Using Two Level QR Code system for Providing Security to Important Data

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Abstract -- The Quick Response (QR) codes are optics labels which are machine readable. User can create QR either dynamic or static QR by using Code Generator and download them for immediate use. QR code is used to store the data on to that. QR codes are the way to provide a linking between the Internet and real world products and. QR codes make it so easy to transfer a web link to a mobile. There is a new rich QR code use for data security that has two storage levels. That QR code called two level QR code because it is having two parts. One part is for public data and it is generated by standard process. It can be reads by any application which is standard QR code reader. The second part of QR code is private data and it will generates using texture patterns. These patterns are replaces the black modules of the QR code. Because of using texture patterns, there will be increase capacity of the QR code to store the data as well as user can be check the actual document with the copied documents. Recognizing the patterns is method that can be used to scan the second part of the QR code. It is also use both in shares the private data and to provide the security for data. The capacity QR code is to store the data can be increase by increasing the size of texture pattern

Index Terms: Quick response code, Data security, Print and Scan, Golay algorithm

I. INTRODUCTION

QR code is the Quick Response code, is nothing but the barcode having two-dimensions. A QR code can be store and transfer the data by including contact number, link of the web, web's URLs, it can be plain text, and email address can be as QR code. At first time these codes are designed to track parts of the vehicles at the time of manufacturing in industry. Now a days anybody can be able to generate his or her own QR code by providing data to some software's or websites which are going to be encode the code. There is also using some applications use to generate the QR code for particular information.

When the process to encoding the data in QR code in finished. That generated code can be extracted by using decoder or also by using the scanners. For scanning the code some of a device and an applications are to be used for the purpose to decode that QR code and obtains the data which is stored into that code. The Fig. 1. Shows the example of simple QR code. QR code is having the property that, they can only read by the machines. The human cannot get direct access over the code, for that he should use the particular device or a application which is scanning and decoding the encoded data in QR code. For decoding the data various techniques are to be use. For example: Reed-Solomon's encoding and decoding algorithm or Golay's algorithm for the QR cods [1].

The QR code's methodology can be opens both positive and negative possibilities of using QR code for data security. One is that to need of particular and specific terminal for scan or decodes the data. Because of that important data is not expose everywhere in the plaintext. The second possibility is that, the attacker has to be use the unread ability of the humans about code. They can be take this as advantage to access the important data. Hence for to manipulate the important data using any point which is can be exploit, for example, encodes information which is malicious, into a particular code and users can be tricked at when they are decodes that encoded data.

Fig -1: An example of QR code

In propose method QR code is having the two parts for storing the data according to importance of data. A first part is can be access by using any type of QR code reader and it has important feature of the QR code. The second part of QR code is improving the capabilities and features of available QR code. In second part of the QR code, data is encoding by using q−ary coding technique. In that also deciding the error correction capacities of the QR codes. The information which is encoded in second part of the QR code is not visible by using any of the QR code reader because there is used the textured patterns which are replaces the black modules of the QR code. Because of this the second part of the two level QR code is to be used to share the private messages through the QR codes. The textured patterns are very sensitive for scanning, hence the sensitivity of that patterns is use to decrease the distortions of the print and scan method. The second part of code also will be used to compare the original QR code with its copied code.

II. LITRATURE SURVEY

QR codes which are user-friendly type, that codes are the simply designed symbol of QR code. The target of that simple code is to give most aesthetic form to view. In that also can adds the images into QR code and also can change the shape as well as size of the QR codes modules. The contextual coding for the QR code is the method or the way, which can be use to store the data into QR code. This method is store the data statically and in that storing the very important contextual data. There is implemented the one type of application, which can input parameters as like IP address, location, time. This input data is use to creates an output in form of message and this message is transmit towards the database of sever for storage purpose.

To improve the capacity of the QR code to store the data there was most popular code which is known as HCC2D code [4]. This code increases the capacity of the actual QR code to store the data. There is another method which can also use to increase capacity of data storage. It can also increase the density of the actual QR code. That method is nothing but the binary colored module to generate QR code. By using RGB colored module can also improve the capacity to store the data into QR code. That type of code has all of the improved features of present QR code, but because of that it cannot reads by any application of QR code reader which is standard itself. To read and to print code, there is a need of color printer. Using the face in biometrics is one of the best application of the HCC2D code [5].

The steganography is one method for sharing the secret messages by using QR code. Using this technique can adds some of text or the image on to top of the image. The authors are to be introduced that, how can coding the secret messages using error correction capacity processing of QR code [2]. By that method user can change bits of data which is store into code and can able to insert errors into that QR code. The length of secret message QR coding is upto 1215 bytes [2], it is version V40 of the QR code. Discrete wavelet transform is also use in formation of QR codes [6]. There is many levels for constructing the QR code, which is known as multilevel two dimensional barcode. This type of method is increase the capacity for storing the data than actual QR code [7]. There is another code which is four dimensional code is known as DataMatrix code. These codes are unsynchronized and increased the capacity of data storing, for that use the RGB colors modules as well as the time. There is presents some of the codes display on the screen in at sequence manner. That type of codes uses or having 9 colored for creation process of the codes. Graphical codes are one of the codes which are used in the authentication process [3]. In this method compares the print and scan graphical codes which are embedded documents with the codes which are original type. If the difference among these images is less than threshold λ, then this graphical code and document are authentic.

III. PROBLEM DEFINATION

There are presents many type of graphical codes for data storing because of their easy handling feature. But then also they are access by anyone, hence there is need to generate the code which is will not access by unauthorized person. Proposed method is useful for that.

IV. PROPOSED SYSTEM

The system proposed is a two level QR code which could give the security for the beneficial data.

- Two level QR code parts: One part is for storing the public messages and it will be access by any of QR code scanner. The second part of the QR code is to be use to hide the private and malicious data. That type of code is not directly scan by any of the QR code scanner.
- Encoding and Decoding are two important processes in proposed system.
- The textured patterns are very sensitive for scanning, hence these are using in print and scan process of the QR codes. In pattern recognizing process use this advantages of the textured patterns. Important feature of the textured patterns is it's sensitivity.
- There is the process of select the pattern from database or from workplace of project. At first creation of the pattern process is coming there.

In this processing texture pattern is select for the encoded secrete message. That encoded secret message is hides into pattern by using 2 LSB bits. The standard pattern of QR code able to shares the secret or private messages. Even though this method cannot performs the blind pattern detection process. The data which are presents in encoded form in QR code, is can be access by any of the person. When the data is in ciphered form that can only accessing to the users who are having the authority for the access.

- The major problem is that to find out the original QR codes by comparing with them to copied QR codes. The printed QR codes are insensitive, hence there is need to compare the actual with the printed codes.
- Because of that problem the original QR code is not to be recognizing by the print and scan processing .Hence for that sensitivity of the textured pattern is one of most important way to solve that problem.
- The textured pattern also having the low density than the black modules of QR code.

V. CONCLUSION

In this paper describes that how can we secure our important data by using two level QR code .In that use the Reed-Solomon's algorithm for encoding and decoding the data of the QR code. Because of that our private information is not access by any other person. The two level QR code is use the textured patterns for the replacement of black modules of QR code. Texture patterns are used because they have a low density than black modules. Hence memory required to store this type of QR code is less than the QR codes on which black modules are used. In this way we understand the how can we give the security to our very important data by using QR code encoding technique.

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