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Working Phases and Novel Techniques of Digital Watermarking

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Abstract: Digital watermarking is the way toward encoding hidden copyright information in aimage by making little alterations in its pixel content. For this situation watermarking doesn't limit the getting to image data. The significant function of watermarking is to stay present in information for verification of ownership. The utilization of Digital watermarking isn't limited up to copyright security. Digital watermarking can likewise be utilized for owner identification to identify content of owner, fingerprinting to identify purchaser of content, broadcast monitoring and authentication to determine if the information is transformed from it's original form or not.

Keywords: *Copyright Protection, watermark Embedded etc.*

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I. INTRODUCTION

Digital watermarking is an adjustment of the regularly utilized and surely understood paper watermarks to the Digital world. Digital watermarking portrays techniques and advances that permit hiding data. The hiding procedure must be with the end goal that the adjustments of the media are intangible. Digital watermarking is an innovation for embedding different kinds of data in Digital content. All in all, data for ensuring copyrights and giving the legitimacy of information is implanted as watermark. Digital watermarking is moderately another method for securing protected innovation However, hypotheses and advancements behind it are PC based steganography, cryptography, spread spectrum communications and noise theory.

First significant application come into mind is copyright assurance of Digital media. It is anything but difficult to copy Digital information precisely without quality loss. Like procedure in which artist marked their work of art with a brush to guarantee their copyrights. Artist of today can watermark their work and shroud some data state their name in the image. Henceforth, embedded watermark will permit recognizing the owner of work. This idea is relevant to Digital video and sound too.

Particularly, appropriation of Digital sound over web in MP3 position is at present a major issue. Digital watermarking might be valuable to arrangement controlled sound distribution and give effective intends to copyright security, for the most part in a joint effort with international registration bodies such as IDDN (Inter Deposit Digital Number).

II. WORKING OF DIGITAL WATERMARKING

The structure of commonplace Digital watermarking framework comprises of primarily three sections viz watermark insertion unit, watermark extraction unit and watermark detection unit. Thus procedure of Digital watermarking system incorporates three procedures for example watermark insertion process, watermark extraction procedure and watermark detection process. The watermark insertion unit gives the generic way to deal with watermarking any digital media.

The generic methodology of watermarking framework is appeared in figure. The conventional methodology comprises of watermark embedded and watermark detector. The watermark embedded is having two sources of info for example cover work and watermark message and it'soutput is watermarked work which is input to watermark detector. Then after performing some operations detector gives detected watermark message.

 ISSN: 2454-4248
613 –616

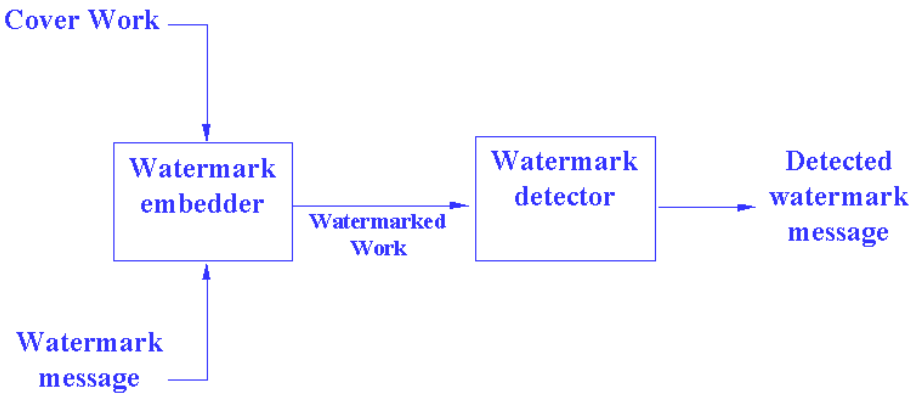

Fig. 1 Generic Watermarking System

Inputs to insertion unit are original image (for example any Digital content),the watermark and user key to acquire watermarked image. The yield of insertion unit is watermarked object. The input to extraction unit consists of watermarked image and key utilized during insertion unit If, object has not been altered, since it was checked and right key is used, output of extraction unit is watermark. If, the item has been changed or wrong key is used, the extraction strategy yields a error message.

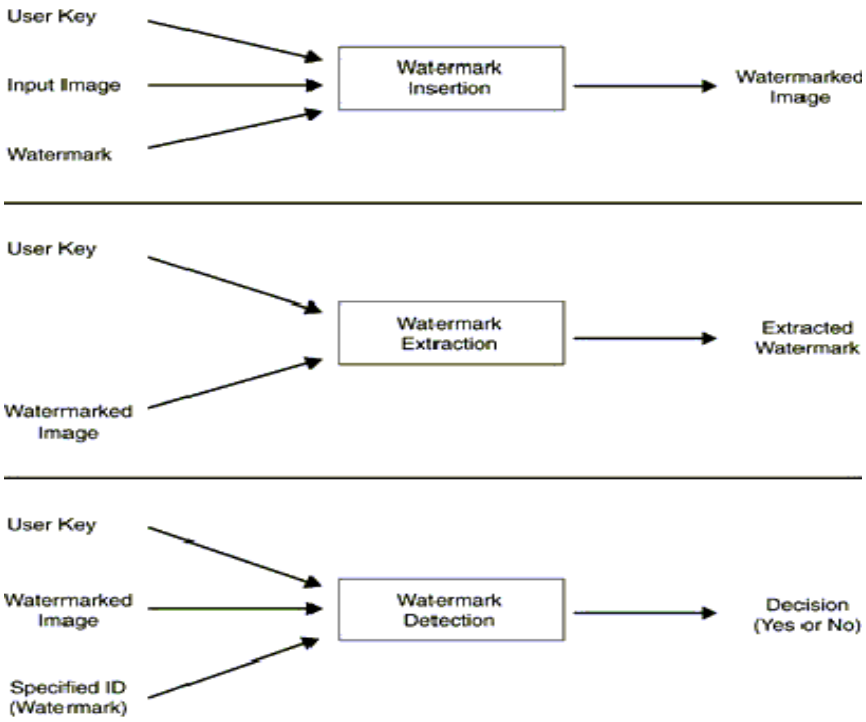

Fig. 2 Working Phases Of Digital Watermarking

The inputs to detection units are watermarked object, the watermark that was embedded into object and the key. The detection process at that point shows whether the object contains an mark that is near the original watermark. The significance of "close" relies upon the kind of changes that a stamped item may experience the course of typical use. Watermark insertion unit coordinates the info image and watermark to frame yield watermarked image. Watermark extraction reveals the watermark in watermarked images, a method generally relevant in verification watermarks. Watermark detection detects presence of ID .for example in robust watermarks nearness of determined ID (watermarks) can be identified utilizing predefined limit for example answering to question either YES or NO shows whether ID is available or not.

 ISSN: 2454-4248
613 –616

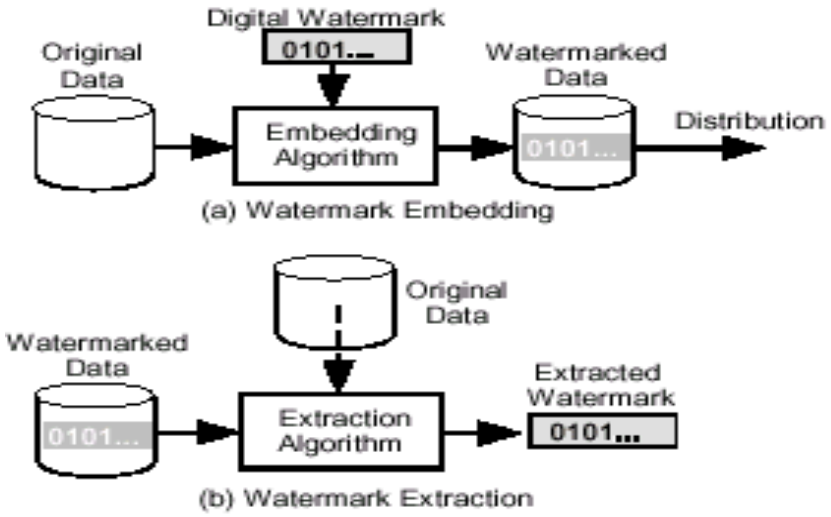

Fig. 3 General Digital Watermarking Process

Figure shows what real procedure is done during embedding and extraction process. Original data and watermark on submitting to inserting algorithm gives watermarked data. During extraction, this watermarked data is then given to extraction algorithm gives separated watermark.

III. DIGITAL WATERMARKING TECHNIQUES

Digital watermarking strategies is only What are the methods to put Digital watermarks onto the Digital media. There are three methods by means of image domain and transform domain. These procedures are can be portrayed in detail as pursues.

Image domain encoding

This procedure of image watermarking is otherwise called Least Significant Bit (LSB).This strategy stores the enormous data in a image without decreasing the quality of image. Image domain tools utilizes bit wise strategies to encode the watermark. Using encryption and compression, a record that is nearly as large as image can be put away inside it with minimal distortion .LSB works by reducing the number of colors used by image itself and uses rest of palette to encode the information using slight variations of the color. In the event that the colors in a image are less, at that point more data can be put away without reducing the quality. This strategy is valuable to store enormous information however message can be destroyed by modifying it.

Transform domain

The second basic strategy is Discrete Cosine Transformation (DCT) and falls under Transform Domain. It uses manipulation of image algorithms and image transformation. This method stores small image throughout the image.

This strategy utilizes JPEG images. It changes the algorithm used to record the distinction between the pixels, which is reason for JPEG encoding. On the off chance that you utilize more bits for encoding the watermark, either the image is bigger or low quality will be there. A few algorithm utilized in this technique encode the message so well that the image can be printed out, scanned back in, and the copyright can in any case be perused.

Masking

A watermark is handled and set over the original, so that if a distinction record is made of the two, the watermark stands apart to the human eye. Ditheringthe cover can likewise make the modification of the photograph less recognizable, as it evacuates sharp edges of change. This modifies the image attributes as opposed to bits, so it could be considered to fall under the Transform Domain. Text watermarks can be of three fundamental sorts: text line coding, which is the point at which the text lines of a specific report page are moved up or down marginally that is can't be seen; Word space coding, which is the point at which the dispersing between words in a line of supported content is modified and; Character coding, which is the point at which an element, for example, the end line at the highest point of a letter is broadened so the changed content goes unnoticed.

IV. CONCLUSION AND FUTURE WORK

The field of digital watermarking is as yet developing and is drawing in a great deal of research interest. The watermarking issue is characteristically increasingly troublesome that the issue of encryption, since it is simpler

 ISSN: 2454-4248
613 –616

to execute a successful attack on a watermark. In cryptography, a successful attack regularly requires deciphering an enciphered message. On account of digital watermarking, simply destroying the watermark, as a rule by somewhat distorting the medium containing it, is a successful attack, regardless of whether one can't unravel or recognize any hidden message contained in the medium. Since commercial interests seek to use the digital networks to offer digital media for profit, they have a strong interest in protecting their ownership rights.

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