

An Overview On Video Watermarking

Chaitali C. Dube^{1*}, D. D. Khumane²

^{1,2}Department of Electronics & Telecommunication Engineering, Shri Tulja Bhavani College of Engineering, Tuljapur, India

Abstract: Now-a-days the internet of the day is becoming more and more popular with information exchanges and information around the world. This information and information is available online in the form of digital media. During the time of internet authentication, the protection and illegal redistribution of digital multimedia became increasingly important. Digital watermarking can be used to prevent illegal redistribution and land redistribution. Digital watermarking incorporates private symbols known as watermarks into video data that can later be used for copyright protection, crime tracking, content verification, ad tracking, bug fixes, and so on. This program converts video into frame number using object reader. Select one frame and convert it to RGB to Gray level. Then install DWT to cover the image eg the selected frame. In this paper, a new concept regarding video display was developed, leading to better durability, data security, and higher embedding capabilities. Video watermarking is a way to hide data where information or message is hidden within a transparent signal to the user.

Keywords: Video watermarking, Digital image processing, Watermark DWT (Discrete Wavelet Transform), attacks, content protection, digital properties, DWT, DCT, DFT, FFT, security, watermarking techniques.

1. Introduction

Security is a top priority in this digital world. The only concern of the sender is that the data is transmitted securely and securely. Information must be encrypted only by an authorized person. Various forms of communication were developed. Watermark can be embedded either in image or video and the process of embedding video is called video watermarking and the process of embedding watermark on an image is known as image watermarking.

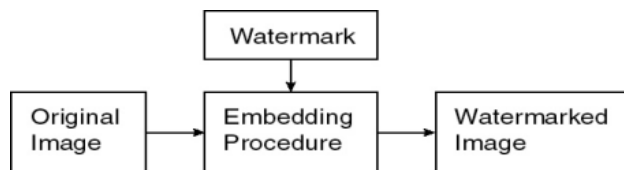


Fig. 1. Basic watermarking model

- DWT- discrete wavelet converter
- DCT- Different discine converts
- SVD rate loss
- Analysis of key PCA components

Copyright protection of information in security systems can

be achieved through three integrated methods-

1. Steganography
2. Writing of texts
3. Making incentives
4. Watermarking

In watermarking techniques, images and data can be hidden in other types of image data, video data and audio data; It is much safer as data is now precisely encrypted in the form of an image. Watermarks distinguish between the visible and the invisible. The image can be hidden in photo, video, audio, and text in image displays. After Image watermarking scientists developed video watermarking. The concept of Video Watermarking produces from the concept of image watermarking where illegal embedding and copyright identification is embedded in the source image for the sake of image safety and security. Video is a group of certain digital images or we can say the sequence of still images, so video watermarking hides data in video frames. In the Video Frames select any frame and embed the information in the selected form, this is called video watermarking.

A. Stages of the appearance of water period

An overview of the various phases of the watermarking system is shown in the image.1 The watermark is designed and embedded to be present in permanent hosting sources. A watermark can be a random number-random sequence, copyrighted logos/messages, identifier marks, gray or text images, or other digital information formats. Once watermarking has been done on real digital media data, it can be distributed online and may be subject to certain things such as unintentional or intentional attacks, degrading the watermark to disappear. There are two different types of watermark systems by considering the watermark installed on the acquisition or output stage.

- Well-known Watermark
- Unique anonymous watermark
- When a watermarking category watermark is detected or removed, a pre-determined discovery or the watermark itself is returned.

An effective process for watermarking techniques requires structures in the design of a watermarking system. Doing watermarking

Algorithms can be classified as weak, fragile, and robust in terms of resistance to attack.

*Corresponding author: chaitalidube08aug@gmail.com

Table 1
Comparative analysis of different standard watermarking technique

Features	LSB	DFT	DCT	DWT	SVD
R	Less robust against geometric distortion	High robust against geometric distortion	High robust against filters	High robust against geometric	High robust against geometric distortion
IP	Less compared to DFT, DCT, DWT, SVD	High	High	Better watermark length and key effect visual quality	Better length of co-efficient effect visual quality
S	Less secure usually depend on choice of key	High secure	Better semi private watermarking	Better semi private watermarking	High private watermarking
P	Less limited data can be added	Average	High	High	High
C	Less	Reliable cost	Reliable e cost	Very high	High
T	Less	High	High	Very high	High
RE	Better for multiple watermarking	High	High	Very high	Very high

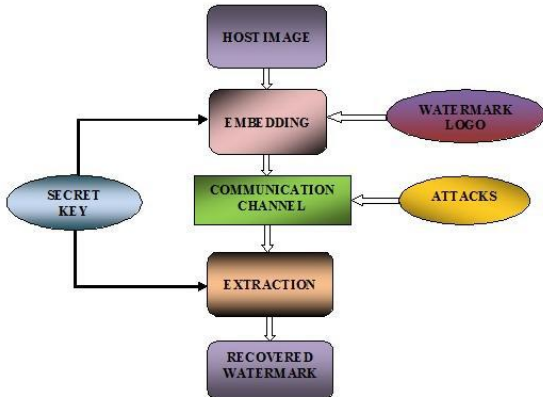


Fig. 2. Different stages of the watermarking system

1) Watermark Attack

a) Active Attacks

Hackers can hack data and make it invisible. But for active watermark hackers they remove watermarks and make them anonymous. This type of attack is sensitive to many applications as well as copy control, owner identification, fingerprinting, and proof of ownership, where the intent of the marker is beaten when it is not available.

b) Attack

In this attack, hackers do not want to remove the current watermark from photos and video. The hackers get the current watermark on photos and video.

c) Geometric Attacks

The attack on Geometry does not remove the embedded watermark itself, but it does badly represent the synchronization of the watermark detector with embedded information.

Here in table 1, the comparative analysis of different standard watermarking technique with respect to some significant features and types of video watermarking technique. The expression used in the table is as follows: R: Robustness, IP: imperceptibility, S: Security, P: payload, C: Computational Cost, T: Time Complexity, RE: Reliability.

2. Expected Simulation Result

The proposed method is tested using multiple testing videos as host videos and multiple testing images and videos as watermarks. One example of these host videos and example of each watermark type as follows: “Airhorse. Avi” as a host video of 50 frames/second, “Evil Inside. Jpg” as a grayscale image watermark of size 32×32, and composite.avi” as a video

watermark of 22 frame with frame size 32×32, and frame rate 15 frames/second.

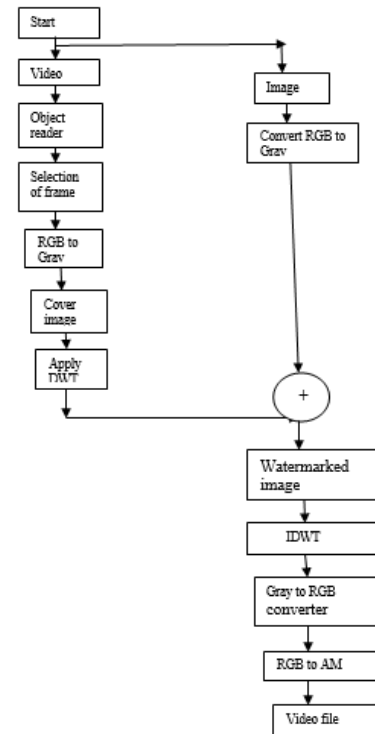
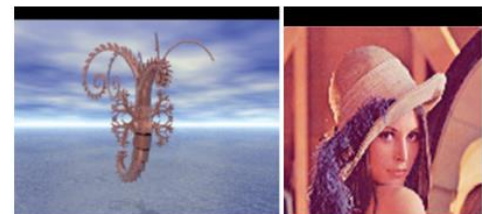


Fig. 3. Software design flowchart



(a) Original video Frame 1 (c) Color image watermark



(b) Grayscale image watermark (d) Video watermark Frame 1

Fig. 4. Host video and watermarks

3. Future Scope

In the current scenario, a wide range of watermarking algorithms has been proposed. The current strategy for robust watermarking techniques concludes that choosing a location for a specific domain or domain in which the watermark is embedded is a key requirement. Continuously, it should use a visual human system to add space and embedding power.

4. Conclusion

Video Watermarking is a robust technique which will be able to hide watermark at such place in frames so that it cannot be extracted easily and provide more security. Comparatively video watermarking technique is more achievable than Steganography or Cryptography. Here we used DWT so that Image/Text file can be hidden into lowest frequency domain. Hence we obtain Watermarked Image by combining both cover and Watermark Image by using Alpha Blending technique. Future scope of the video watermarking is very broad. Video watermarking avoids video piracy in broadcast video monitoring. Previously using SVD watermarking is done which is less efficient but recently DWT & DCT techniques are used which will increase the robustness of the system. Now-a-day's data hacking is very serious problem on internet services that can be avoided using different watermarking techniques.

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