

Quick Response (QR) Codes in Libraries

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Abstract: QR (Quick Response) codes are two-dimensional matrix barcodes. It was used and steady growth in the commercial and business-oriented use with the smart and web capable cell phones. The present chapter explains the applications of QR codes in Library resources and services. It also gives brief introduction of QR codes structures, working and its features. This chapter highlights the advantages of QR codes codes Generators weblinks, its's Structure, types of QR Codes with features and specially uses of QR codes in Library services.

Keywords: Academic Libraries, Mobile Apps, mobile based services, QR, Quick Response code

1. INTRODUCTION:

QR codes means Quick Response Code. QR code is firstly invented by a Japanese organization Toyota motors subsidiary Denso Wave to track vehicles and parts during the manufacturing process. It is a machine readable optical label that contains the information. (Pawar et al., 2019)The QR (Quick Response) code is a type of 2D barcode. They are sometimes referred as 2D codes, 2D barcodes, mobile codes & also known as a Matrix code. In the QR code Anything can be converted into coded information and present it for quick and access for later, QR can be decoded at high speed and from any direction or any position detection patterns. QR code is readable by any camera enable the latest smart phones or QR code reader applications.(Madhusudhan, n.d.)

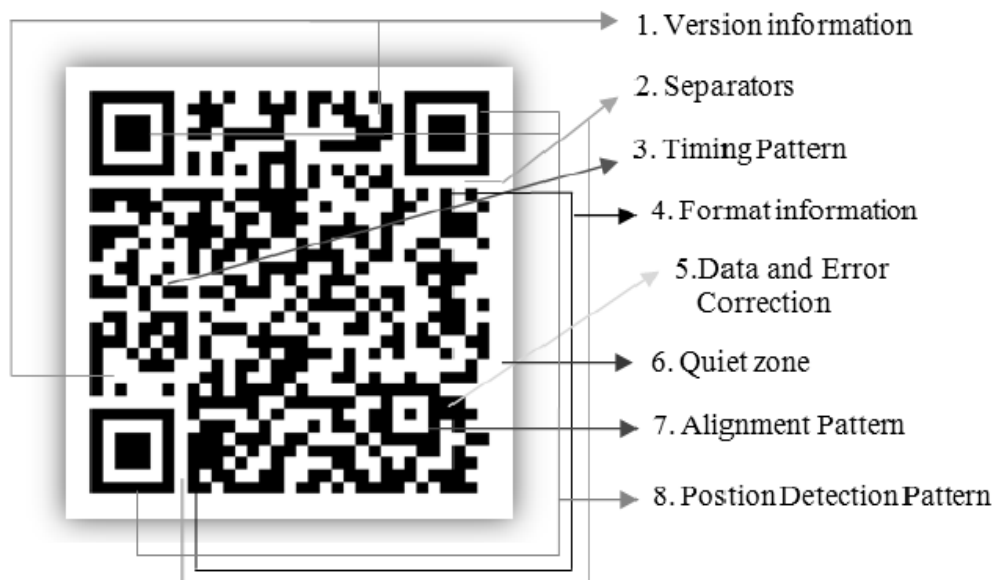
The QR code is the technology, which deliver the information to the user in form of code. QR code is two dimensional images that , scanned by smart phone's camera , it prompt the phone to display a webpage or display the image, pdf, text, link or multi URL's , contact numbers.(Parabhoi et al., 2017)

1.1 Literature Review:

QR Codes uses in library resources and services awareness activities, with special reference to QR codes implementation in central library, NITK.(Shettar, 2016).A library should try to keep UpToDate with the digital world through various technologies in this modern age. Three modern technology initiatives in the library i.e. barcode, QR code and RFID. This is implemented in Central library, NIT, Rourkela , in which uses of these technologies and accomplished their users' satisfaction. (Rahaman, 2016).The applications of mobile phone are not new to libraries but now the mobile computing has revolutionised libraries by enabling the users hassle free admittance to 'Information on the go' service. For libraries, especially academic libraries to stay relevant in the mobile era , there is need to implement mobile technologies for the maximum access of their resources and for the satisfaction of their users.(Madhusudhan & Dar, 2017).QR code technology is useful tool for marketing of library and their services, use to provide quick access to library resources.(Pawar et al., 2019). QR

codes are increasing day by day. It covered various fields like marketing, business purpose, travelling, and library one of them. QR code become a successful online tool in covid-19. (Das & Das, 2021)



2. STRUCTURE OF QR CODE:


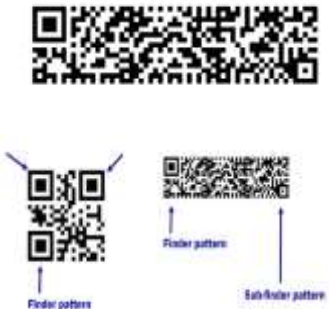




Source : https://www.researchgate.net/figure/Structure-of-QR-Code_fig1_275650586

QR code consists of 3 squares out of 4 corners of the symbol and zones. The position pattern of the QR Code verifies that it is QR code and confirmed by different located segments.

2.1 Types of QR Codes :

| Sr. No. | Title Of QR code | QR code | Features |
|---------|-----------------------------|--|--|
| 1 | QR Code Model 1 And Model 2 |  QR Code Model 1  QR code Model 2 | 1) a code capable of coding 1,167 numerals with its maximum version being 14 (73 x 73 modules) 2) Model 2 QR Code created by improving Model 1 so that this code can be read smoothly even if it is distorted in some way. 3) This code can encode up to 7,089 numerals with its maximum version being 40 (177 x 177 modules). |

| | | | |
|---|---------------|---|--|
| 2 | MICRO QR Code |  | <ol style="list-style-type: none"> 1) MICRO QR Code has only one position detection pattern, compared with regular QR Code that require a certain amount of area because position detection patterns are located at the three corners of a symbol. (QR Code.Com, n.d.) 2) QR Code requires -a four-module wide margin around a symbol, whereas a two-module wide margin is enough for Micro QR Code. This configuration of Micro QR Code allows printing in areas even smaller than QR Code. |
| 3 | rMQR Code |  | <ol style="list-style-type: none"> 1) MQR Code is a matrix-type, two-dimensional code 2) It is easy to read and can store large amounts of information, while being a rectangular shape that makes it easy to print in narrow spaces. to print in narrow spaces 3) conventional QR Code could not be printed in narrow space, and to store more information than possible with Micro QR Code. (QR Code.Com, n.d.) |
| 4 | SQRC CODE |  | <ol style="list-style-type: none"> 1) SQRC looks exactly the same as the regular QR Code, it can prevent forgery and tampering. 2) A single QR Code can carry public data and private data. The private data can be read only with a dedicated reader having the cryptographic key, which provides data protection. |
| 5 | FRAME QR |  | <ol style="list-style-type: none"> 1) FRAME QR code has an area, or a frame, for holding an image. 2) the shape and color of the frame can be changed flexibly, variety of applications. Need to integrate a QR Code and an illustration. 3) to make our QR Code stand out so that more people scan it. With only a black and white QR Code, you are not certain what it means. |

There are five different types QR Codes: QR Code model 1 and model 2, Micro QR Code,

3. ADVANTAGES OF QR CODES:

- No need to have any specific skill or expert

- It has vast storage capacity in comparison of barcode, and can be used by any direction.
- Data can be recovered if any damaged or something gloss
- No need of any specific technical equipment to scan the QR code, only required smart phone with internet connectivity.
- QR codes promoted the mobile learning
- It is free available
- It has the capacity of damage resistance as if the symbol is damaged, it can recover data easily and detect the error.
- Increased a customer satisfaction
- Environment friendly technology & save the paper
- It's Fast and use anywhere
- Anyone can generate the QR codes

3.1. QR codes can be generated for: Website URL, YouTube Video, Image File, PDF File, Google Maps Location, Twitter, Facebook, LinkedIn, Instagram, App Store Download, iTunes Link, Dropbox, Plain Text, Telephone Number, Skype Call, SMS Message, Email Address, Email Message, Contact Details, Digital Business Card, Attendance Tracking. Event (CALENDAR), Wifi Login, Paypal Buy Now Link and many more.(Madhusudhan, n.d.)

3.2 STEPS FOR CREATING QR CODE

1. Navigate to a specific QR code generator or use your favourite search engine to find one.
2. Select the type of data you want the QR code to encode.
3. Type or paste in the data requested by the generator.
4. Generate the QR code

4. QR CODE GENERATOR

| Sr, No. | QR code Generator | Weblink |
|---------|--|--|
| 1 | BeeTagg | www.beetagg.com |
| 2 | Google QR Code Generator | chrome.google.com/webstore/detail/qr-code-generator |
| 3 | I-nigma | www.i-nigma.com |
| 4 | Kaywa | http://qrcode.kaywa.com |
| 5 | QRCode Pro | www.qrcodepro.com |
| 6 | www.qrcodepro.com | www.neoreader.com |
| 7 | RedLaser | redlaser.com |
| 8 | Neo reader | www.neoreader.com |
| 9 | Nokia Barcode Reader | mobilecodes.nokia.com/ |
| 10 | Scanlife | www.getscanlife.com |
| 11 | QR Droid | http://qrdroid.com/generate |
| 12 | Qurify | www.qurify.com/es/ |
| 13 | Upcode | www.upc.fi/en/upcode/ |

| | | |
|----|---|---|
| 14 | Zxing | code.google.com/p/zxing/wiki/GetTheReader) |
| 15 | Scanlife | www.getscanlife.com |
| 16 | Snapmaze | http://mobile.snapmaze.com/jar) |
| 17 | http://goqr.me/ | |
| 18 | http://www.qr-code-generator.com/ | |

5. QR CODES IN LIBRARIES

There are almost various applications to use QR codes in library and information services. It is one such technology to which caters to the user requirements of providing access to resources through mobile phones. And other portable devices. QR code is such technology which saves the energy of users and get the result within the second. As follows we can implement the QR codes in Library services.

- **Library Websites:** Can create QR code and scan it, it will automatically access the library URL to our cell phone. If any updates in URL , it will automatically reads the new one , without changing of QR code.
- **Multi URLs:** It can club multi-URL in one Single QR code.
- **E-Thesis / E-Dissertations:** librarian can scan front page and the content page of thesis/ dissertation and make them pdf, create QR code for ease access to the information about it. Single image of one particular thesis of=r dissertations can be also created as QR code.
- **Library handbook:** whole library handbook pdf, can be converted in single QR code
- **E -Text books:** library professional can create QR code for e-books also, for the easy access of that particular e-book.
- **Journal Content Page:** From the library collections, journals content page needs to scan and create one QR code for instant access of journals content page delivery.
- **Newspaper clipping Services:** News publication is the form of publicity of ay work, it is as marketing of services, so new publications of library services can be club together, make file in URI form or in pdf and covert it in to QR for the media publication access.
- **Faculty publications:** QR code can be generated for faculty publication, individually also separately. By which any one can get the list of faculty publications within a second.
- **Library catalogue:** By linking QR code to the catalogue records users can easily get the information regarding the particular items including call number, locations etc.
- **Photo gallery of Library event:** by creating QR code it is just one click away from gallery of library events.
- **E -mail :** it is easy to send email to librarian without typing any e-mail address in any service provider, just only put on to composed and send it and avoid tedious task.(Das & Das, 2021)
- **QR code for Event:** QR code for any library event can help in promoting that one and automatically go to the brochures of the events.

- Library tour, library blogs, Web Opac Video Library, Social Media Account- for these all librarian can create QR code and provide the library services instantly.
- **Library collection:** QR code for library collection will give users an instant access and information about library collection which is in huge form, it promotes library materials, new arrivals.

6. CONCLUSION

We are living in digital era and, librarians have the responsibility to disseminate information in quick manner by saving the energy of user. To cope up with the need of digital era, librarian should take initiatives in different mobile technologies use in libraries, such as M-OPACs, Mobile websites, SMS reference services, mobile library notifications, QR codes and augmented reality etc. these all technologies for the maximum access of their resources and promotion of the library services' code demands the changes of information handling in the library. The user can get easy access to most current and necessary information related to the library by using QR code. For the effective use of QR code in libraries, librarians should organize user awareness programme, orientation program and information literacy programme.

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