Array Dimension for Secret Sharing with Two Levels QR Code Authentication

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ABSTRACT: In proposed QR code authentication two level storage is used, which help to verify original content in QR code. Our proposed work uses public and private storage level of document storage. In the public level same standard QR code storage level is explored; which can be readable to any QR code readable device. The private level is constructed by replacing the black modules by specific textured patterns. It consists of information encoded using q-ary code with an error correction capacity. Q-array code will increase the storage capacity of the QR code, but also to verify the original document from a copy. This authentication is due to the sensitivity of the used patterns to the print-and-scan process. The pattern recognition method that we use to read the second-level information can be used both in a private message sharing and in an authentication scenario.

KEYWORDS: QR code, two storage levels, private message, document authentication, pattern recognition, print-and-scan process.

I. INTRODUCTIONS

The use of QR codes is increasedbecause they are robust to the copying process, easy to read by any device and any user, they have a high encoding capacity enhanced by error correction facilities, they have a small size and are robust to geometrical distortions. However, those undeniable advantages also have their counterparts.

    1) Information encoded in a QR code is accessible to every user easily, even if it is encoded.

    2) It is difficult to classify original content from duplicate file content due to print and scan feature.

    3) It is impossible to distinguish an originally printed QR code from its copy due to their insensitivity to the Print-and-Scan (P&S) process.Due to increaseduseofonline media system usage one time password which is send to user mobile so any one can hack the information in between transaction. To overcome this we use the QR code so this drawback is overcome man-in-middle attack is not possible as all the communication is encrypted. Two levels QR code motivate for private message sharing and document security authorization. QR codes is featured because they are strong to the copying data and easy for reading with any device and any user, they have a high encoding capacity enhanced by error correction facilities, they have a small size and are robust to geometrical distortions. Although it has some advantages and some disadvantage.Information encoded in a QR code is always accessible to everyone, even if it is ciphered and therefore is only easily readable to authorized users just like see and understand.QR code is unable to distinguish original document content over duplicate copy of encoded document. To overcome this drawback we motivate to standard QR code encoding capacity. This enrichment is obtained by replacing its black modules by specific textured patterns. Besides the gain of storage capacity, these patterns can be designed to be sensitive to distortions due to the P&S process. These patterns that do not introduce disruption in the standard reading process are always perceived as black modules by any QR code reader. Therefore, even when the private information is degraded or lost in the copy, the public information is always accessible for reading.We understand that the privacy information of the user is closely related to the security in authentication. The motivation of this work is to propose the storage capacity can be significantly improved by increasing the code alphabet q or by increasing the textured pattern size. The experimental results show a perfect restoration of private information. It also highlights the possibility.

II.   RELATED WORK OR LITERATURE SURVEY

SR NO	PAPER NAME	JOURNAL NAME AND AUTHOR NAME	REFER POINTS
1.	2D BAR-CODES FORAUTHENTICATION: A SECURITY APPROACH	Domaine Universitaire, 11 rue des Math´ematiques, BP 46 F-38042 St. Martin d'H`eres Cedex, France Signal Processing Conference 2012. Cl´eo Baras and Franc¸ois Cayre	1. In this paper, consider a good authenticationsystem using 2D-BCs from the point of view of the opponent.
2.	ROBUST MESSAGE HIDING FOR QR CODE	2014 Tenth International Conference on Intelligent Information Hiding and Multimedia Signal Processing Thach V. Bui	1. It presented a robust scheme to hide secretmessages into QR code. Our scheme is secure against bit-changed attack and can tolerate more errors than usual. However, the length ofsecret messages is smaller than the one using existing schemes based on bit algorithm.
3.	UNSYNCHRONIZED 4D BARCODES CODING AND DECODING TIME-MULTIPLEXED 2D COLORCODES	Bauhaus-University Weimar Tobias Langlotz and Oliver Bimber.	1. This Paper present a novel technique for optical data transfer between public displays and mobile devices based on unsynchronized 4D barcodes
4.	DISTORTION MODELING AND INVARIANT EXTRACTION FOR DIGITAL IMAGE PRINT-AND-SCAN PROCESS	International Symposium on Multimedia Information Processing (ISMIP 99), Taipei, Taiwan, Dec. 1999 Ching-Yung Lin and Shih-Fu Chang	1. It proposes a model for the pixel value distortion, define the RSC-based geometric distortions, analyze the change of DFT coefficients after geometric distortion, and describe methods to extract invariant feature vector.

5.	SECRET HIDING MECHANISM USING QRBARCODE	2013 International Conference on Signal-Image Technology & Internet-Based Systems Pei-Yu Lin	1. The designed secrethiding scheme can carry 24 to 9720 secret bits into a cover QR code and preserve the readability of the QR code content based on the capability of error correction.
6.	2D COLOR BARCODES FOR MOBILE PHONES	International Journal of Computer Science and Applications M. QUERINI	1. In this paper we have proposed HCC2D, High Capacity Colored 2-Dimensional
7.	PRINT AND SCAN' RESILIENT DATA HIDING IN IMAGES	IEEE TRANSACTIONS ON INFORMATION FORENSICS AND SECURITY, VOL. 1, NO. 4, DECEMBER 2006 Kaushal Solanki,	1. The robustness of the methods is based on three key components of our approach choice of embedding strategy based on analytical.

III. EXISTING SYSTEM MECHANISM

Existing system basedon searching relational values between P&S unuseful patterns and related patterns. The storage capacity can be magnificentlyincreased by code alphabet *q* or by increasing the textured pattern size. Existing system results show a restoration of private information. It also highlights the possibility of using this QR code for document authentication.

Data stored in a QR code is can be easily readable to camera containing, although it is not plain text and therefore is only readable to authorized user ,likewise watch and read. It is impossible to classify an originally document in QR code from its copy due to their insensitivity to the Print and Scan process.

IV. PROPOSED SYSTEM MECHANISM

Proposed system uses two levels QR for data hiding. This 2LQR code has following levels
1. Public level.
2. Private level.
   The public level QR code can read text or document easily with reader, but the private level needs a specific device with encoded information. This 2LQR code can be used for private message sharing or for authentication mechanism. The private level is created by replacing black modules with textured patterns from cover image. These textured patterns are considered as black modules by standard QR code reader. So that private level is hidden to QR code readers, Propose system for private level does not affect in anyway the scanningpublic data of the public level. The proposed 2LQR code increases the storage capacity of the classical QR code due to its supplementary reading level. The storage capacity of the 2LQR code can be improved by increasing the number oftextured patterns used or by decreasing the textured pattern size.

V. EXISTING ARCHITECTURE
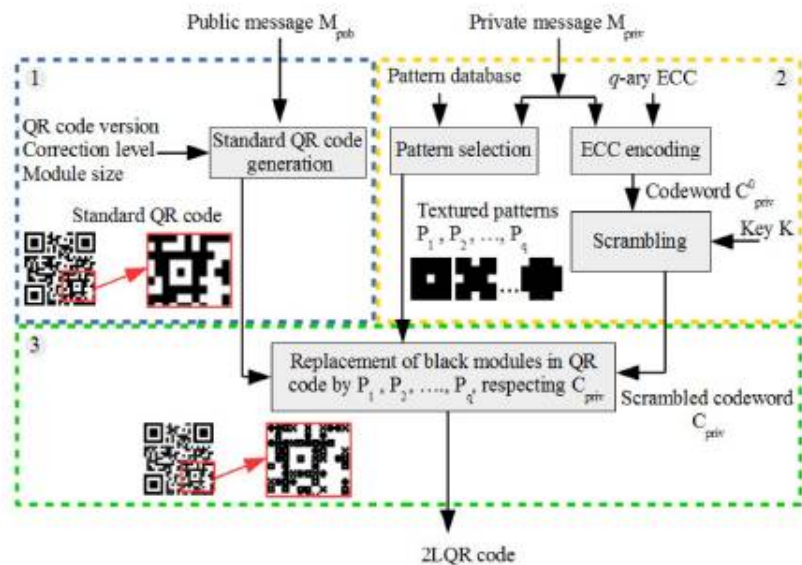
Fig No 01 Existing System Architecture

VI. PROPOSED SYSTEM ARCHITECTURE
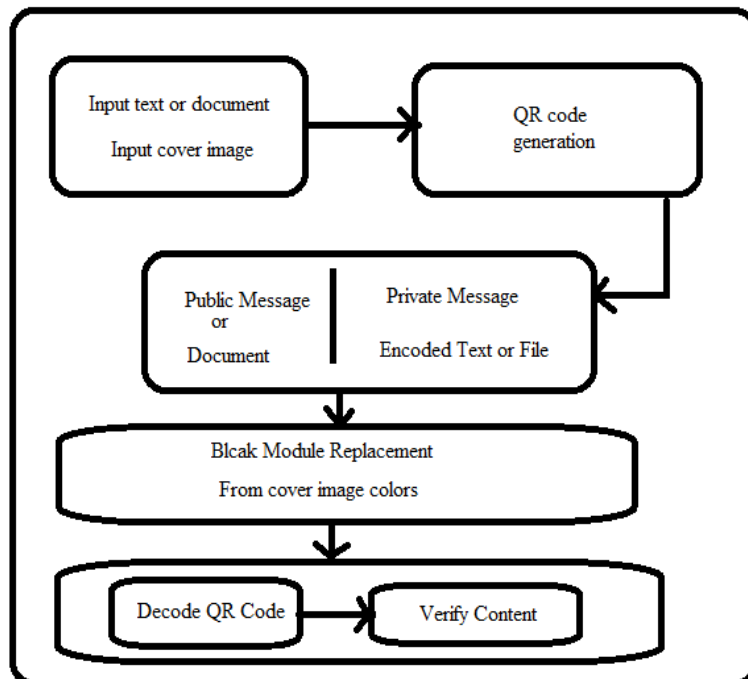
Fig No 02 Proposed System Architecture

VII. ALGORITHMS USED

The primary problem is to implement an efficient, robust, scalable, and easy to use authentication system. We present and analyze the authentication scheme that combines ownership factors (original content and authentication code) with knowledge factors. The method is based on smart card and optical challenge response solution in which a camera equipped mobile phone is used for the purpose of authentication. The security of the scheme is improved by using a type of knowledge-based authentication challenge to the user's smart phone rather than a code displayed in clear text. This solution has high usability due to its ease of use, easy deployment and cost effectiveness.

VIII. CONTRIBUTION OR FUTURE SCOPE

Textured patterns are used are their sensitivity to hiding and reading original content in the QR Code., we use a pattern recognition method based on maximization of correlation values among printable and readable form of content or documentTwo level QR code generation uses.

IX. CONCLUSION

This 2LQR code can be used for secure privatedata sharing for authentication mechanism. The private level is created by replacing black modules with specific textured patterns. Image texture patterns are considered as black modules by QR code reader. So that the private level is hidden to QR code readers, we add the private level which does not affect in anyway the reading process of the public level. The proposed 2LQR code increases the storage capacity of the classical QR code due to its supplementary reading level.The storage capacity of the 2LQR code can be improved by increasing the number of textured patterns used or by decreasing the textured pattern size. All experiments show that even with a pattern size of 6×6 pixels and with an alphabet dimension $q = 8$, it is possible to obtain good pattern recognition results, and therefore a successful private message extraction. However, we are facing a trade-off between the pattern size, the alphabet dimensions and the quantity of stored information during the 2LQR code generation.

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