



Investigation of Ecommerce Website Using QR Code For Security

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ABSTRACT: A barcode is an optical machine-understandable exemplification of data relating to object to which it is committed. Later they changed into rectangles, dots, hexagons & other geometric patterns in two dimensions. Albeit 2D systems utilize a variety of symbols, they are in general referred to as barcodes as well. QR code stands for Quick Response Code, Which is trademark for type of matrix barcode which was invented by Japanese corporation Denso Wave. QR code has a number of elements such as large capacity data encoding, dirt & damage resistant, high speed reading, small print out size, 360 degree reading & structural flexibility of application



Keyword: OR, CIRCUMVENT, SYMBOLS, ECEMPLIFICATION, ARCHITECTURE

[1] Introduction

A QR code or quick response code is a kind of barcode that could be read using a bar code scouldner. These shoulders are mainly referred to as QR code scolders. Scolders are in form of apps for smart devices. These codes could contain encoded info such as website URLs, data, & text as well as pre-formatted SMSs among other things. These codes initiate from Japan where they were used by Toyota to track car parts. Today, all smart phones come with a QR code scolder to verify that everyone using a smart phone could benefit from this technology. Today, QR codes are used by businesses & companies to reach out to their client base.

Data could be translated into QR code via any QR generator, many of which are available on lie for free. User's simply enter data converted to security code electrically form. That contains authentication information like some people personal information & company's logo etc.

Readable from any direction of 360

QR Code is able of 360 degree (Omni-directional), high speed reading. QR Code are accomplishes this task through position detection patterns placed at three corners of symbol. These position are detection way guarantee stable high-speed reading, circumventing negative effects of background interference. QR Code could be divided into various data areas. Conversely, information stored in multiple QR Code symbols could be reconstructed as a single data symbol. One data symbol could be divided into up to 16 symbols, allowing printing in a narrow area.

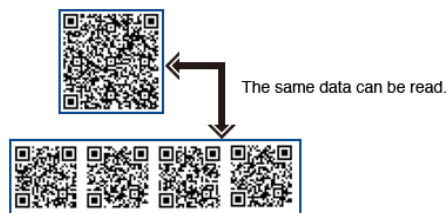


Fig 1. Division of One code into four separate codes

Architecture of QR Code:

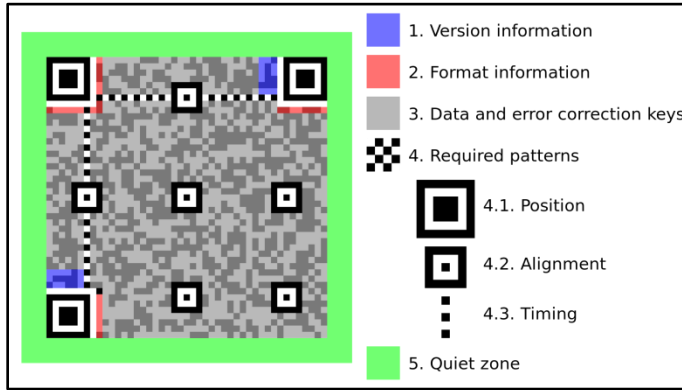


Fig 2 Shows architecture of QR Code

Image Binarization:

Images collected are converted to grayscale format by gray-scale processing. A better binarization method takes a very important role in entire bar code identification system. Reference points out that Niblack method is best approach comparing a variety of local threshold algorithm. But it is very difficult to set an proper window size on way, had been great influence on modules, & also takes too much time. Reference used a block thresholds method combined SOM neural network within Niblack algorithm for binarization. Reference suggests a binarization method based on surface fitting methods using two-dimensional second-order polynomial fitting way to make QR code background image of surface fitting, & image segmentation. This method requires that number of points should be two to three times than matrix structure & amount of image fitting in image segmentation process of background also need to be determined when selecting Fitting samples for image.



Fig 3 A typical depiction of QR code

[2] LITERATURE REVIEW

In 2014 Kinjal H. Pandya & Hiren J. Galiyawala brought out a research paper titled “A Survey on QR Research & Application” which was about QR code being a type of matrix barcode, which was first designed for automotive industry by Denso Wave in Japan. QR Code system had been become admired outside automotive industry due to its fast readability & greater storage capacity compared to standard UPC barcodes. Within approach of mobile phones constantly emerging, especially in area of mobile network access, QR codes to be an adequate tool to quickly & efficiently converse URLs to users.

In a research titled “Application of QR Codes in Mobile Tagging System

for Retrieving Information about Genetically Modified Food” by Tan Shian Long Yoon Foo & Roshan Idrus explain that purpose of their paper is to introduce an integrated mobile system, which could be used by consumers to retrieve product information about GMF products in market.

Katharina Krombholz, Peter Fröhlich, Peter & Edgar Weippl published a research paper titled “QR Code Security: “A Survey of Attacks & Challenges for Usable Security” in which they describe that QR codes are two-dimensional barcodes within ability to encode different types of information. Because of their high information density & robustness,. Even though they offer a broad range of advantages, QR codes pose significant security problem.

[3] OBJECTIVES

The opportunity to put ones business & clients into action had been increased manifolds using QR codes. 2D barcodes are giving smart-phone users direct access to products, services & information. This might be looking to re-order, to engage you or just want more information. By simplifying process for a mobile user, person could hard link his/her business clients.

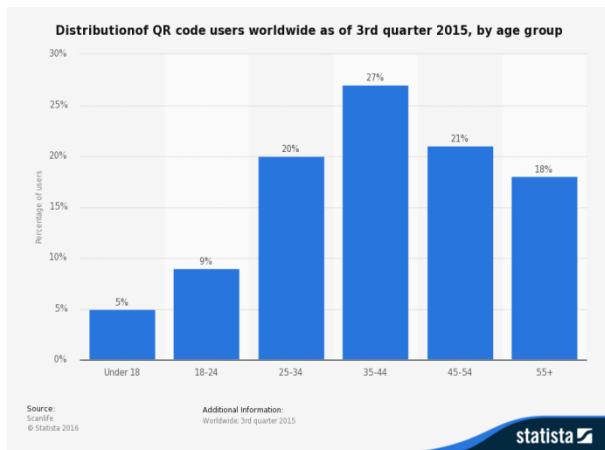


Fig 4 Distribution of QR codes worldwide as of 3rd Quarter 2015, by age Group

QR (quick response) code scouldning had been increased by 1600% over last year. Around 68% are between ages of 25 to 55. As you could see from chart below, people are very interested in using QR codes for getting more information. You could use them to build your customer base & if used intelligently could help you create recurring consumers.

ADVANTAGES OF QR CODES

One of main elements that had been contributed to QR Code's great success is remarkable versatility that it offers its users. QR Code could redirect its scouldner to a website, a specific location on a map, a video or song, a Facebook profile page, could made a contact in your address book or even call a special number. When you create a QR Code, you have freedom to break out of mundane, banal crowd & advertise your product in an original, approachable manner that is most suitable for your product, in a path that enhances its advantages. Although QR Codes look like an innocuous cluster of black & white dots, they have potential to raise your product or company to a higher level of awareness, accessibility & success.



Fig 5 Shows a colorful & customized QR code issued by a company for promotions

[4] PROBLEM FORMULATION

Data Functions

QR code include **function patterns**. These are shapes that must be placed in specific areas of QR code to ensure that QR code scouldners could correctly identify & orient code for decoding. following image gives an example of what function patterns are & where they are positioned.

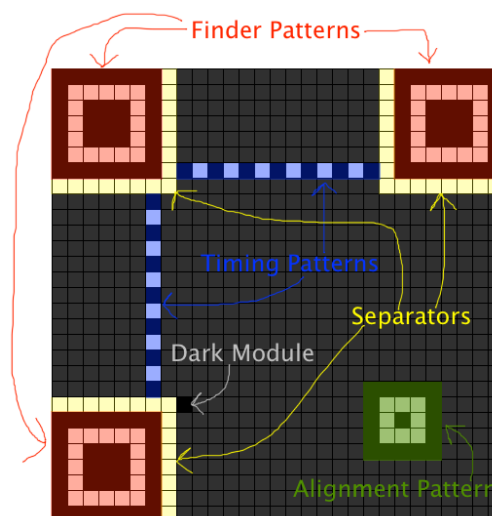


Fig 6 Data Function

Vertical Timing Pattern

The vertical timing pattern is only exception to this rule. When vertical timing pattern is reached, always start next column to left of it. No column should ever overlap vertical timing pattern.



In following image, previous column (upward) is highlighted. rest of modules above this column are occupied by function patterns & reserved areas, so next column must be started, going downward.

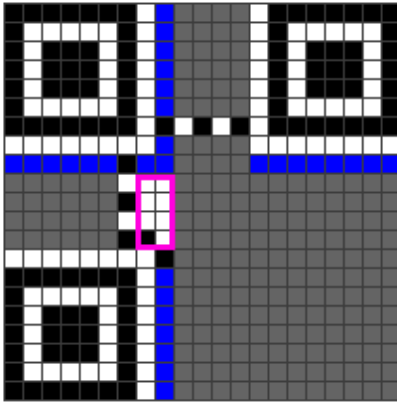


Fig 7 Vertical Timing Pattern

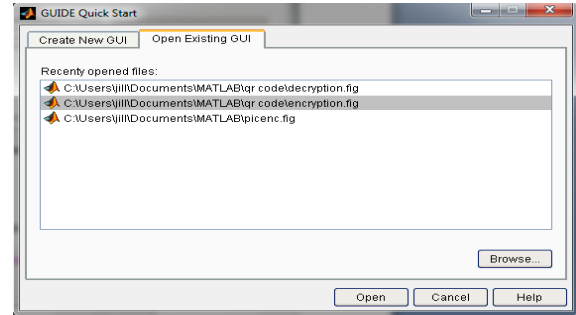


Fig 9 Select encryption.fig to load fig

When we click on the one button following window will be generated

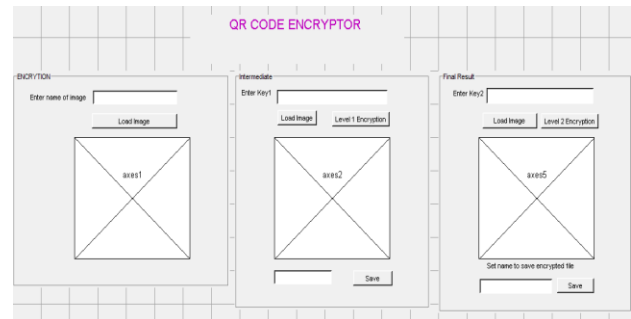


Fig 10 QR code encryptor

[5] RESULT AND DISCUSSION

Inryption process of QR code:

In order to decrypt QR code we will open encryption.fig in matlab using guide command:

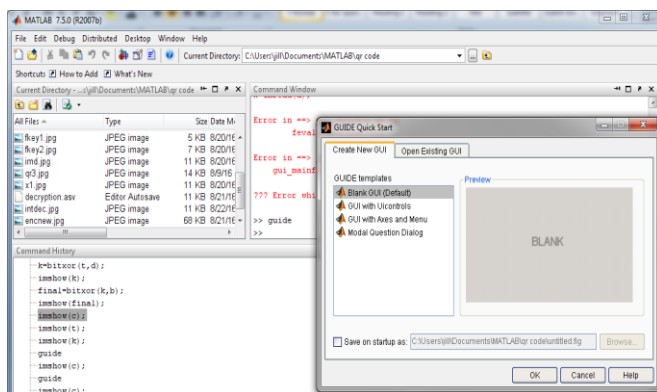


Fig 8 Inryption process of QR code

Select encryption.fig to load fig file:

When we load qr3.jpg image for encryption this window is generated



Fig 11 load qr3.jpg image for encryption this window is generated

When we click on load image button after typing fkey1.jpg in text box then Fkey 1.jpg image is displayed for level 1 encryption.

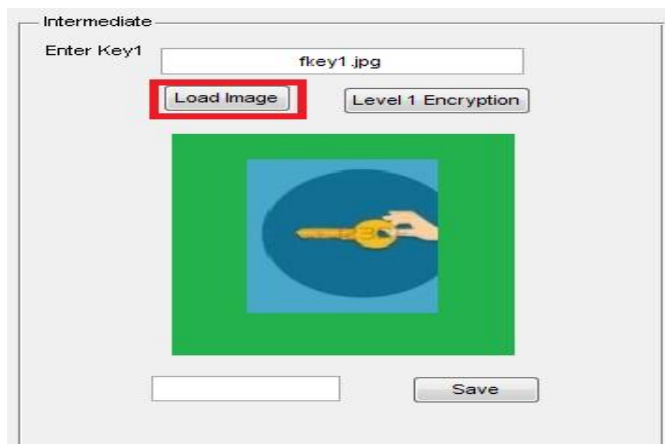


Fig 12 Fkey 1.jpg image is displayed for level 1 encryption.

[6] CONCLUSION

We have studied in detail what QR codes are & what are its fields of application. We have understood that QR codes have a very bright scope of work for future as it had been a very wide area of application. QR code had been an appealing factor to it what marketers worldwide are catching up to. It just started as a identification tool o assembly line of vehicles & today it finds its application in almost every aspect of life from branding to medical science, to education to promotion, from visiting cards to application forms etc. Since it could be encoded & could be password protected so developer could restrict type of users who could navigate to 'link' provided in QR code.

The company issuing QR code could also develop a data base of users that scould on to QR codes as QR scouldners are linked to profile info provided by user in its OS of mobile handset. Hence it had been a big statistical advantage over other technologies.

Then we have also studied amount of data that could be stored in a QR code & methodology to store data in QR code. We have also seen that QR codes could be customised in any color scheme & therefore had been an artistic value to it too.

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