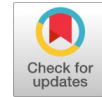


Quick Response Code as a Communication Medium



Thamilvanan G, Mohanasundaram K

Abstract: Quick Response (QR) Codes are tiny compatible printed pattern on solid surface to transfer a data from a printed medium to a digital medium. The coding information cannot be viewed by the naked eye thus the manipulation of printed pattern is very difficult. In general, QR code is printed in the two-dimension using white and black named QR code modules or data pixels. Static and Dynamic QR codes are available now a days. More than 3000 characters can be encoded over a very tiny space using QR graphics. The data are encoded by QR generator using ISO/IEC 18004:2006. Various types of data can be restored using QR codes and every QR Code contains segment devoted to informing the reader what sort of data it holds and used for coding and decoding the data easily. The most common data types of QR codes are SMS, Email address, phone number, plain text, geo location etc. Nowadays the QR codes are used in various fields. For example, it is used in the marketing and industries to provide the information about the products. In education it is used to register the information about the students in their certificates and to access the information in a website.

Index Terms: QR Code; Learning;

I. INTRODUCTION

QR codes (Quick-Response codes) started in Japan and utilized for following automobile parts. QR code is a unique 2D identical code employed to access the data easily using cell phone. QR Codes are little innocuous examples imprinted onto a surface (announcement, publication and so forth.) and their expectation is just to get information from a printed medium to a computerized medium. They can only with significant effort be perused with the unaided eye so they are especially hard to control after productions. Presently it is extremely famous in promoting and publicizing, Education and so on., It is the need of great importance to break down the potential available resources of utilizing the QR codes in different fields including Education.

II. DATA TYPES IN QR CODE

QR Codes can store the data of various categories in the simple access format. Each QR Code has a fragment committed to lighting up the scrutinize what category with respect to data restored. This fragmentation of QR code will be used for coding and decoding of data easily. Commonly used segment of ordinary data types are

A. *Contact Data* – Secured Data which contains contact card with a unique person's name with their contact details like email address, phone number, communication address, URL and others. These details are mandatory for thought on a visiting card allowing people a way to deal with successfully move nuances from the card into their modernized contraptions.

B. *Calendar Data* –The calendar appointment could be saved in a individual diary. When scanning the diary, a get-together welcome could use this for example.

C. *URL* –This will act as unique address to find the specific webpage or a file associated with internet using smart phone. The information given by the URL are procedure to utilize the resource, IP address and domain name etc.

D. *Email Address* – This identification code will used to open Specific email with a predetermined subject for the user to access their documents in the protective manner.

E. *Phone Number* – A phone number that when sifted would show up direct in a phone's dialer arranged to dial.

F. *SMS* – used to send a short text message to a receiver.

G. *Plain Text* – The text that is used by a customized application to finish any given endeavor not for the predefined work. The plain text can secure 4,296 alphanumeric characters or 7,089 characters of numerical data in a standard QR Code. Micro QR Codes can secure up to 35 numeric characters and iQR Codes a colossal 40,000 numerical characters.

H. *Geo Location* – An association with a region that when checked, can be taken care of by the per user and used to offer direction to an event you're progressing. Expressly if we consider a particular thing or an article in the market, the QR code may contain the going with perspectives. Thing nuances, Contact nuances, Offer nuances, Event nuances, Competition nuances, A coupon, Twitter, Face book, MySpace IDs and an association (to locales, chronicles, records, YouTube).

III. DIFFERENT SECTIONS IN A QR CODE

QR Codes are part into various regions and it's these fragments that the scanners use to disentangle the data. The fig.1 is a standard QR Code containing plain substance. If you channel the code it should be decoded as substance and will fundamentally join the string "Test QR Code". They consider has been part alongside territories and each portion has been given a number and a shading. All of these sections has a given activity.

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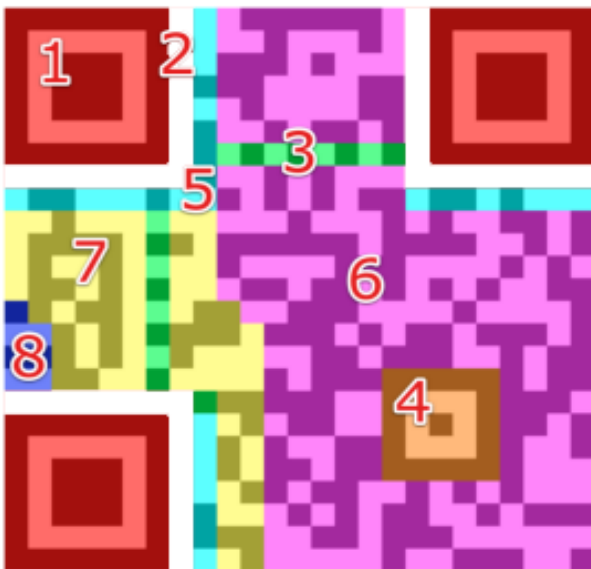


Fig.1. Different Sections in a QR Code



QR Codes are an exhibited and direct development to traverse any boundary between the physical and the propelled world. We can encode any sort of printed information in a QR Code, for example site's area, a Facebook page, a coupon, contacts



The motivation behind why they are more valuable than a standard standardized tag is that they can store (and digitally present) substantially more information, including URL, text and geo link. The other key element of QR Codes is that as opposed to requiring a stout hand-held scanner to filter them, numerous cutting-edge phones can examine them.

Standard QR Codes can hold up to 3Kb of information. QR Codes are made of number of rows and columns. The maximum probable number of modules is 31,329 by the maximum of 177 rows and 177 columns. The information

Capacity in a QR Code are Numeric only max. 7089 characters; Alphanumeric Max. 4296 characters; and Binary (8 Bits) Max. 2953 characters.

IV. GENERATING THE QR CODES

We can without quite a bit of a stretch make the QR code using the Kaywa.com site. The Open Source code can be used to deliver codes. QR Codes come in two sorts, either static or dynamic. Dynamic codes are better than static codes. Static code basically encodes the information. With Kaywa.com we can make an unfathomable number of static QR Codes to no end out of pocket. Dynamic codes can be changed, pursued and they are ideal for checking with a phone. A QR Code Writer is exceptional web-based programming for making and saving QR Codes or for changing over different information into QR Codes.

V. IMPLEMENTATIONS OF QR CODES

The QR codes are utilized in our everyday life from multiple points of view like imprinted in materials, T shirts. English Volleyball players Zara Dampney, and Shauna Mullin wearied materials with QR codes while getting ready for the London Olympics 2012. Likewise, QR codes are imprinted in items, utilized in the family card, imprinted in the imprint sheet, utilized in Aadhaar card and so forth.

VI. QR CODE FOR CLASS ROOM LEARNING

The QR codes can be utilized in the instructing - learning procedure to upgrade the students learning.

1. Provide answers

After completion of examination, make QR codes for the answers. Students need to utilize their gadget to discover the response to the question after they've derived it. Finally the answers are restored in google drive with a specific link in the form of file or text based message.

2. Try a New Twist on Gallery Walks

QR codes can also used to share the students work through a internet resources like Google drive, YouTube and Dropbox etc. Any audio lectures and virtual documents created by the students that explain how to conduct a problem or experiments can be linked with a QR code then it could be shared with their classmates.

3. Simplify Research Projects

Generate and share a link for research articles, Journals, Virtual, Related websites and podcasts that is required for their students to access

4. Offer Extra Practice for Early Finishers

You can make planning preoccupations where students can self-check using QR codes. Place 50% of a QR code on the problem and the other 50% the preferable answer. When they successfully matching the problem with answer, the QR code will link with whatever constructive message you made. If the student doesn't match properly, there will not be the QR code response. Alternative idea for self-Evaluation is using of QR code for flash cards.

5. Create a Scavenger Hunt

Get the students active and alert by making a searcher chase. Spot questions around the room, or far and away around the school. Add the correct answers with the QR code that sends students to next point. The correctly answered students can attend the next question. If the answer is wrong the student can get the hint to answer the missed question.

6. Provide Support to Struggling Readers

Prepare the tutorials or audio/video recordings for the students then the content have to be uploaded in internet resources (YouTube/ Dropbox/Google Drive).The uploaded content have to be linked with QR code then it has to be shared to student fraternity those who need a additional coaching or materials for their study.

7. Give Tutorial Help for Homework

Make a QR code for project / assignment or homework. The slow learners can watch an associated video instructional exercise that you have made that causes them or to audit what they understood during class.

8. Add Pizazz to Your Word Wall

The QR codes can be used in vernaculars to introduce a new word, etc. Make the video of your students' response about the new vocabulary word. Link the video in Dropbox/ Google Drive. The QR code has to be added to the new word on your word wall. Your students will love watching themselves and won't comprehend the sum they are practicing new words.

9. Book Reports

Create video or sound accounts for the students to access the library book. Make a link to the record with QR code and the book spine should contain the QR code. Students can get the interest to realize about the books accessed their friends and it motivate the students to access the books by their willing.

10. Own property

The students or teacher can form an article or build up an appearing material in an innovative manner. By then he/she can make a QR code and attached with the article or material. By then it might be declared as the property of the understudy or instructor.

VII. CONCLUSION

QR code is a type of 2D bar code and is able to store many different types of data. Each QR Code has a section to store information. The QR code may contain the aspects like Product details, Contact details, A coupon, Twitter, Facebook, MySpace IDs, a link to your YouTube video etc.,The information can be easily read through a Smartphone.Q R codes can be created by using free soft wares. The QR codes are popular in marketing and advertising, Education etc., In education it provides a link between the learner or teacher and the information available in the website or YouTube. The teacher can use them in a creative manner in the Teaching - learning process.Thus the Q R codes serves as a basic Communication Medium and helps to enhance the quality of Education.

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Mr. G. THAMILVANAN has completed M.Sc in Chemistry and M.Ed, M.Phil in Education. He had 12 years Teaching and Research experience and He published 5 Books in Education 2 international and 6 National Research Papers in various peer reviewed journals. He is the life member in various Professional bodies and Received Best Faculty Award for his Academic Activities.



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