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QR CODE AND IT'S EFFECTUALITY TOWARDS LIBRARY SERVICES

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***Abstract:** In this study the paper relates to the concept of Quick response (QR Code), and how it works to disseminate information in quick way. The main objective of this paper is to amend the basic concept of QR Code, their structure, advantageous nature and its activities. This research paper mainly focuses on the effectiveness of QR Code & its applications on library services in the present scenario also has discussed other services in which people are dependent during covid19 pandemic and how it placed as a position of successful tool in this technical age.*

Keywords: QR Code, Library service, Technology, Mobile, Pandemic.

1. INTRODUCTION

As expanding of new technology trend it widening to library platform that generate an opportunity to leverage the way people access right information in a quicker way at anywhere anytime. As Ranganthan said in the fourth law of library science "Save the time of the reader". So to fulfil this law, library professionals need to go through some advancement of technology to improve the services of library, the quality and the way to provide it is so indispensable to adopt new applications. Already various technology applied in strengthen the serviceability of library activity, QR Code is one of them, though which can fulfil the essence of users and the professionals of library science also it is a big challenged to implement and integrate all the activities to support academic function.

2. OBJECTIVES

- 1) To identify the area of applications in which the QR Code are being used in the libraries.
- 2) To create awareness of the working mechanism of QR Code.
- 3) To study the advantageous nature of QR Code technology in the library.

3. LITERATURE REVIEW

Dani (2020) discussed about the current library management system and how it processed it in to develop smart library management system using QR code. This study mainly focuses on the importance of QR Code based library management system which are efficient and reliable for Librarian, staff and students, also works in real time, easy access, reduces the bourdon on the librarian as it will help to track the books available and issued person for any book and total number of books along with ageing analysis. The author also highlighted the concept of python Qt5 frame work application, how it is being used for College Library database which can be accessed through out the institution. Kadli (2020) carried out a study to discuss about one of the mobile based new affordable emerging technologies called QR Code and its uses. He also explored the prime role of QR code how it enhances to the library services in a quick manner. In India the use of QR Code and smart phones though started late but in these days emerging as basic element of their day to day life and accelerating technology adoption. Gopale (2019) studied with the objective to explore some useful applications of QR Code in library also explains the possible implementation of QR code in library services with a briefing of all its advantages as well as limitation. Hand trend access resources with simple a scan of a code are known as a treasure house of knowledge by having its high quality and rich information resources which are freely provided for academic user community. The study also focuses on to generate as well as decode QR code through various online available that are free and easy to use. Bellary (2018) highlighted on the change management of library and information science field. He mainly focuses on new technologies which are necessary to adopt in the centre to provide effective services to its user and save their precious time. In this study, the author carried out a framework on the efforts that have been made to know the application of Quick Response (QR) codes and how it works to disseminate information to its user's community. Dyade (2017) provided a framework to specify the main objective is to review the concept of QR code, their technological pros and cons, structure, their customer based engagement for instance in

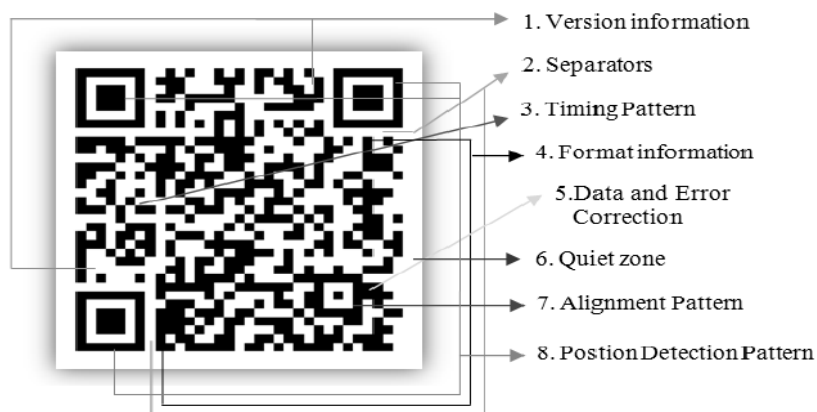
newspapers, magazines, libraries, public advertisements, business advertisements, foods, drinks, restaurants, clothes store, social network applications, enterprises, and public based Government activities. The author also highlighted on the point that QR code marketing in India is still in a budding stage, therefore basic knowledge relevant to QR Code needs to be acquired by individuals and organizations. Parabhoi (2017) carried out a study to explore the uses of QR codes, especially in Libraries. This new technology demands the changes of information handling in the library. The user would have easy access to most current and necessary information related to the library by using QR code. The author also focuses on to organize user awareness program, orientation program, etc. to make the effective use of QR code among the user community, library professionals. Mishra (2017) provided a framework for charactering QR Code as a comprehensive tool for library system available to user community. It provides an overview of key terms, structure, concepts, process of reading and generating QR Code, identify different examples set by different library. QR code has maneuvered to share library practices like e-resource management, library orientation, OPAC, Linking to electronic resources from within the library, information about library space, the library catalogue, etc., through smart phones which specify the technological pros and cons of QR Code. Coleman (2011) explored the exciting technology adopted in academic libraries which can concomitantly enhance their reputations as user-centered, innovative, sites for discovery and exploration. This also highlights how individuals with smart phones can download free QR code reading applications and use their phone's camera to read the code; detail process of creating QR Codes and distributing them throughout physical and online environment also how other organizations are using QR codes to provide rich, point-of-need information to patrons, customers, and prospective user.

4. METHODOLOGY

The entire study is based on the effectuality of QR Code in the present scenario of library. This study carried out with the concept & structure of QR Code technology and some literature reviewing of similar type of study. The applications of QR code and its effectiveness of the library services elaborate briefly by using secondary information.

5. STRUCTURE OF QR CODE

QR Code is basically 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.



Source: Adopted from http://www.onbarcode.com/qr_code/

- 1) **Separators:** which separate the position pattern of the cells from the rest of the data.
- 2) **Timing patterns:** These are placed between two positioned patterns alternatively which makes down the timing of incoming code. Basically this pattern is used for central correspondent of each cell having black and white patterns respectively.
- 3) **Alignment pattern:** The align pattern of the QR Code is used while capturing the code using camera for correcting the deception caused while taking pictures. The central correspondent part is identifying to correct the distortion of the symbol.
- 4) **The data zone:** The data zone of the QR Code is the area where encoded data is stored, converted into 0's and 1's and finally transformed into white and black cell.
- 5) **The Quiet zone:** It is a margin of at least 4 bits around the code. This region is free for all the symbolization. Also keep separate the QR code symbol for external area.
- 6) **Version Information:** The versions of the QR Code reformat information helps in errors correction and data restoration, while code is distorted. It is located next to separated while decoding it is read fast by the scanners.

6. CONCEPT OF QR CODE

The term QR Code mean for Quick Response Code, which is readable by android phones or similar devices with cameras. It is a kind of 2D barcode. They are sometimes referred to as 2D codes, 2D barcodes, and mobile codes also known as matrix code. QR Code having length and width of white and black combination of geometric squares and corners. The basic objective behind the development of QR Code is encoding and decoding with high speed and accessible it from any direction or any position detection process which can easily scan by the users. It is a more reliable technology instead of linear barcode having high storage capacity maximum upto 7,089 characters. Due to having highest restoring capacity it can easily detect errors which is no possible in barcode. Also it could have the capacity to represent more than 100 times i information than a barcode. This technology is very likely to be accessible, easy to handle and easy to attract and display information to the users. Unlike a barcode, a damaged or scratched QR Code can sometimes be readable. The hyperlink embedded through QR Code, which deflect the communication from physical to virtual mode and accelerate the information significantly and adequately to the users.

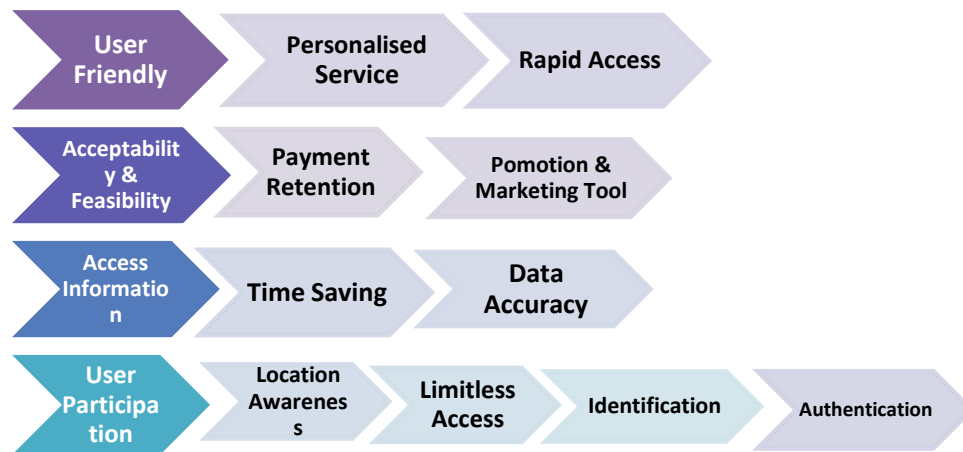


Figure 1: Features of QR Code

7. APPLICATION OF QR CODE SERVICES IN LIBRARIES

There are several applications to use QR code in library and information science. It is one such technology to which caters to the user requirements of providing access to resources through mobile phones and other portable devices. In recent times many educational institutions are willing to apply this technology and some has already used. QR Code is an advantageous technology which converts our needs of information from physical to virtual mode within a second. It is a very comfort way to go through a variety of information like websites, Email, social Blog, phone numbers, SMS, Maps, calendar information in any direction. It can effectively provide appropriate context and location to the users. Under this section we are highlighting some features of QR Code which are beneficial for time being the library services.

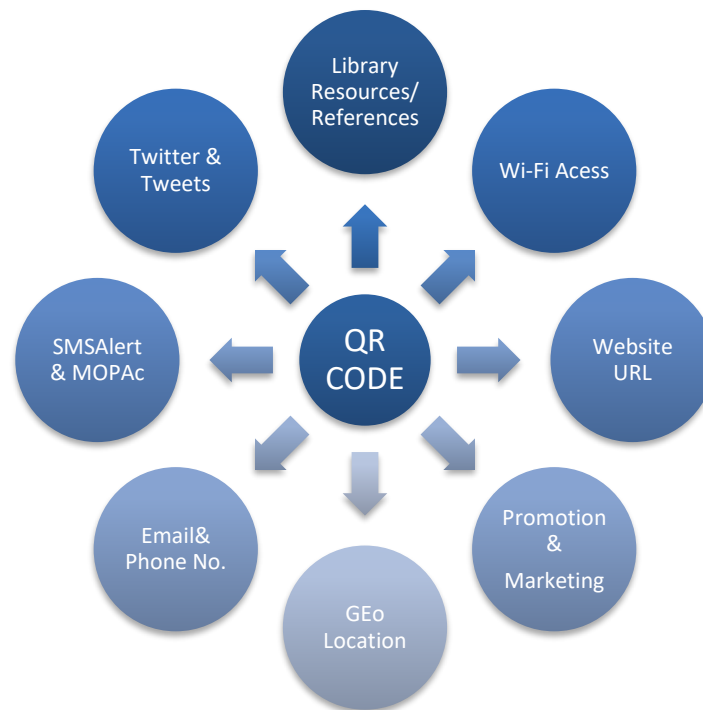


Figure No.2: Effectively used Services of QR Code

- **Library Websites:** Now a days it is very difficult to remember having different URL's for different purposes. So one has to create and scan QR Code that will automatically access

to your mobile, and then even if it changes later on URL of the library website, it is automatically reads to the new one without changing of QR Code

- **Multi URLs:** This can be use for URL of different purposes very prominently that link to the main websites and access more advanced information.
- **Library Contact:** Applying this QR Code technology one can easily go through the direct contact of any particular library where they get email, phone no, address and their website.
- **Full text databases:** It can be possible by using QR Code, just to scan it and accordingly what you need, you receive it without any hindrance.
- **Scan& download article file:** If one can find or want any particular article, request librarian to send only one QR Code, you will receive full text article in your mobile.
- **Bibliographic databases:** According to the availability of resources if any users ask for databases handily they can just scan QR Code and undoubtedly get direct link to databases. It will easily come to your mobile.
- **E-books:** In addition to physically books if any user can access it on their mobile phone using QR Code. It will display in your devices which are subscribed by respective education institution, just to scan it, read and download it.
- **News clipping Services:** According to need users can scan QR Code and the moment can scan users receive information accordingly without any barriers.
- **E- Text book:** If any users want to browse text book which are available, just go through the particular hyperlink, whatever they choose, interest it just scan the code read & download it.
- **E-Thesis: /E-dissertations:** QR Code has the ability to access additional link for thesis and dissertations according to their user needs.
- **Old Question Paper & study material:** The list of Question paper and study material on user mobile phone, it will display to mobile devices.
- **Library handbook:** One can automatically download the pdf file, which can access from home also by using QR Code.
- **Library Catalog:** By linking QR Code to the catalogue records users can easily get the information regarding the particular item including call number, location etc.

- **Scan to mail:** With QR code it is very easy to send mail to librarian without typing any e-mail address in any service provider, just simply put on to composed and send it & to avoid tedious task.
- **Event QR Code:** It helps in promoting an event which will automatically press on to the leaflet, brochures of library event. It will come to mobile very enticingly without spending any money.
- **FB Pages:** There is no need to instruct the users for go different steps to and access the facebook page. So simply scan with QR Code takes to institutional pages directly and log in easily.
- **Twitter:** If any user scan QR Code through twitter, that code automatically concede to find someone and follow each other.
- **Social Blog:** social blog allow users to leveraging the key information followed by someone's blog and customize the profile of users also .
- **Library Tour:** Libraries having different kinds of videos may it a library tour, orientation or may be related to institution.
- **SMS Reference:** Ask a librarian is basically SMS service is offering mobile patrons the ability to text their questions to librarian in real time manners.
- **Mobile number:** It is the better way that the librarian can create a QR Code with mobile no. So whoever wants to talk they can scan it and automatically that receive the particular mobile no.
- **Web Opac:** many times to find these link in their if you provide a particular QR Code for opening OPAC of library.
- **Video Library:** If any institution can create a video by themselves, also make YouTube playlist video and a code with embedded with QR Code technology then any individuals can access it accordingly their purposes and saved it for later also.
- **Book Contents:** The content of a particular book is visible on mobile is one of the innovative features. Other bibliographic standards like MARC 21, CCF only display the particular title or author information, may not the contents so that it is the overcome of the problem.

- **Author's profile:** If a book is written by 3/4/5 authors then it is very difficult write profile of a author on to the small place but it is a easy to add comprehensive information link to brief bio data, authors profile etc through mobile code.
- **Book Poll:** The title of the book followed the button of each title where there is a QR code is mentioned. So in these manners so the libraries can easily find out for book of the reader.
- **Call out:** If any user need particular paragraph, theme, pictures, table from such library exhibitions, encyclopaedia, other resources or that type of theme of information there is no need to open the particular website, by scan with QR Code it can easily acquire it read & download it and store for future purposes.
- **Library Guides:** If embedded the QR Code with library guides users have benefited in a great way, real time also read. It is also reducing inconvenience of users and earn it with the fraction of second.
- **Library Exhibition:** Users can receive update information regarding library exhibition their features, planning, designs users can find quickly by QR Code.
- **Building update:** If any user interested to know the updating information regarding building construction users can easily get it if their respected library has create a QR code.
- **Study Room Reservation:** The QR Code pasted on the doors of study room areas where connecting to reserve it very easily and get it after scan it.
- **Library collection:** Many a times the library has huge collections in the form of new arrival books, videos. So to promote library materials, new arrival item QR Code helps prominently to users.
- **Journal Website Link:** If any users willing to read any particular article & don't have much time to visit library and read physically then they scan the mobile code & undoubtedly get the pdf within a second.
- **Print Journal/ article:** With the benefit of QR Code any one can receive the article as per their interest by put on a simple mobile code.
- **Shelf Ends:** If anyone can insert a QR Code, goes to the particular Racks and can grab the book easily.
- **i- help:** Form this any users can get any online help regarding their needs & purposes.

8. ADVANTAGES OF QR CODE

- 1) It is free to available.
- 2) It can be used by anybody at any time anywhere.
- 3) It works in a nano second as fulfil Ranganthan's fourth law "save the time of the reader".
- 4) It is a technology based library services that enhanced mobile learning.
- 5) No need to require any technical accessories only require smart phones like Android phones, iphone with proper internet connection.
- 6) Can recover the data if there is something loss or damaged.
- 7) QR Code having high storage of encoding information.
- 8) It has contain more storage capacity in comparison to barcode and used by any direction angle.
- 9) No need to have any specific skill or expert.
- 10) It has the capacity of damage resistant as if the symbol is damaged partially it can easily restored data & detect the error correctly.

9. QR CODE AND ITS USE IN VARIOUS SECTORS

9.1 Health Purposes

QR Code in health sector has easy to facilitate on vaccination drive, real time updates of vaccination inventory, generate test results and vaccination status to deal with pandemic. QR Code has the ability to verify the brand of packaging vaccine traits, which includes the date of manufacturing & expiry date, batch no and temperature requirement. Government authorities or individuals can print health QR codes on vital documents like passports and other passes to ensure that the person travelling has been vaccinated and is free from the Corona virus. Health passport is act an information centre for vaccine drive which directly integrated with website and by tracking with mobile applications receive updated information and if any person has tested positive , has directly get first and second dose of vaccine and so on.

9.2 QR Code in Education

QR Code in education sector also easily by logging in to website URL's. Now a day's due to pandemic, most of the educational institutions using online application for taking class. And for

these time teachers and learners have to log in to the website by typing URL manually and taking 10-15 minutes of time to speed up the entire class. So with the help of QR Code without wasting of time just generate it and can directly link to the application. QR code also have the ability to create a book review in the form of video – After reading the book if any users share their opinions, recommendations, and thoughts to other person, which make the book an interesting one they can made a inspiring video and embedded into a QR Code, just scan it and may watch it future references. Now a day's people are using QR Code while taking admissions and giving feedback also.

9.3 Agriculture Marketing

QR codes used to have direct link to the brochures, leaflet, packaging products, or pasted it on the marketing materials to vendor's website where they can find information about the farm's location, a list of products grown or available at a particular time, or days/ times and location of other markets in which the farmer participates.

9.4 Bus Ticket System for Public Transport

Users can scan QR reader instead of the ticket. In this app, after registration profile, we have to attach our bank details to this app and add money to the wallet. Whenever we go by bus, we have to select from and to location. Then it will generate amount details for per head. Also, we can buy a ticket for extra members and produces the mean count. It Scans the QR code from the conductor of the bus with a particular ID. Then we can scan QR code. So directly money will transfer from our wallet to transport corporation on basis of conductor ID. Then we will get an SMS alert for ticket payment proof. The admin side (Transport Corporation), they calculate amount details of a particular conductor through using web application. Then they can calculate per day amount details of Transport Corporation for buses.

9.5 Payment system

When we place an order for any item via online mode, we can either pay it on online or via delivery at the door step paying it using the QR code after the QR code function is been added on your app of the delivery agents. Following this the delivery agents gets a notification mentioning that the customer will do the payment at the doors. Later the agent can use his/her smart phone

and open the QR code and ask the customer to scan it. After scanning the code the customer will be directed to the bank app he or she uses where the payment can be done. On completing the payment process the delivery agent will again receive a notification mentioning the completed payment.

9.6 Police Are Using QR Codes: These kiosks help people report crime anonymously. Each kiosk screen has a QR Code. People can scan this QR Code on their smartphones. Kiosks also act as ‘digital wanted posters’. That means they show information on wanted criminals. There are many people who want traffic crash reports for their own purposes. A Police department in Ohio (United States) adopted QR Codes to help citizens get traffic crash reports. It aims to save time for both citizens and Police Officers.

Public transport such as taxis and auto-rickshaws are required to have a QR Code. This QR Code, when scanned, shows driver’s name, address, and vehicle’s registration number. So as one boards the taxi/auto-rickshaw, she can scan the QR Code and access driver’s details. The GPS allows police to track the entire journey of the vehicle. Mumbai Police and Mysore Police have taken similar steps to make it easier for passenger to commute via taxis and auto-rickshaws. You’ve seen Police officers checking driving license for safety purposes. Say a traffic cop stops you and asks for your driving license. And you’ve forgotten to carry it. DigiLocker is a digital locker service. It allows Indian citizens to save digital copies of their Driving Licenses (DLs) and vehicle registration certificates (RCs) on their smart phones.

10.CONCLUSION

The uses of QR Code are increasing day by day. It has covered various fields like marketing, business purpose, travelling, and library also one of them. So we can say in words that it is the reflection of growing technology and its impact on our academic user community. In the coming days, users faced more experience by using this wonderful tool. QR codes also helps in social distancing. Using QR codes the payments can be done at the doorstep and contact will not take place. In return the people can follow the precautions on social distancing set by the governments. It is a user friendly process for the customers and the delivery agents. This payment process where opening and scanning the QR code can overall contribute customer experience.

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