

## Robust Video Watermarking Scheme Based on Intra-Coding Process in MPEG-2 Style

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### Article Info

#### Article history:

Received Nov 9, 2016

Revised Jan 27, 2017

Accepted Feb 26, 2017

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#### Keyword:

Copyright protection

DCT blocks

Information security

MPEG-2 structure

Video watermarking

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### ABSTRACT

The proposed scheme implemented a semi blind digital watermarking method for video exploiting MPEG-2 standard. The watermark is inserted into selected high frequency coefficients of plain types of discrete cosine transform blocks instead of edge and texture blocks during intra coding process. The selection is essential because the error in such type of blocks is less sensitive to human eyes as compared to other categories of blocks. Therefore, the perceptibility of watermarked video does not degraded sharply. Visual quality is also maintained as motion vectors used for generating the motion compensated images are untouched during the entire watermarking process. Experimental results revealed that the scheme is not only robust to re-compression attack, spatial synchronization attacks like cropping, rotation but also strong to temporal synchronization attacks like frame inserting, deleting, swapping and averaging. The superiority of the anticipated method is obtaining the best sturdiness results contrast to the recently delivered schemes.

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## 1. INTRODUCTION

The rapid development of fast internet bandwidth, excellences recording devices, tremendous storage capacity, better noise resistance and quality of services (QoS) have made possible to generate the multiple copies of the digital multimedia content like image, audio and video for distributing to other user or computer system with no quality degradation as the original and copied data are exactly same, inexpensive and delivery to the remote workstation is almost instantaneous. Therefore, an issue of intellectual copyright protection becomes a major concern. The technology of cryptography solves the problem up to some extent. However, the technology vulnerable once the contents are decrypted since a pirate could easily purchase a copy and then re-sell or distribute it over a shared network. The advent of digital watermarking technology conquers the restriction in presence of some existing threads. Digital watermarking [1] is the process of inserting the special bit pattern as digital watermark into the multimedia document in such that the quality of video must not be degraded from the minimum threshold and it must withstand normal processing of video editing operation. The watermark may be the copyright logo, owner, distributor or customer information, depends upon the application for which it is to be developed.

An exhaustive research has already been take place for image watermarking. The image watermarking techniques [2]-[3] are applied to video multimedia objects too. However, these schemes always suffer because video consisting additional features that do not present in the image. The distinguishable feature of video is the presence of temporal redundancies exists between neighboring frames