**BLIND DUAL WATERMARKING FOR COLOR IMAGES AUTHENTICATION AND COPYRIGHT PROTECTION**

**ABSTRACT**

We have implemented a robust image watermarking technique for the copyright protection based on Discrete Wavelet Transform (DWT). In this technique a multi-bit watermark is embedded into the low frequency sub-band of a cover image by using alpha blending technique. The insertion and extraction of the watermark in the color cover image is found to be efficient than other transform techniques. We demonstrate that the watermarks generated with the proposed algorithm are invisible and visible and the quality of watermarked image and the recovered image are improved. The image quality of the extracted watermark is analyzed by comparing with the input image by using statistical parameters such as peak-signal-to-noise-ratio (PSNR) and mean square error (MSE).

**EXISTING SYSTEM**

* The visible watermarking was implemented in early stages.
* Pixel addition based techniques such that the pixel values of the original image and the watermark are combined.
* In existing papers, Watermarking was done in spatial domain. The spatial domain is the normal image space, in which a change in position in image directly projects to a change in position in space. Ex.-Least Significant bit (LSB) method.

**EXISTING DRAWBACKS**

* Due to the less robustness of existing watermarking algorithms, the watermarked image looks in different color, so the people can easily identify that some kind of watermark is added.
* Furthermore, image quality may be degraded by the watermark
* The rate–distortion performance is low, and there is a leakage of statistical information.
* The problem in existing scheme is that data is highly sensitive to noise and is easily destroyed.

**PROPOSED SYSTEM**

In this work, we are going to embed the logo into the host image to generate the watermarked image and to detect the hidden watermark (i.e., logo) from the watermarked image. This concept can be achieved using watermarking techniques. We have implemented a robust image watermarking technique for the logo detection based on Discrete Wavelet Transform (DWT). In this technique a multi-bit watermark (the logo) is embedded into the low frequency sub-band of an input image by using alpha blending technique. Then IDWT is applied to combine alpha blended image with the other sub-bands and high frequency coefficients to form the watermarked biometric image. Here we are going to implement invisible watermarking; hence the logo will be added with the input image to form the watermarked image. Then at the decryption stage, by using Alpha Blending Extraction Technique we are successfully extracting the watermark content (i.e. logo) present in the watermarked image. We demonstrate that the watermark generated with the proposed algorithm is invisible and the quality of watermarked image and the recovered image are improved. The quality of the extracted image is analyzed by using statistical parameters such as Peak-Signal-to-Noise-Ratio (PSNR) and Mean Square Error (MSE).

**PROPOSED SYSTEM BLOCK DIAGRAM**

1. **WATERMARK EMBEDDING**

**DWT**

**INPUT IMAGE (HOST)**

**WATAERMARKED IMAGE**

**ALPHA BLENDING EMBEDDING TECHNIQUE**

**IDWT**

**DWT**

**WATERMARK (LOGO)**

1. **WATERMARK EXTRACTION**

**WATERMARKED IMAGE**

**IDWT**

**DWT**

**DWT**

**ALPHA BLENDING EXTRACTION TECHNIQUE**

**WATERMARK**

**INPUT IMAGE (HOST)**

**FIG: BLOCK DIAGRAM OF PROPOSED SYSTEM**

**PROPOSED SYSTEM TECHNIQUE**

* DISCRETE WAVELET TRANSFORM (DWT) AND INVERSE DWT
* ALPHA BLENDING EMBEDDING TECHNIQUE
* ALPHA BLENDING EXTRACTION TECHNIQUE

**PROPOSED SYSTEM ADVANTAGES**

* The recovered image quality is high.
* It is possible to implement in visible and invisible watermarking.
* It is not sensitive to noise.
* Can be suitable for color images also

**FUTURE ENHANCEMENT**

Instead of DWT, we can use Stationary Wavelet Transform (SWT) to increase the robustness of our system and to increase the security level.

Image encryption and Decryption (i.e, the process of hiding the watermark into the image and extraction from the image) is possible also for color (RGB) images.

**ALTERNATE TITLE**

* Color image watermarking using Discrete Wavelet Transform (DWT) and Inverse DWT

**SOFTWARE REQUIREMENTS**

* MATLAB 7.14 Version R2012a

**MATLAB**

The MATLAB high-performance language for technical computing integrates computation, visualization, and programming in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation.

* Data Exploration ,Acquisition ,Analyzing &Visualization
* Engineering drawing and Scientific graphics
* Analyzing of algorithmic designing and development
* Mathematical functions and Computational functions
* Simulating problems prototyping and modeling
* Application development programming using GUI building environment.

Using MATLAB, you can solve technical computing problems faster than with traditional programming languages, such as C, C++, and Fortran.