermarking theme, that is shown in Figure one. though it serves for academic functions, it provides an outline of some common techniques for audio watermarking.
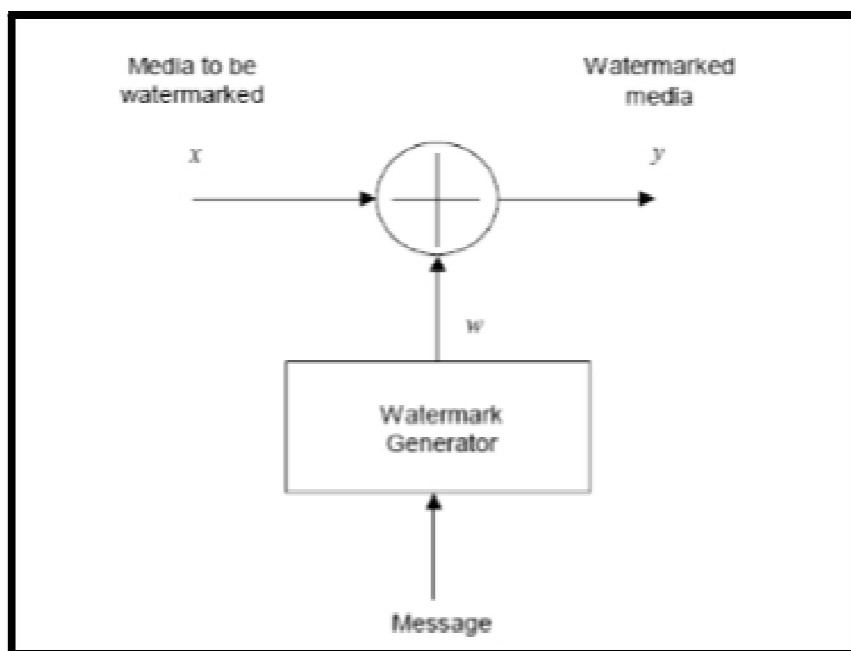
Fig. 1 Watermark embedding scheme

The thought of easy watermarking application was developed and well-tried in MATLAB. The watermarking hides the information in lower frequency elements of the audio signal, that area unit below the sensory activity threshold of human sensory system. 1st take a glance at the structure of 1 "word" in watermark message, that is shown in Figure two. For easier detection, the length of 1 "word" is about to twenty signs. The header has one sign and also the verification at the top has 2 signs. The verification provide us some info whether or not message bits have modified throughout transmission. The helpful info has up to seventeen signs.

Fig. 2 Structure of watermark "word"

The distinction between an inventive file and file containing one watermarked word, each in time domain, is shown in Figure three. As you'll be able to see, the time-domain envelope of a sign has modified. the method of extracting the digital watermark from associate degree audio file is analogous to 1 for inserting. the pc necessities were slightly higher as a result of it uses correlation detection technique.

Fig.3 Comparison between original (top) and watermarked (bottom) audio files in time domain

III. RESULT AND CONCLUSION

Although the principles of audio watermarking may well be well-tried simply, it becomes notably tough, once the file may be a lossy compression format like MP3 and that we would love to satisfy the hardiness and responsibility necessities. just in case of broadcasting of some watermarked audio, we've to deal not solely with responsibility and hardiness of such business system, however conjointly with different issues, like modulation or synchronization.
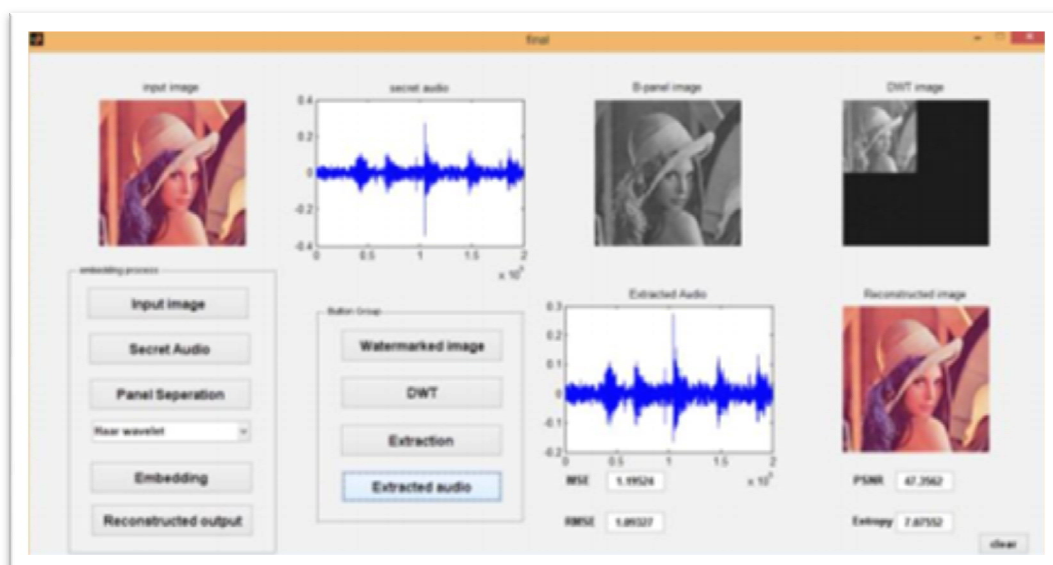
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