Abstract

Internet evolution, along with the advancement of digital multimedia tools has created a major impact in making the storage and distribution of multimedia content a straightforward task. Thus security of multimedia contents becomes a vital issue and there is a need in protecting the digital content against counterfeiting, piracy and malicious manipulations. Digital watermarking is an evolving field that requires continuous effort to find for the best possible method in protecting multimedia content. Digital watermarking is the procedure whereby secret information (the watermark) is embedded into the host multimedia content, such that it is: (1) hidden, i.e., not perceptually visible; and (2) recoverable, even after the content is degraded by different attacks. The two basic requirements for an effective watermarking scheme, imperceptibility and robustness, conflict with each other.

The main focus of this report is to provide good perceptual quality of the watermarked image and its robustness against different attacks. Here, discussed robust digital watermarking techniques in discrete wavelet (DWT) domain. One is Wavelet tree structure based watermarking, and other is adaptive color image watermarking using Wavelet tree structure. Last technique is used a contrast sensitivity based human visual system (HVS) model. The HVS models give us a direct way to determine the maximum strength of watermark signal that each portion of an image can tolerate without affecting the visual quality of the image. This report gives an exhaustive study on a digital watermarking method which is an efficient scheme for protecting the copyrights of digital images. The report also includes discussion of the three watermarking algorithms in frequency domain is presented and compare them. The comparison of the algorithms is presented using various test images from the image processing community. Results show that adaptive color image watermarking using Wavelet tree structure the best as compared to other algorithm.

*Key words*: Digital watermarking, LSB method, Discrete Cosine Transformation (DCT), Discrete Wavelet Transform DWT.