ABSTRACT

This project is aimed to the feasibility of coding an "detectable" digital water mark on a standard 512*512 intensity image with an 8 bit gray scale. The watermark is capable of carrying such information as authentication or authorisation codes, or a legend essential for image interpretation. This capability is envisaged to find application in image tagging, copyright enforcement, counterfeit protection, and controlled access. Two methods of implementation are discussed. The first is based on bit plane manipulation of the LSB, which offers easy and rapid decoding. The second method utilises linear addition of the water mark to the image data, and is more difficult to decode, to take place on the image, without corrupting the water mark beyond recovery. Either method is potentially compatible with JPEG and MPEG processing.In this project we done a visible watermarking scheme that is applied into the host image in the LSB domain

INTRODUCTION

Digital watermarking describes the process of embedding additional information into a digital media, without compromising the media's value. Digital watermarking can be classified according to its visibility ,they are visible & invisible watermarking.

The method described in this project relies on the manipulation of the LSB of any *colour or monochrome* image, in a manner which is detectable to the eye. The embedded message is decoded and can removed from this modified image in order to recover the original information.

The desirable properties of an electronic water mark are undetectability and accurate recovery of the hidden message. In general, the problem of embedding an visible watermark and its subsequent extraction falls into the category of matched or adaptive filtering . In order to render the watermark detectable, encoding with m-sequences was chosen, because of their balance,random appearance and good auto-correlation properties (a single peak with no sidelobes), which simplify the recovery process . In practice,

extended m-sequences were employed, being commensurate with the image size (2n) and exhibiting a null in autocorrelation around the main peak. chosen to encode the water mark by the choice of m-sequence phase. (An alternative method could use the choice of m-sequence to determine the data byte). This paper demonstrates the feasibility of such encoding and the accuracy of the message extraction.

Images encoded with m-sequences or one bit Gaussian noise are statistically indistinguishable from each other and only visually distinguishable from the original if the image contains large areas with a small intensity variation. In many imaging systems the LSB imperfections or quantisation noise and hence its sacrifice is of limited significance. The exact choice of code depends on the amount of data to be embedded, the errors involved in image transmission, and the degree of security required . In the case of the linear addition of the m-sequence to the image LSB, the code cracker must know the image content without errors in order to determine the encoding sequence. The number of available sequences varies according to the operations performed.

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