

Digital Watermarking - A Check on Unauthorized Redistribution of Digital Media

written by Kulin Dave | June 8, 2019

Protection against copyright infringement is immensely important as any work of art of a person carries a personal reflection of that person and any unauthorized interference with his work can pose a serious challenge to his personality and reputation. The world has turned into a digital hub now. Most of the activities are done and information is shared on digital platforms. Today, Digital Right Management (DRM) or Digital Watermarking has become the torchbearer in systematic copyright protection as it prevents unauthorized redistribution of digital media by restricting the ways consumers can copy content they've purchased. Due to rampant digital piracy, DRM was set in place.

Methods

Available

Under Digital Rights

Management, there are 3 major ways by which copyright protection is done:

1. Cryptography.
2. Steganography.
3. Watermarking.

Cryptography is an end-to-end method of protection of information communicated through digital media with the help of codes such that the information can only be decoded and processed by the desired receiver.

Steganography, on the other hand, is a method of copyright protection by way of concealing a file, message, image, or video within another file, message, image, or video.

Digital Watermarking

refers to that technique where a signal or information is embedded in a photo or video or sound media in a discreet manner that cannot fall under a normal human observance.

Digital

Watermarking: Concept

The article focuses on

Digital Watermarking and Copyright Protection. Digital Watermarking must have a

high degree of Imperceptibility and Robustness. Imperceptibility refers to the

perceptual equivalence between watermarked media and host media which means that there should not be any visible change or distortion in the original or host media after the watermark media is inserted. Any distortion which is obvious

can result in the commercial degradation of the host media. So that should be avoided[1].

The parameter to gauge

the Robustness of the Watermark is the ability of the detector to detect the watermark after it has been applied to the host media. Watermark can be applied

in various ways like cropping, inversion etc. Also, signal manipulation plays a

key role in deciding the robustness of a watermark. It is ideal, for copyright protection, to have a watermark that is robust to any kind of manipulation. If

a watermark is sufficiently robust, it can only be detected by creating distortion in the original work. Therefore, it is suitable for copyright protection and authentication.

Scope of Digital Watermarking

Digital watermarking has

a huge relevance and scope of utilization in terms of those information that is

not to be disclosed in public domain. A lot of information pertaining to Defence

Agency, National Intelligence, detection of internet piracy, Personal identification Data etc. can be protected by means of Digital watermarking.

Further, it also bars illegal broadcast, publication monitoring and manipulation without due consent or knowledge of the copyright holder.

WIPO

and Digital Watermarking

We find mention of

Digital Watermark in Tenth Session of WIPO Standing Committee On Copyright and

Related Rights that took place in Geneva in the year 2003. The issue of this session was Current

Development in the field of Digital Right Management. The mechanism of digital

watermarking has been elaborated in under this session[2]. This strengthens the grounds of Digital

Watermarking in the arena of Copyright Protection.

Digital Watermarking, as

explained under WIPO, has an imperceptible appearance. However, it is pertinent

to note that it must be detectable by "watermarking detector" that helps in distinguishing a copyrighted/original work from the pirated ones by way of detecting the presence or absence of such watermark.

Critical

Analysis

The capacity of the

watermark to fit in data depends upon the size of content type. However, this comes as a drawback as it is

very difficult to create a robust Watermark for the contents of small size like

tests and logos. Furthermore, embedding watermark in the host media accounts for distortion in the original work. Although, in most cases, it is nearly impossible to detect a watermark with human eyes, repeated embedding of the host media would make it difficult to retain the original appearance of the copyrighted work.

Where, it is of utmost

relevance to remove the watermark without affecting the nature of the

original

work, it is equally risky as once the watermark is removed, the work can be used in an uncontrolled manner as the appearance has not been distorted. There has to be a check on the person who removes the watermark. If it lands in wrong hands, it can be misused and thus, poses a serious threat to the entire foundation of Watermark embedding for copyright protection.

Conclusion

Copyright infringement, being such a prevalent issue in today's world, reflects the vulnerability of a copyright holder especially in cyber space. With advancement in technology and methods of information dissemination the breach of copyright has become easier. Hackers are extremely creative with their ways and pirated works floating all over the internet is a strong evidence of the same. Therefore, Digital Watermarking has a huge scope of flourishing as a technological development that gives sense of security to the copyright holders around the world. It is important that the copyrighted works are protected rather than having remedial provisions against its breach. Once it is illegitimately accessed, there is a very slim chance of stopping the consequences. Digital Watermarking paves a way to protect these works in an efficient manner without harming the original work. Although, it has a few drawbacks and a scope of improvement which has to be worked on, it is undeniable that it is one of the most significant developments in this field. Digital Watermarking should be made available to the copyright holders at a reasonable rate to garner a good environment of copyright protection

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[1]WIPO

Standing Committee On Copyright And Related Rights available at https://www.wipo.int/edocs/mdocs/copyright/en/sccr_10/sccr_10_2_rev.pdf

[2]

Article 2.4.7 of the WIPO Standing Committee On Copyright And Related Rights available at

https://www.wipo.int/edocs/mdocs/copyright/en/sccr_10/sccr_10_2_rev.pdf

Ibid.

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