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Review On Copyright protection in Videos by using Multiple Watermarking Techniques

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Abstract:

Digital watermarking is used for data authentication and copyright protection of digital media files. Original host files required to recover the watermark operation in non-blind watermark system, which increases system resources overhead. It also doubles memory capacity and communication band-width. This system uses a robust video multiple watermarking technique which is based on image interlacing. In this system, a watermark embedding/extracting is done by using three-level discrete wavelet transform (DWT), Arnold transform is used as a watermark encryption/ decryption method, and gray image, color image, and video are used as watermarks. Geometric, noising, format compression, and image processing attacks are used to test this system.

Keywords **— Digital watermarking, Image interlacing, Arnold transform, Three level DWT, Authentication, Security.**

I.INTRODUCTION

The main problem of then on blind watermarking systems: double overhead over system resources like memory/storage in both sender and receiver and bandwidth on the communications channel between them. The idea of our proposed solution for this problem is as follows: if there is a technique by which the original video is divided into parts or sub videos, from these sub videos we can get two of them that are identical (or at least are very similar to each other).These two sub videos can play the same role of the two identical copies of the original video, in such case as a result, there is no need to another copy of the original video in the watermark extracting operation at the receiver. Image interlacing is used to solve this problem.family. Throughout a affected person evaluation, information of the identified relevant highlights of an individual may very well be inserted into the predictive type plus the doctor advised promptly towards the chance of achievements in case technological know-how have been being presented.

II. RELATED WORK

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II. VIDEO WATERMARKING

This system is possible through different approaches. Different approaches are categorise on basis of Watermarking techniques are used to protect digital multimedia from unauthorized duplication. The purpose is to verify the integrity and the authenticity of the images. Digital video isa sequence images called frames and these frames are divided in subparts and are loaded by a constant rate called frame rate. So, by reading the frames from the video file frame-by frame and dealing with each frame as a color image, all image watermarking techniques can be used as video watermarking techniques. Watermark can be done in two domains that are spatial domain and frequency domain. In the spatial domain the watermark is embedded by modifying the pixel values of the host image/video directly and in frequency domain, the watermark is by modifying the frequency components of the host image/video. Spatial domain watermarking techniques are lower in complexity than frequency domain techniques but the frequency coefficients can capture better characteristics of the human visual system

(HVS).So, the frequency domain watermarking techniques are more robustness against attack and better imperceptibility.

III. THE BASED TECHNIQUES

.In this technique, a robust video multiple watermarkingtechnique is proposed to solve this problem. This techniques based on image interlacing. In this technique, three-leveldiscrete wavelet transform (DWT) is used as a watermark embedding/extracting domain, Arnold transform is used as a watermark encryption/decryption method, and different types of media (gray image, color image) are used as watermarks.

A. Three-Level DWT:

Three-level DWT as shown in Figure1 is used in theproposed method. This number of decomposition levels is enough to present the mid frequency components strongly suchas the HL3 subband which is considered as the best location for watermarking operations according to the HVS properties.

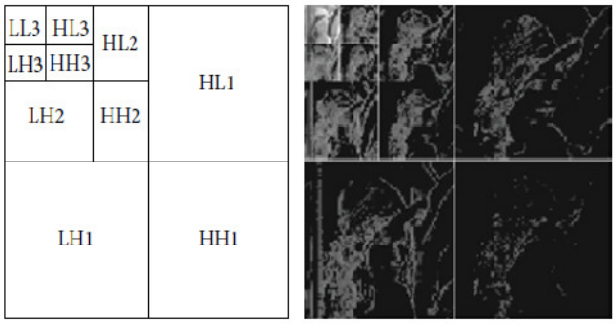

Fig-Three-level DWT

B. Arnold Transform:

Arnold Transform is one of the popular image/video frame encryption methods. In this transform, which is a periodic transform, the original organization of the image/video frame pixels is randomized, and after a number of iterations called Arnolds period the image/video frame is returned to its original state.

Fig-Arnold Transform

C. Image Interlacing:

In the proposed method, there are two levels of interlacing:one-level interlacing and two-level interlacing. One level Interlacinghas two types: interlacing by rows only to get evenrows (ER) and odd rows (OR) sub images and interlacing by

Columns only to get even columns (EC) and odd columns (OC) sub images. Two-level interlacing is : interlacing by rowsfirst and then by columns (or in the opposite order) to get four sub images: even rows even columns (EE), even rows oddcolumns (EO), odd rows even columns (OE), and odd rowsodd columns (OO).

IV. SYSTEMTECHNIQUE

This technique was based on image interlacing technique. In this technique three level discrete wavelet transform (DWT) was used as watermark embedding/ extracting domain and Arnold transform as watermark encryption/decryption method. In this system, different types of media as gray image, color image, and video were used as watermarks. The robustnessof this technique was tested by applying different types ofattacks. There is no need to the original host signal in thewatermark extraction process and no overhead over systemresources. Also, there is no degradation in performance ofthese systems after applying this solution and no degradationin their robustness against attacks. Proposed technique willsave system resources, memory capacity, and communications bandwidth. The percentage of saving memory and bandwidth is50% due to prevent sending the original video in the proposedvideo watermarking system.

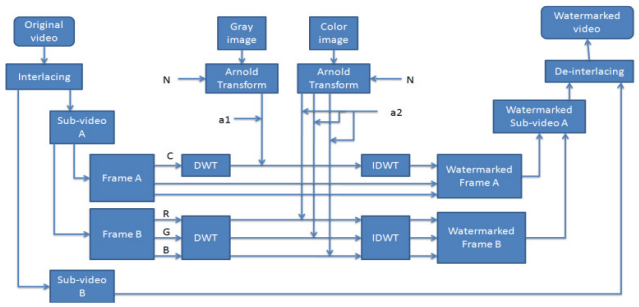

Fig-Architecture diagram: Embedding process

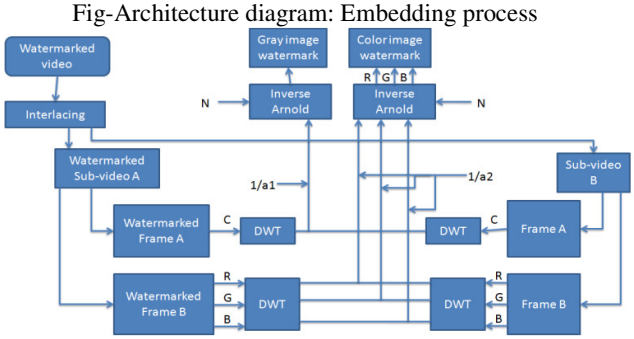

Fig-Architecture diagram: Extracting process

Applications:

1) Copyright protection: Digital watermarking can be usedto identify and protect copyright ownership

2) Copy protection: Digital content can be watermarkedto indicate that the digital content cannot be illegallyreplicated.

3) Locating content online: The volume of content beinguploaded to the web continues to grow as we relymore and more on the Internet for information sharing, customer engagement, research and communication.

4) Improved auditing: Media content of all types - television, music, movies, etc. - continues to proliferate andmake its way onto many new consumer devices as wellas many sites across the internet.

5) Access control: Different payment entitles the users tohave different privilege (play/copy control) on the object.

6) Medical application: Names of the patients can beprinted on the X-ray reports and MRI scans usingtechniques of visible watermarking.

7) Fingerprinting: Fingerprints are the characteristics of anobject that tend to distinguish it from other small objects.

IV. CONCLUSIONS

A robust video watermarking technique is used for copyright protection. This system was based on image interlacing technique to solve the nonblind watermarking problems. In this technique three-level discrete wavelet transform (DWT) was used as watermark embedding/extraction domain. Arnold transform used as a watermark encryption/ decryption method. Different types of media as gray image, color image and video in proposed system were used as watermark. Security of this technique was tested by applying various types of attacks. Due to the nonblind watermarking system there is no need to another copy of the original video in the watermarkextracting operation at the receiver which is the goal of proposed system. There is no degradation in performance ofthese system and their robustness in their attack. The purpose of this proposed technique is saving system resources, memory capacity and communication bandwidth. The effectiveness andgood performance of this proposed technique with saving 50of memory and bandwidth.

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