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ROBUST INVISIBLE QR CODE IMAGE WATERMARKING IN DWT DOMAIN

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ABSTRACT: Quick Response (QR) code is 2d code and widely used in magazine advertisement, product packet, museum, and tour tickets. It has high data capacity compare to 1d code. The invisible QR code is watermarked via popular wavelet transform algorithm in images. The results show that the proposed method is robust and tested against attacks.

KEYWORDS: QR code, watermarking, Wavelets.

I. INTRODUCTION

In this modern era mobile and wireless technology is taking over all fields of life. They are more than a communication device; they act as your PC, music player, your bank, your shopping area and more [1]. In near future the smart glasses like google glass are going to replace the current hand held devices which make to overlay the physical world with a digital layer of tags, ads, maps etc [2].

In current smart phone scenario, one of the important technology used to connect the physical world to internet or digital world using smart phone, is QR codes. They are used mainly for marketing and commerce but their applications are numerous including virtual marketing, virtual maps, QRpedia etc. We are making the QR code as invisible watermark in image using digital watermarking technology. Other alternatives proposed were marking QR code in invisible ink which is only visible with Ultraviolet [3], QR transparent stickers etc.

The main challenge in making invisible QR code is the detector part. Since the detection is expected to be done in smart phone which has slower processors, the detection must be very simple with very little processing required before passing information to QR reader. Here we implement and simulate the QR encoder and decoder in MATLAB to study the effectiveness of algorithm. This paper uses watermarking scheme in wavelet domain where multiple copies of QR code is inserted into low frequency components of host image. Since the data requires no secrecy compared to existing watermarking schemes, public watermarking technique is used [4] [5] [6].

Invisible Watermarking Matlab Source Code

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Table of Contents Invisible Watermarking Matlab Source Code

1. Understanding the eBook Invisible Watermarking Matlab Source Code
 - The Rise of Digital Reading Invisible Watermarking Matlab Source Code
 - Advantages of eBooks Over Traditional Books
2. Identifying Invisible Watermarking Matlab Source Code
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Invisible Watermarking Matlab Source Code
 - User-Friendly Interface
4. Exploring eBook Recommendations from Invisible Watermarking Matlab Source Code
 - Personalized Recommendations
 - Invisible Watermarking Matlab Source Code User Reviews and Ratings
 - Invisible Watermarking Matlab Source Code and Bestseller Lists
5. Accessing Invisible Watermarking Matlab Source Code Free and Paid eBooks
 - Invisible Watermarking Matlab Source Code Public Domain eBooks
 - Invisible Watermarking Matlab Source Code eBook Subscription Services
 - Invisible Watermarking Matlab Source Code Budget-Friendly Options

6. Navigating Invisible Watermarking Matlab Source Code eBook Formats
 - ePub, PDF, MOBI, and More
 - Invisible Watermarking Matlab Source Code Compatibility with Devices
 - Invisible Watermarking Matlab Source Code Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Invisible Watermarking Matlab Source Code
 - Highlighting and Note-Taking Invisible Watermarking Matlab Source Code
 - Interactive Elements Invisible Watermarking Matlab Source Code
8. Staying Engaged with Invisible Watermarking Matlab Source Code
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Invisible Watermarking Matlab Source Code
9. Balancing eBooks and Physical Books Invisible Watermarking Matlab Source Code
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Invisible Watermarking Matlab Source Code
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Invisible Watermarking Matlab Source Code
 - Setting Reading Goals Invisible Watermarking Matlab Source Code
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Invisible Watermarking Matlab Source Code
 - Fact-Checking eBook Content of Invisible Watermarking Matlab Source Code
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

-
- Interactive and Gamified eBooks

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