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2 LQR FOR SECRET MESSAGE AND DOCUMENT OWNERSHIP

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ABSTRACT

The fast reaction(QR)code was intended for capacity data and rapid perusing applications. In this paper, we exhibit another rich QR code that has two stockpiling levels and can be utilized for archive confirmation. This new rich QR code, named two-level QR code, has open and private capacity levels. The general population level is the same as the standard QR code stockpiling level; along these lines, it is discernible by any established QR code application. The private level is built by supplanting the dark modules by particular finished examples. It comprises of data encoded utilizing qary code with a blunder redress limit. This permits us not exclusively to build the capacity limit of the QR code, yet additionally to recognize the first report from a duplicate. This verification is because of the affect ability of the utilized examples to the print-and-output (P and S) process. The design acknowledgment strategy that we use to peruse the second-level data can be utilized both in a private message sharing and in a verification situation. It depends on amplifying the relationship esteems between P & S corrupted examples and reference designs. The capacity limit can be fundamentally enhanced by expanding the code letters in order q or by expanding the finished design estimate. The test comes about demonstrate an immaculate reclamation of private data. It likewise features the likelihood of utilizing this new rich QR code for archive verification.

KEYWORDS: Document authentication, Pattern recognition, Private message, QR code, Two storage levels.

I. INTRODUCTION

A QR Code is a Matrix code; the QR codes were developed in Japan in 1994 by Toyota subsidiary, Denso Wave to help track automobile parts throughout production. This technology has been around for over a decade but has since become popular as a medium for marketers to reach smart phone users [1]. QR code stands for Quick Response Code, Which is the trademark for the type of matrix barcode which was invented by the Japanese corporation Denso Wave. QR code has a number of features such as large capacity data encoding, dirt and damage resistant, high speed reading, small print out size, 360 degree reading and structural flexibility of application [2]. In this paper introduced the 2LQR for share a secret messages for document ownership. The proposed method in this 2LQR code contains of a first level accessible for any standard QR code reader therefore it keeps the strong characteristics of the QR code and a second level that improves the capacities and characteristics of the initial QR code. In this introduce a public level and private level. In public level access the any standard QR code. The private level is replacing the black module by texture pattern. Therefore the gain storage capacity, the private level i,e second level in this encoded using the q-ary with error correction capacities. This information is invisible to the standard QR code reader because it perceives the textured patterns as black modules. Therefore the second level using for share a secret message. The pattern recognition method that use to read the second level information can be used both in a private message sharing and in an authentication scenario.

a) Architecture of QR Code:

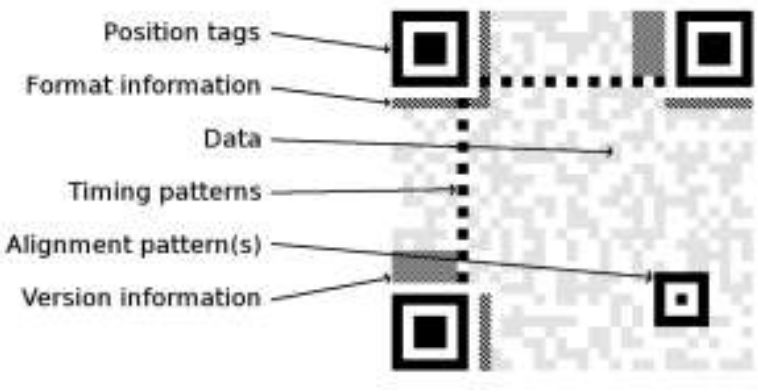

Fig-1: Architecture of QR Code

II. LITERATURE SURVEY

1. A Survey on QR Codes:

In this paper introduced that there are so many possibilities for QR code's use in different areas that is yet to be explored. The technology has a firm ground for research aspects. More and more experiments are done with QR codes in different aspects like enhancing the security, better recognition, reducing redundancy in order to save space, possibility of encoding different kind of data like audio, etc. As QR code provides the structural flexibility, it opens up the huge platform for researchers to explore the possibilities to enhance the performance of QR code or to merge QR code with different technologies. Experiments can be done to improve data capacity of QR codes. 1)To find out the possibility of the use of coding techniques other than RS coding. 2) Use encryption to encode data first, and then 3) encode it to QR code for better security solutions [1].

2. QR Codes and Security Solutions:

In this paper introduced QR codes have great potential in business media. Some possibilities are discussed in this paper and there are many creative ideas waiting for us to explore. Also, this paper can be served as the first step for the readers to investigate this exciting topic of mobile learning. In this paper examine outlined the dangers of possible malicious attacks utilizing manipulated QR Codes. Since QR Codes gain increasing popularity through their use for marketing, purposes, we expect that this kind of attack will receive more and more attention by the hacking community in the future this paper some security conscious of the mobile phones users [2].

3. Towards Robust Color Recovery For High-Capacity Color QR Codes:

This paper HiQ, a layered framework for high- capacity color QR codes, which supports robust and rapid decoding using off-the-shelf smartphones. HiQ enables users and developers to create generalized QR codes with a flexible and broader range of choices of data capacity, error correction level and color, etc. Moreover, we have also collected a large-scale color QR code dataset, CUHK-CQRC, which will be made available to the community. In this Experimental results show that substantial advantages of the HiQ over other baseline approaches. The implementation of HiQ using off-the-shelf smartphones has demonstrated its usability and effectiveness in real-world mobile applications. [3].

4. Color Image Coding and Decoding in QR Codes:

This paper introduces the concept of color image embeddings in QR codes. This is an automatic method to embed QR codes into color images with bounded probability of detection error. These embeddings are compatible with standard decoding applications and can be applied to any color image with full area coverage. To mitigate the visual distortion of the QR image, the algorithm utilizes halftoning masks for the selection of modified pixels and nonlinear programming techniques to locally optimize luminance levels Take one color

image and converted into gray image. Then this doing the masking process, window extraction, image embedding, decoding like processes. After this process the original gray image is taken from this [4].

III. PROPOSED METHODOLOGY

We Proposed the 2LQR code for sharing the private messages throughe by replacing by black module with texture patterns.Here the information is public message and Private information. The input information is public message Mpub and Private message Mpriv. The output is 2LQR code.

1. Public Message Mpub :

The public message is stored using the classical generation method [5]. The standard generation method is following method: First of all, the most optimal mode (numeric, alphanumeric, byte or Kanji) is selected by analyzing the message content. The public message is encoded using the shortest possible strings of bits. Is divided into 8 bit long data codewords. The error correction coded using the Reed soloman code is generated. After that data and codewords are arranged in order manner. In order to be sure that the generated QR code can be read correctly, mask pattern is applied. After this manipulation, the codewords are placed in a matrix in a zigzag pattern, starting from the bottom-right corner. The final step is to add the function patterns.

2. Private Message Mpriv :

The Private message is encoded using the error correction code (ECC). Reed soloman using the encoded the private message. The cyclic codes can be defined in matrix form and polynomial form[6]. Any cyclic codes can be defined in matrix form and polynomial form. Any cyclic code C is defined by (n,k,d) parameters, the length of code is 'n'. The 'k' is the number of information digits in a codeword. The 'd' is the minimum distance between distinct codewords. The (n-k) in the codeword are called parity check digits, and ECC these digits are used for error detection and correction.

3. Black Module Replacement :

The codeword is C priv is inserted in standard QR code by replacing the black modules with textured patterns P 1 , . . . , P q respecting the codeword C priv , starting from the bottom-right corner. Then, in the case of private message sharing scenario, the textured patterns are placed in the position tags with respect to the chosen permutation.

4. Recognition Method :

Any QR code production implies a printing process and a scanning process. The P&S process in authentication scenarios are considered as a physical unclonable function [6]. The textured patterns, that propose to use in 2LQR code, are sensitive to the P&S process. The P&S process produces visible and invisible image modifications, which can be caused by resampling inherent to the P&S process, in homogeneous lighting conditions, ink dispersion, varying speeds of the scanning device [7]. The most important elements of the printing process are printer resolution, digital halftoning, toner distribution, physical construction and type of paper. The scanning process is specified by scanner resolution, gamma correction and scanner optics. The optical modulation transfer function of the scanner determines the scanner resolution (which is defined by the number of scanned pixel per inch) and is modeled as a Gaussian blur [8].

5. 2LQR code reading process :

First, the geometrical distortion of P&S 2LQR code has to be corrected during the pre-processing step. The position tags are localized by the standard process to determine the position coordinates [5]. The second step is the module classification performed by any threshold method. We use global threshold, which is calculated as a mean value of the whole P&S 2LQR code. Then, if the mean value of the block p × p pixels is smaller than global threshold, this block is in a black class (BC). Otherwise, this block is in a white class (W C). The result of this step is two classes of modules. On one side, the decoding of public message M pub is performed by using standard QR code decoding algorithm [5] and the positions of the white and black modules. And on the other side, the BC class is used for pattern recognition of the textured pattern in P&S 2LQR code. method is the codeword C ′ priv = (c 1 ′ , . . . , c ′ N c ×n). The last steps of the 2LQR code reading process are unscrambling

using key K and ECC decoding of the obtained codeword C priv . Using the parity-check digits for error detection and correction. For error correction and decoding, one of the classical ECC decoding algorithms (i.e. error syndrome decoding, maximum likelihood decoding algorithms) can be used. The result of this algorithm is the restored private message M priv . The finally share the private message using the 2LQR code. In this increase the storage capacities. The provide dual security and data optimization.

IV. CONCLUSION

We believe that QR codes have great potential in business media. This 2LQR code can be used for private message sharing or for authentication scenarios. The private level is created by replacing black modules with specific textured patterns. The proposed 2LQR code increases the storage capacity of the classical QR code due to its supplementary reading level. One important feature of the textured patterns used is their sensitivity to the P&S process and sensitivity. The two level color QR code scheme improves the storage capacity of the QR code and provide document authentication ensuring overall security. Thus we present a new rich 2LQR code, that has two storage levels and can be used for document authentication. This application avoid remembering username and password and also to ease online transactions, QR Login is developed. The main aim is to provide secured login systems which also perform online transactions.

V. REFERENCES

[1] Towards Robust Color Recovery For High Capacity Color QR Codes ,Zhibo Yang, Zhiyi Cheng, Chen hange Loy, Wing Cheong Lau, Chak ManLi, Guan cheng Li,2016

[2] Color Image Coding and Decoding In QR Codes, Mrs.Princy,Mrs.JisneyThomas,2015.

[3] AT.P. Ho, B. A.M. Hoang, W. Sawaya, and P. Bas, “Document Authentication using graphical codes: Reliable performance analysis and channel optimization,”EURASIP J.Inf.Secur.,vol.2014,no.1, p.9,2014.

[4] T.V. Bui, N.K. Vu, T.T. P. Nguyen, I. Echizen, and T.D. Nguyen, “Robust Message hiding for QR code, ”in Proc.IEEE10thInt.Conf.Intell. Inf. Hiding Multimedia Signal Process.(IIH-MSP),Aug.2014.

[5] A Survey on QR Codes: in context Research and Application Kinjal. Pandya 1,HirenJ.Galiyawala 2012

[6] QR Codes And Security Solutions, A.Sankara Narayanan Department Information Technology, Salalah College of Technology,Sultanate of Oman 2012.

[7] Baras and F. Cayre, “2D bar-codes for authentication: A security approach,”inProc.20th Eur.Signal Process. Conf.(EUSIPCO),Aug.2012.

[8] R. Villán, S. Voloshynovskiy, O. Koval, F Deguillaume, and T. Pun,“Tamper-proofing of electronic and printed text documents via robust hashing data-hiding,”inProc.SPIE,vol.6505,p. 65051T,Feb.2007

[9] Villán, S. Voloshynovskiy, O. Koval, and T. Pun “Multilevel 2-D barcodes: Toward high-capacity storage modules for multimedia security and management, ”IEEE Trans. Inf. Forensics Security, vol. 1,no.4,pp.405–420,Dec.2006.

[10] L. Yu, X. Niu, and S. Sun, “Print-and-scan model and watermarking counter measure,”Image Vis. Comput.,vol.23,no.9,pp.807–814,200