Design of Digital Video Watermarking Technique Based on Motion Frames

Purnima and Rakesh Ahuja*

Chitkara University Institute of Engineering and Technology, Chitkara University, 140401, Punjab, India

The availability of high internet bandwidth instantaneously transfer the digital video multimedia object between two or work workstations. Additionally, the advent of digital technology can be mistreating by malicious user to replicate multiple identical copies of the original video illegally. These capabilities introduce the issue of developing the methods for protecting the copyright of video multimedia objects. The proposed technique suggested detecting the motion part of the video by applying heuristic method of histogram difference between two consecutive frames. Then powerful transformations, Singular Value Decomposition (SVD), Discrete Cosine Transform (DCT) and Discrete Wavelet Transform (DWT) are used to insert the different segment of the scrambled watermarks into different motion frames of the video. The experimental results show that the scheme is robust to unintentional and intentional video specific attacks which considered being frequently occurring attacks. The proposed algorithm has been contrasted with an existing DWT, DCT or hybrid-based approaches and is found to exhibit better robustness.

Keywords: Copyright Protection, DCT, DWT, Digital Video Watermarking, Motion Frames, Multimedia Security, SVD.

1. INTRODUCTION

The speedy expansion of internet technology makes relax and comfortable to transfer the multimedia objects as text, audio, image, videos and audio files from one computer system to any other computer system, irrespective of their geographical location, without compromising the quality of source data. Another advantage of fast internet services and the growth of the multimedia technology are the creation of numerous copies of multimedia contents and redistribution of same or tempered contents to unauthorized customer. Therefore, these kinds of benefits arise other challenges like maintaining the integrity, authenticity, security and copyright information of the source data. The method of cryptography technique protects the content during the transmission in such a way that no unauthorized user can read or modify the bit stream from the network. Once the data has been decrypted, these offers do not protect the copyright information and reproduction and spreading of multimedia content from the intended receiver itself. Therefore, an urgent requirement arises to develop such method for preventing the creation of illegal duplicating and tempering. However, these additional problems conquer with the advent of digital watermark

technology. Digital watermarking is a technique by which some identifying information is inserted into the original signal in a robust manner so that it cannot be eradicated by any unauthorized person but it can only be extracted or detected by the concern authority in order to claim for ownership or copyright protection. The inserting object depends upon the type of application and accordingly watermark information embedded into the cover data. The categories of embedded signal may be owner name, signature, logo, copyright, serial number, copy control signal, binary images, gray level images, color images, text, distributor name, customer name, transactions dates or other applicable digital formats.

These watermark signals are used in a wide variety of watermarking applications [1] includes broadcast monitoring, fingerprinting, copyright protection, ownership protection, copy control, authentication, integrity and many more. Such applications applied to multimedia objects like images, audio and video.

There are numerous digital video watermarking techniques have been anticipated for almost all types of cover signals especially for image and video. It is well established fact that the exhaustive and successful task has been carried out for image watermarking but lot of issues still requires attention for video watermarking. The more

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*Author to whom correspondence should be addressed.