



## TYPES OF WATERMARK BASED ON HUMAN PERCEPTION AND ROBUSTNESS

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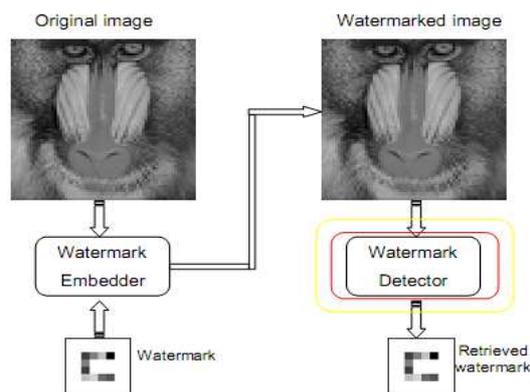
### Abstract

Digital watermarking is the efficient method to protect the digital information. Digital Watermarking is the method that embeds information known as a watermark into a multimedia object such watermark may be detected or extracted later to create an assertion regarding the object. Watermarking is either "visible" or "invisible". Though visible and invisible are visual terms watermarking isn't restricted to images, it can even be went to shield alternative sorts of multimedia object. This paper review many techniques regarding digital watermarking (visible and invisible).

**Key Words:** Visible watermarking, Invisible watermarking, Fragile watermarking, Semi fragile watermarking, robust

### Introduction

Digital watermarking came to be in nice demand once sharing information on the net became a usual apply. Sharing files online, you ne'er grasp if somebody uses them without your consent. To stop unauthorized commerce use of your files, you can publish them to the online within the worst quality or don't publish anything worthy in any respect. It isn't an honest way to solve the problem of unauthorized use, is it? So, you must search for a lot of effective ways in which of copyright protection, like digital watermarking. A digital watermark could be a pattern of bits inserted into a digital file -image, audio or video. Such messages sometimes carry copyright information of the file. Digital watermarking takes its name from watermarking of paper or cash. However the most distinction between them is that digital watermarks are speculated to be invisible or a minimum of not ever-changing the perception of original file, unlike paper watermarks, that are imagined to be somewhat visible.



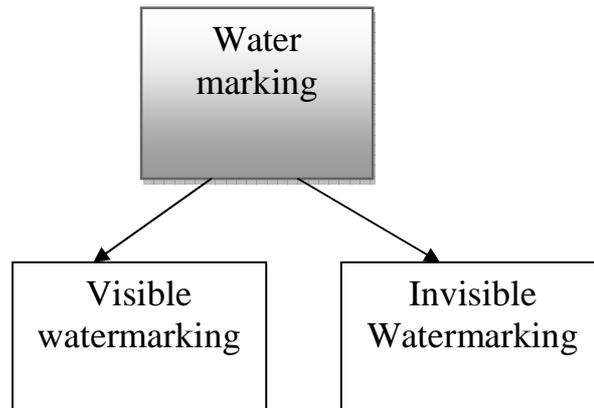
General Watermarking Method.

## 2.TYPES OF WATERMARK:

### A. Division Based On Human Perception:

Depend on human visual perceptions water mark may be divided in to two types they are

- Visible watermarks and
- Invisible water marks



**Division Based On Human Perception**

**B. Visible Watermarks:**

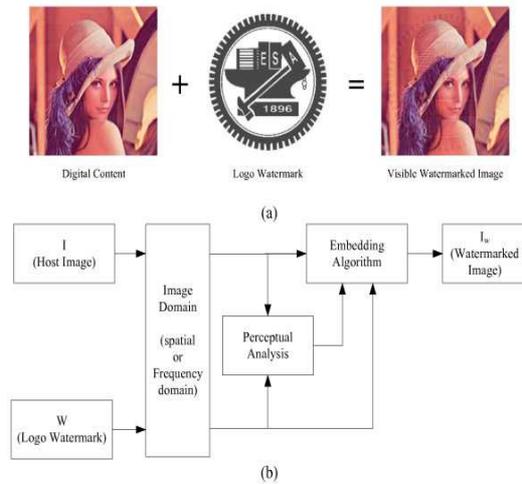
These watermarks can be clearly seen by the viewer and can also identify the logo or the owner of the content. Visible watermarking technique changes the original signal. The watermarked signal is completely different from the initial signal. Visible watermarking algorithms are less complicated. The watermarked signal cannot withstand the signal process attacks, just like the watermark can be sampling, cropping from the watermarked image (or) watermark signal. In this type of watermarking method spreading the watermark information throughout the image or signal. Could be a best option, however the standard of the image or signal is degraded that prevents the image or signal from being employed in medical applications.



**Visible watermarking**

**C. Invisible Watermark:**

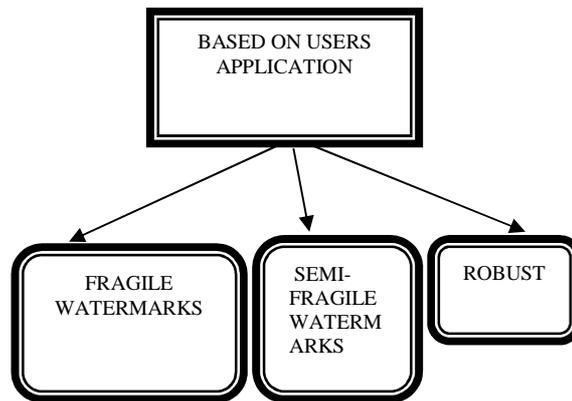
This watermarked information cannot be seen by others. The Output signal doesn't amend a lot of when compared to the Original signal. This type of watermarked signal or image is nearly almost like the initial Signal. Because the watermark is invisible, the cheater cannot crop the watermark as in visible watermarking. Invisible watermarking is a lot of strong to signal process attacks in comparison to visible watermarking. As the quality of the image doesn't suffer a lot of, it will be utilized in almost all the applications.



**Invisible Watermarking**

**3 .BASED ON APPLICATION:**

Based on users application watermarks are sub-divided into three types they are



**Watermarking Methods Based on User Application**

**A. Fragile Watermarks:**

Fragile watermarking technique involves embedding data into a file that is destroyed if the file is changed. This technique is unsuitable for recording the copyright holder of the file since it will be therefore simply removed, however is helpful in things wherever it's necessary to prove that the file has not been tampered with, like employing a file as proof in an exceedingly court of law, since any tampering would have removed the watermark. Fragile watermarking techniques tend to be easier to implement than sturdy ways.

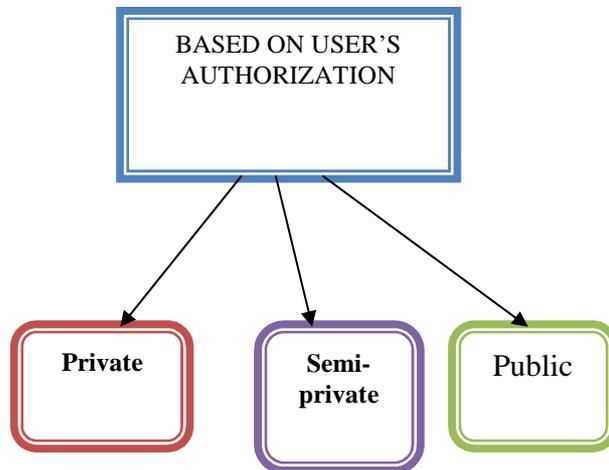
**B. Robust:**

Robust marking aims to embed data into a file that cannot simply be destroyed. Although no mark is really indestructible, a system may be thought of sturdy if the quantity of changes needed to get rid of the mark would render the file useless. So the mark should be hidden in an exceedingly a part of the file wherever its removal would be simply perceived. There are two main varieties of sturdy marking. Procedure involves activity a novel symbol for the customer who originally non inheritable the file and thus is allowed to use it. Should the file be found within the possession of someone else, the copyright owner will use the fingerprint to identify that client desecrated the license agreement by distributing a duplicate of the file. Unlike fingerprints, watermarks establish the copyright owner of the file, not the client. Whereas fingerprints are wont to establish those who violate the license agreement.

**C. Semi-Fragile Watermarks:**

These watermarks are broken if the modifications to the watermarked signal exceed a pre-defined user threshold. If the threshold is about to zero, then it operates as a fragile watermark. This methodology is often wont to guarantee information integrity and additionally information authentication.

#### 4. BASED ON USER'S AUTHORIZATION TO DETECT THE WATERMARK



##### A. Privat :

In this watermarking, the user is not approved to find the watermark embedded within the original signal. Private marking systems is divided more into different kinds however all need the original image Private marking systems reveal little data and need the secret key so as to find the mark. Several current systems fall under this class and they are usually used to prove ownership of fabric in court.

##### B. Semi-private:

Semi-blind watermarking doesn't use the original cover-data for detection, however tries to answer identical question. (Potential application of blind and semi-blind watermarking is for proof in ownership.)

##### C. Public:

In this type of watermarking, the user is authorized to detect the watermark embedded in the original signal.

#### IV. DIVISION BASED ON KNOWLEDGE OF THE USER ON THE PRESENCE OF THE WATERMARK:

##### A. Steganography :

Steganography is that the art and science of writing hidden information in such the simplest way that nobody with the exception of the supposed recipient is aware of the existence of the message. This can be come through by concealing the existence of data inside apparently harmless carriers or cover .

##### B. Non Steganography:

The user is alert to the presence of the watermark in original signal.

#### Conclusion

In this paper, we have a tendency to studied the various types of watermarking methods on the basis of various parameters like Human Perception, Robustness etc. On the basis of human Perception, we can divide the watermarking into two parts: Visible and Non Visible Watermarking. Primarily based upon the user authorization for the detection of the watermark, watermarking is often divided into public and personal watermarking. On the idea of various applications, Watermarking may be divided into three categories: Fragile Watermarking, Non-Fragile watermarking and strong Watermarking. Within the future, we are going to develop some new watermarking techniques that are strong and may be used in varied real world applications.

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