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Audio Watermarking in Images using Wavelet Transform

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***Abstract:** In this paper an algorithm for robust audio watermarking in image using wavelet transform based on image entropy has been presented. The motivation of selecting image as a cover is driven by the very fact that human sight is less sensitive than human hearing so a picture provides higher masking result. The algorithm relies on decomposition of pictures using Haar wavelet basis. The hidden information are often recovered dependably underneath sure attacks like cr1762*

opping, compression, noise impact, geometrical attacks and contrast improvement. As a necessary background, a literature survey of the watermarking techniques is given. The last a part of the thesis analyzes the watermarking results of wavelet-based watermarking technique on totally different pictures and audio samples, using varied quality assessment metrics
***Keywords:** Audio Watermarking, Wavelet Transform, Digital Media and Communication Network*

I. INTRODUCTION

Watermarking has been thought of to be a promising answer which will defend the copyright of multimedia system information through transcending, as the embedded message is often enclosed within the information. However, today, there's no proof that watermarking techniques are able to do the last word goal to retrieve the correct owner data from the received information against all sorts of content-preserving manipulations. due to the fidelity constraint, watermarks will solely be embedded in an exceedingly restricted area within the multimedia system information. there's perpetually a biased advantage for the offender whose target is merely to induce eliminate the watermarks by exploiting varied manipulations within the nite watermarking embedding area. A additional affordable expectation of applying watermarking techniques for copyright protection could also be to think about specific application eventualities. for example, the print-and-scan (PS)process is usually used for image replica and distribution. it's standard to rework pictures between the electronic digital format and therefore the written format. The rescanned image could look almost like the first, however could have been distorted throughout the method. For copyright protection applications, users ought to be ready to notice the embedded watermark even though it's printed-and-scanned. Since the distortion behavior involved in this case (geometric distortion and pixel value distortion) is fairly sure, we will style helpful watermarking techniques that survive such processes.

II. PROPOSED METHOD

The projected technique uses the wavelet transformation domain to imbed the information thus to exploit the benefits of wavelet transformation being immune to frequency attacks. The algorithm uses straightforward substitution technique in wavelet coefficients of the cover image for embedding because the encryption and decryption is quicker once employing a substitution technique that's one of the merits of the rule. the cover image used may be a grey scale image of size 256 x 256. fig. 1, and fig. 2, shows the diagram of the planned scheme

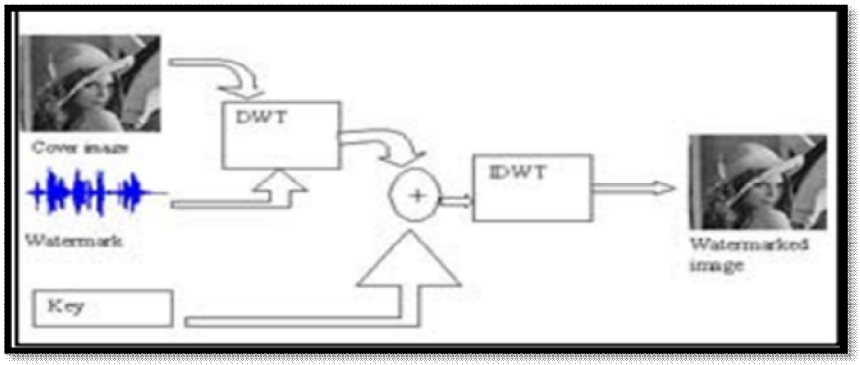

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Fig. 1: Watermark Embedding

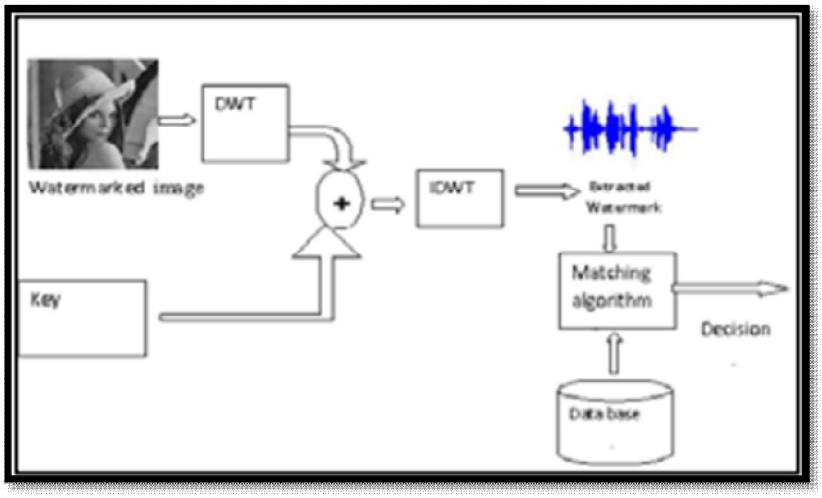
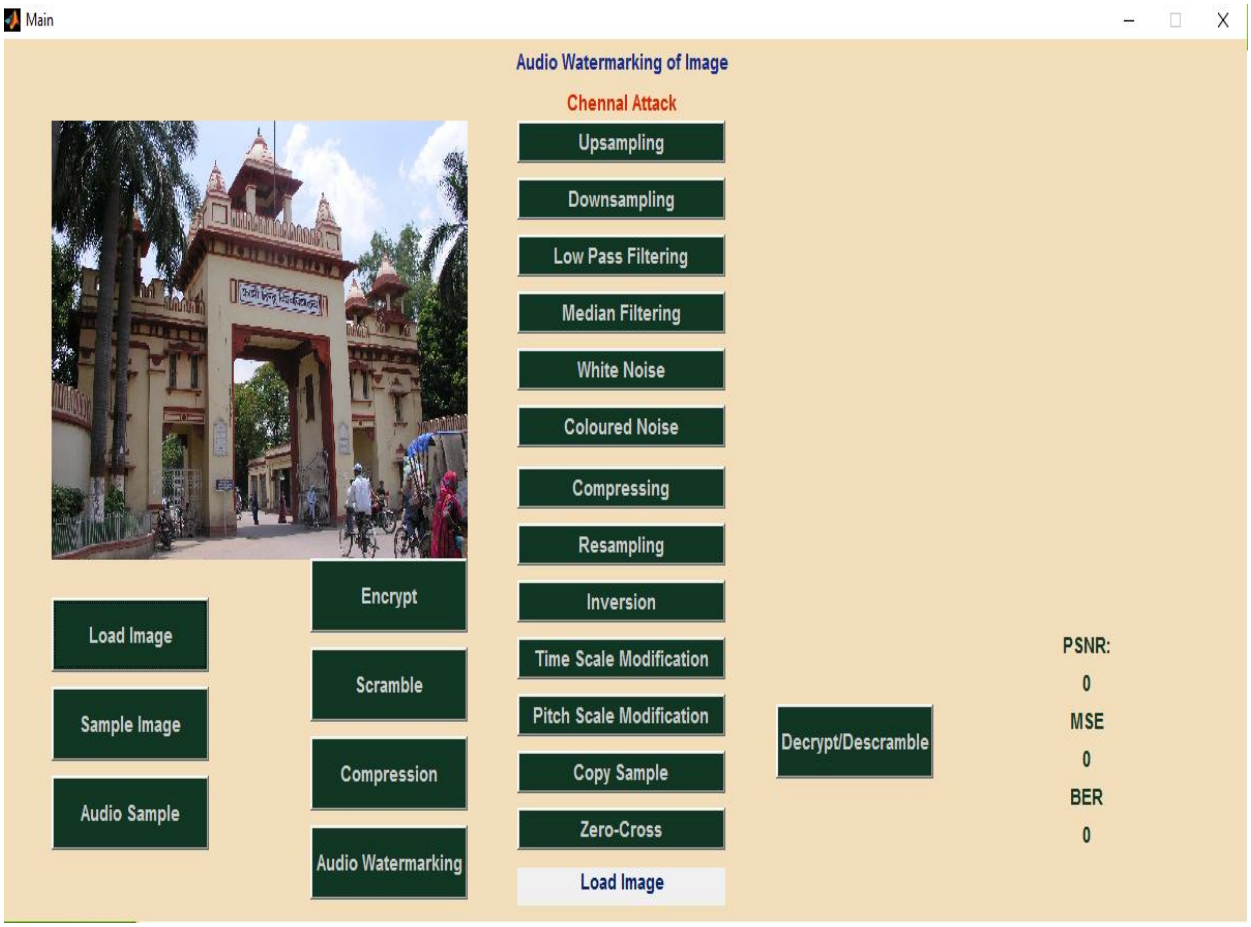


Fig. 2: Watermark Extraction

III. RESULTS

The projected technique has been experimented on variety of grey scale pictures and audio clips that were WAV files. to review the results of the projected technique comprehensively, the photographs were resized. This work proposes associate innovative audio watermarking theme using image as a number medium and audio as watermark that uses randomness as a metric for choosing the target in a picture. However, fine correlation between the first audio watermark and therefore the extracted watermark using the projected technique is ascertained from their several RMS values.



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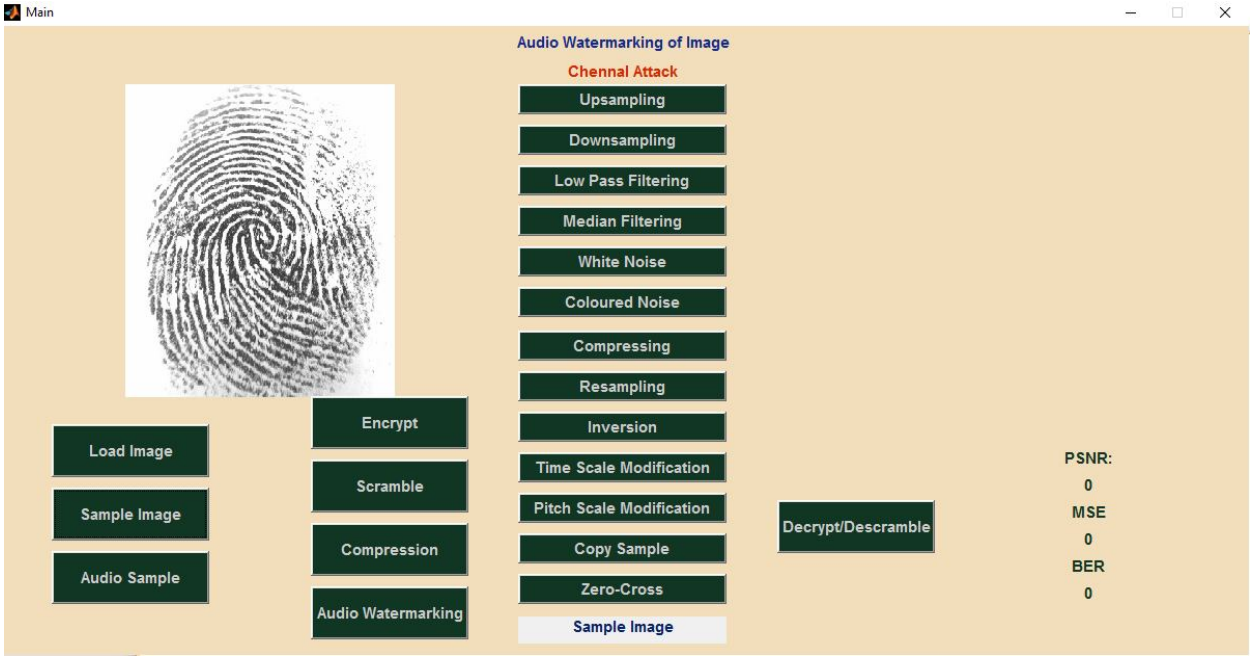

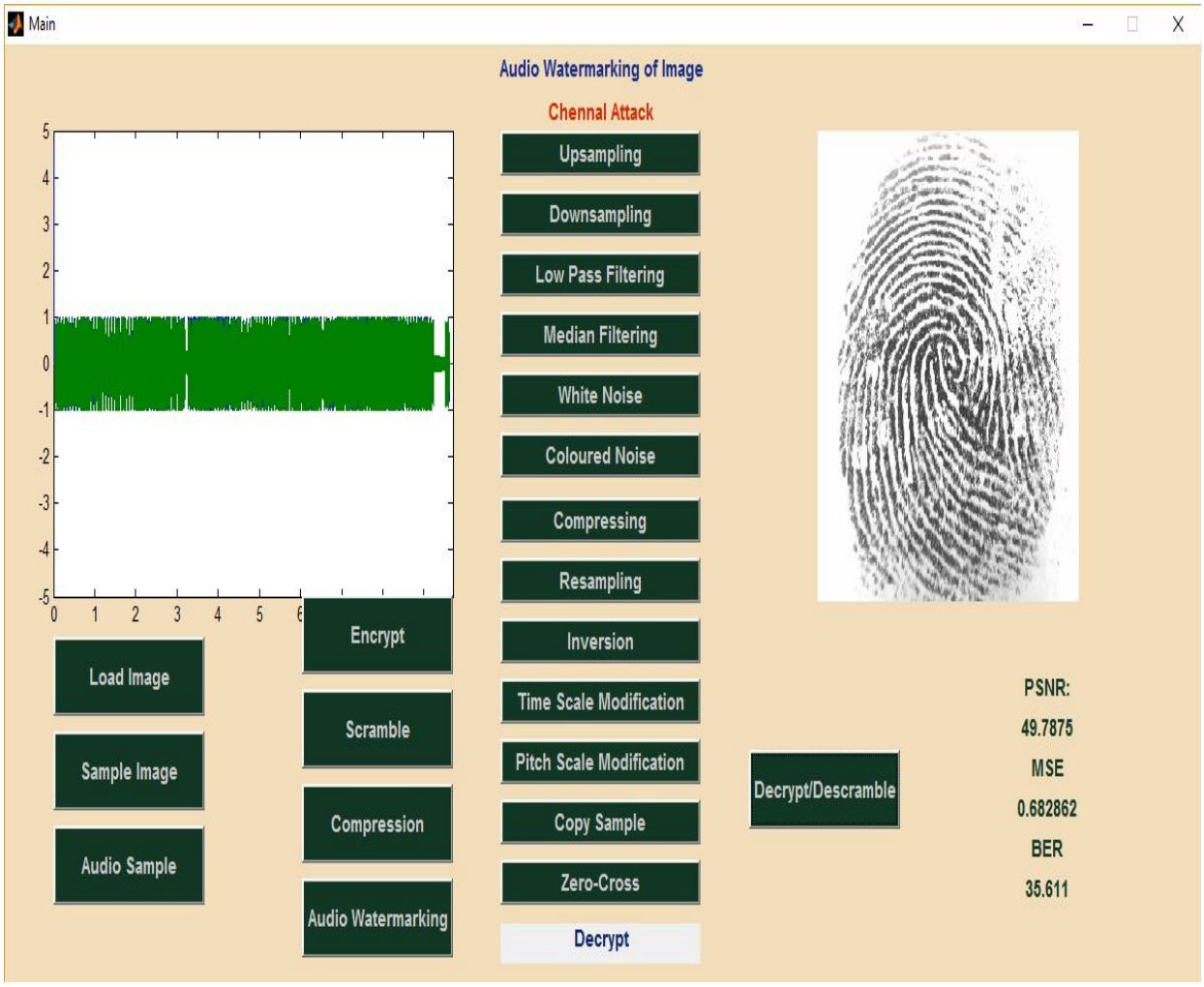

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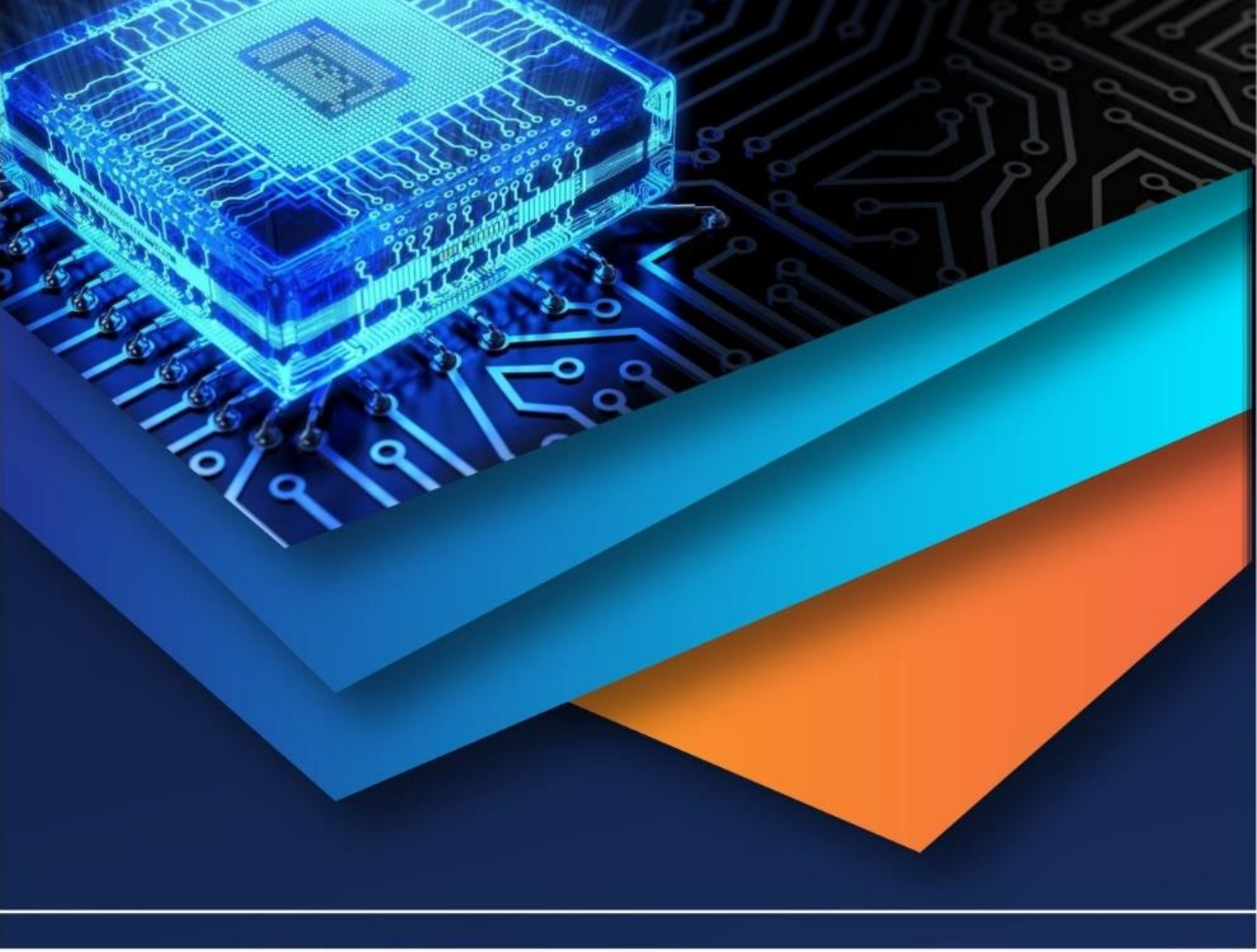

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