

DESIGN OF DIGITAL VIDEO WATERMARKING SCHEME

Abstract:

Due to increase in growth of internet users of networks are increasing rapidly. Owners of the digital products are concerned about illegal copying of their products. Security and copyright protection are becoming important issues in multimedia applications and services. Digital watermarking is a technology used for copyright protection of digital media. Here ownership information data called watermark is embedded into the digital media without affecting its perceptual quality. In case of any dispute, the watermark data can be detected or extracted from the media and use as a proof of ownership. Digital video watermarking scheme based on Discrete Wavelet Transform is addressed in this proposed work. Design of this scheme using Matlab Simulink is proposed. Embedded watermark is robust against various attacks that can be carried out on the watermarked video. Video Watermarking maximum occurrences of copyright violation and distribution happen for video media content. So, Video Watermarking is one of the most accepted techniques among the various watermarking techniques currently in use.

Introduction:

Due to the advancement in technology, digital document data like videos, images, text messages are shared easily using mobile devices and can be copied without owner's permission. This leads to a new challenge of protecting the multimedia data. Watermarking is a technique of embedding copyright information into the host data to protect the intellectual right and the originality of data. Video watermarking technique is an extension of watermarking concept. The collection of consecutive still images is considered as digital video and the amount of watermark data inserted in video is called as payload. Video watermarking provides few attacks like frame dropping, frame swapping which applicable only to video and to be addressed to achieve the security in watermarking.

Digital watermarking protects the illegal copying of multimedia. A watermark is secret information about origin, ownership, copy control, and so forth. This information is embedded in multimedia content, taking care of robustness and imperceptibly. The watermark is embedded and extracted as per requirement to represent the ownership and/or the identity of multimedia.

Objectives:

1. To define the General Properties of Video Watermarking.
2. The embedded watermark should not change, effect or damage the quality of original data. A watermark should be imperceptible that human cannot find the difference between the original and the watermarked data.
3. When a video is shared usually there will be some distortion. The watermark should be robust against all innocent and malicious attack. Even if the video changes copy right data should not get affect.
4. The amount of data to be embedded in cover work is called Capacity. The number of watermark bits in host data is payload. The payload varies from one application to other.
5. The Watermark and original data should be accessible only to the authorized user. The hackers and unknown user must be unable to extract the watermark and the original data should not effect by any attacks.
6. The cost to embed watermark into host data and to extract watermark should be reliable. It is very important to pick a suitable complexity watermarking algorithm to avoid high complexity problems like more software and hardware resources. Time taken by watermarking algorithm should be less to increase the efficiency.
7. The video watermarking technique mainly faces two type of attack Innocent attack is unintentional and coincidence attack like smoothening and compressing image. These are intentional attack like deleting and desynchronizing attack .

Conclusion:

Though there are several other techniques available for copyright protection and several other issues, digital water marking is the only preferred algorithm because of its basic advantages like being robust, fragile and imperceptible. The research on current robust watermarking techniques concludes that the choice of location either in spatial domain or frequency domain where the watermark is embedded is a primary requirement. Further, it must use the human visual system to optimize the location and strength of embedding. The signal embedding techniques employed are either adaptive or non-adaptive and moreover, redundancy must be involved. Several proposals have been exploiting the benefits of this algorithm for video piracy detection, but the problem is still far off from a solution.