

## USE OF QR CODE IN S. S. DHAMDHERE ART'S AND COMMERCE COLLEGE LIBRARY

Mr. Gajbe Sumedh Shamrao

S.S.Dhamdhere Arts and Commerce College, Talegaon Dhamdhere, Tal-Shirur, Dist-Pune.

### Abstract

This study completed action research in the library. The purpose of this study is to increase awareness of the QR code and the Augmented Reality Application among library users. The importance of the study technological development of libraries. The main focus is to create a smart and simple solution for managing libraries through a QR code system. The users can use the application to issue, return, and manage books with minimal to no employee assistance. It reduces the burden 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.

**Keywords:** Barcode, QR code, Smart technology.

### Introduction:

In recent days, libraries are facing tremendous changes as the modern tools and technologies have growth rapidly. Library materials are also changing quickly to the various digital formats from the traditional print formats. Implementing various software is becoming a way to maintain these resources like digitization, automation, content management, e-resources management. This software are handling as well as managing all types of housekeeping works in the library like-procuring materials, acquisition, cataloguing, circulation, controlling serials, digitizing, archiving-retrieving, providing service to the users. Barcode, QR codes are technology by which store and retrieval of resources got easier and also very important for security purpose of the resources. To overcome all the difficulties of Librarians and users and improve the overall functioning of Library a QR code based Library Management system is introduced.

### Review of Literature:

(Xu, 2014) In this paper is to explore methods of producing Quick Response (QR) Code, its customization, artistic look and applications and elaborate the technique of generating QR Code for library bibliographic records. The study explored methods of generating QR Code and its applications in academic libraries. Based on research work and implementation experience, an efficient procedure for generating QR Code for bibliographic records was developed. The technique of generating QR Code for library bibliographic records in the study should be instructive for similar projects. (Rahaman, 2016) In this article, three modern technology initiatives in the library i.e. Barcode, QR code, and RFID were discussed. These are becoming very useful technology not only to serve the user's but for library security also. They finding information by simply searching the internet could be much easier and faster than reading entire books. So libraries must update their techniques time to time accordingly and with the necessity of the future users. A case study has been done on Central Library, NIT Rourkela about implement and uses of these technologies and accomplished their user's satisfaction. (Shettar, 2016) This paper explains application of QR codes in Library resource and service awareness activities. The present study focuses on brief introduction to QR codes along with how it works and



*(Signature)*

Principal

S.S.Dhamdhere Arts & Commerce College  
Talegaon Dhamdhere, Tal. Shirur  
Dist Pune-412 208

its features. It also attempts to explain the use of QR codes in libraries. (Warasart & Kuacharoen, 2021) In this paper, an implementation of paper-based document authentication is presented. The integrity of the text message and the author of the document can be verified with the use of a digital signature and QR code. The method can be automatic or semi-automatic. It is semi-automatic when the OCR is not accurate and it requires the user to visually compare the text message on the paper and the one obtained from the QR code. (Singh, n.d.) The aim of the project is to create a smart and simple solution for managing libraries through a QR code system. Most library management system currently require significant human labor, supervision and large amounts of funding and resources. This QR code management system relieves most of the human labor and barely requires funding or other resources. The proposed management system simplifies library processes, keeps track of all records, and makes the library more directly accessible to its users.

## Defining QR Code:

QR code stands for Quick Response code. It is a two dimensional bar code and can easily read by QR code reader software. It was first introduced in the year 1994 by the Denson Wave-Toyota Motors subsidiary. QR code can be read through device which has the QR code reader facilities like the mobile phones. Codes can be created to link directly to a URL, create vCard, or initiate a phone call, text or e-mail, among other functions (Whitchurch, 2011)

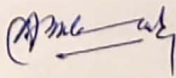
## QR code is differing from Barcode:

A QR code is a type of bar code. A bar code is one dimensional whereas QR codes are two dimensional. The main difference between barcodes and QR codes is one of physical dimensions. Barcodes can be scanned in a line. This means that data is limited to what can be placed in that one stretch of stripes. QR codes, on the other hand, add another dimension from which information can be written and scanned. Instead of a single line, these labels can be read both vertically and horizontally. In QR code, we can store data a lot of in a single QR code than barcode. In a standard barcode may be able to tell a product number and its expected location. but A QR code would be able to provide the condition of the product, when it was made, any repairs done, among other things. One of the drawbacks of QR codes, the ability to scan these codes fairly limited. The scanners used for them were quite a bit more expensive than those utilized for standard barcodes because of the need to cover two dimensions instead of one.

## Objectives:

- To attract and make wide awareness among library users towards library resources.
- To promote an use of open source technology
- To provide quick library information services to the academic users community
- To save the time of the users
- To increase users satisfaction toward library services
- To promote mobile technology based services and promote mobile learning
- To provide quick CAS services
- To provide quick ready reference services at the time of need



  
Principal  
S.S. Dhamdhare Arts & Commerce College  
Talegaon Dhamdhare, Tal. Shirur,  
Dist Pune-412 208

## Features of QR code:

- Free and open sources technology
- High storage capacity of data
- Small space required for print
- Reading capability of QR code form any direction
- Capability to restore partially data or content of damaged QR codes

## Marketing and Promotion Campaign:

Book Reviews: QR codes are created for specific books, linking to reviews, or additional resources. The QR codes are then printed on to stickers and stuck inside the cover of the book. This is great as students can scan and learn more about the book before they choose to read it. Multimedia content a popular use for QR codes in education is to add multimedia content to hard copy pages.

## Benefits of QR Code:

- It is available for free, one can create the QR Code using free software
- It is very fast to access the information embedded with the code
- Easy to read the QR code
- The nature of QR code is versatility
- Users do not need special knowledge for using QR code, only required smart phones.
- QR code are also being used in providing Document Delivery Services by academic libraries
- It is also helpful increasing information literacy and technology literacy among library users
- Large storage data capacity in small space
- It enables to connect users with library resources like Web-OPAC, Institutional Digital Repository, Library website, e-Resources, Library Guide, New arrivals and other useful resources of the library without wasting the time of users.

## How QR code works do:

The modern day QR code consists of 7 parts. Each of these parts creates a sort of pixel pattern that looks similar to a crossword puzzle. Each element has a specific purpose that conveys certain information through the code such as the print direction, timing, error tolerance, and empty spaces to differentiate the code from what surrounds it. The quick response, or QR code is a two dimensional version of the Barcode able to convey a wide variety of information almost instantly with the scan of a mobile device. When damaged, the QR code structure data keys include duplications. It is thanks to these redundancies that allow up to 30% of the code structure to take damage without affecting its readability on scanners.

Information may be encoded into a QR code by QR code generator. Data may be easily encoded in to QR codes by using any freely available QR code generators, enter the information to be encoded in to the sphere provided by generators. QR code generators may ask you to enter data to 1 to several Data fields available, supported what data you are encoding. The generated QR code is able to in the main in image format (JPEG, BMP, and PNG etc.). This could be used directly on internet or mails in e-format or may be revealed in print format. It's additionally attainable to disarrange the color and even attainable to feature image in to QR codes to supply creative embellishment.



*(Signature)*

Principal

S.S. Dhamdhere Arts & Commerce College  
Talegaon Dhamdhere, Tal. Spuru,  
Dist Pune-412 208

## Elements of QR Code:

There are five basic elements which are used for QR code functionality. These elements are Pattern, Alignment Pattern, Timing Pattern, Quiet Zone and Data Area

**Pattern:** The Three big squares which are found in the corners of a QR code are used for identifying size, position and angle.

**Alignment Pattern:** It is used for modifying the distortion of QR code.

**Timing Pattern:** The pattern made up with black and white modules. This pattern is used for determining the central coordinate of each cell in the QR code.

**Quiet Zone:** It is part of a QR code. it is a margin space which is used to detect the QR code. it consists of four cells and is used for quiet zone.

**Data Area:** This element has error correction functionality. It stores data converting into binary digits 0-1. It consists of array of rows and columns. (Parabhoi et al., 2017)

## Seven steps to Getting Started:

The power of QR technology to get students, teachers, administrators, parents excited about using our college library.

**Step 1 Use QR code yourself:** Download QR app on your phone, visit your public library, bookstore, or grocery store. Look for QR codes on books, toys, and food container. Open your app, point your camera at the code, and information magically appears on your screen. QR codes can link to websites containing text, images, videos, audio, maps, or even surveys. They can also be used to download information, send email, or complete other web-based activities.

**Step 2 Walk around your Library:** how to use the photocopier? QR code on the copier for added instructions and directions for help. How to scan the I-card for incoming and outgoing of the Library, make video or write instructions to help scanning I-Card.

**Step 3 Make QR code:** Many websites provide utilities for making and downloading QR codes like Visualead, (<https://www.visualead.com/>) QR Code Generator, (<https://www.the-qr-code-generator.com/>) QR Code Monkey, (<https://www.qrcode-monkey.com/>) QR Stuff, (<https://www.qrstuff.com/>) Scanova, (<https://scanova.io/>) QRickit, QRTiger, etc.

**Step 4 Creative:** QR codes can be placed on bookmarks, book covers, worksheets, bulletin board, and walls. A QR code is like an invitation students who might not think about going to your library blog might be lured in by a QR code featured in book display or taped to the door of the media centre. To draw their attention, use colourful or codes or some of the fancy options that incorporate images.

**Step 5 Provide an Alternative:** It's easy to get enthusiastic about using QR codes in your library. All our students and teacher have devices that can read QR codes. Use a URL, users can simply type the URL into their laptop or other devices to access the content.

**Step 6 Partner with teacher:** Many college programs are using devices with cameras and Wi-Fi access. QR codes could be used to improve access to special needs resources. Create a list of all the projects students and how QR codes would be used into the assignment. QR codes link to additional information about each topic. In a diagram, could QR codes be used to define concepts provide examples? QR code may be used to cite sources used?



Principal

S.S. Dhamdhere Arts & Commerce College

Talegaon Dhamdhere, Tal. Sionli

Dist. Pune-412 208

## Use of QR Code in Library:

**1. Make book search easy for readers:** QR codes can link unlimited information. So we can link our library catalogue to a QR Code.

**2. Provide instant access to reading material:** we can link help material, book guides, or e-book of a book or topic to a QR code. And place this QR code on suitable bookshelves. Upon scanning, the reader will be redirected to the encoded link, PDF, or the landing page with all the text you want.

**3. Promote Library efficiently:** We use print media to promote our Library, then using QR codes will make it actionable and tractable. Create Dynamic QR code with this we can track the scanning activity of our QR code, and get time, region, district, and browser specific data from where the QR code was scanned.

Website URL QR code

Creating an App QR code

Social account links in a QR code

**4. Provide Library contact information effortlessly:** To get contact details of a library, visitors have to manually type all the details, and add it to their phonebook but with QR codes we make the whole process effortless. We can add contact information in a QR code. In that the name of a concerned person, designation, contact number, and email address

**5. Library environment more engaging:** we can encode a quiz in their QR code. this could be on a topic, author, book or theme. Everyone likes reading anecdotes, we can link in a QR code. we can link QR code to audio files providing important information.

**6. Provide additional information about Library quickly:** We can create a QR code to provide any new change in the library and also display the rules and regulations in a QR code.

## QR code use in S. S. Dhamdhare College Library:

1. College Website

2. Library Website

3. Institutional Repository

4. OPAC

5. N-List

6. SSD College Library YouTube Channel

7. New book Display

8. Bookshelves Display

9. Library Manual/ Library guide

10. Library Services Information



## Conclusions:

Libraries 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. Modern day libraries need to be



*[Signature]*  
Principal

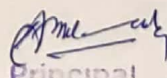
S.S. Dhamdhare Arts & Commerce College  
Talegaon Dhamdhare, Tal. S. S. Dhamdhare  
Dist. Pune-412 208

upgraded with new technologies to cope with modern tech savvy users. Smartphone are becoming most common internet access tool used by current generations. With the increase use of mobile technology, library shall implement mobile based QR code technology to connect user community with information resources. This technology reflects greater impact on academic community. Now QR codes have appeared in magazines, newspapers, cashless shopping, retail stores and several other places. QR codes will not replace any technology. The user experience at large and alter how interacts with the academic libraries, the librarians and the library collection.

## References:

- Dozen, A. (n.d.). *QR Codes in the School Library*: 6.
- Dozen—*QR Codes in the School Library.pdf*. (n.d.). Retrieved July 10, 2021, from <https://scholarworks.iupui.edu/bitstream/handle/1805/8591/40-3.pdf?sequence=1>
- Kharat, S. A., Panage, B. M., & Nagarkar, S. (2017). Use of QR code and Layar app for academic library services. *Library Hi Tech News*, 34(3), 21–28. <https://doi.org/10.1108/LHTN-12-2016-0060>
- Naik, P., Kamath, R., Jamsandekar, S., Mahajan, M., & M.B.Patil, M. (2015). Enhancing the Usability of Library System at CSIBER using QR Code. *IOSR Journal of Computer Engineering (IOSR-JCE)*, 17, 33–41.
- Parabhoi, L., Bhattacharjya, N., & Dhar, R. (2017). *Use of QR Code in Library* (pp. 237–243). *QR Code and Application in India Suraj Kumar Sahu, Sandeep Kumar Gonnade*. (n.d.).
- Rahaman, W. (2016). *ENHANCING LIBRARY SERVICES USING BARCODE, QR CODE AND RFID TECHNOLOGY: A CASE STUDY IN CENTRAL LIBRARY NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA*. 6, 12.
- Rahaman—2016—*ENHANCING LIBRARY SERVICES USING BARCODE, QR CODE .pdf*. (n.d.). Retrieved July 10, 2021, from <http://www.ijodls.in/uploads/3/6/0/3/3603729/39-50.pdf>
- Shettar, I. (2016). *Quick Response (QR) Codes in Libraries: Case study on the use of QR codes in the Central Library, NITK*.
- Singh, A. (n.d.). *Smart Library Management System using QR code*. 5.
- Singh—*Smart Library Management System using QR code.pdf*. (n.d.). Retrieved July 10, 2021, from [https://portfolios.cs.earlham.edu/wp-content/uploads/2020/05/SLMS\\_paper\\_adarsh.pdf](https://portfolios.cs.earlham.edu/wp-content/uploads/2020/05/SLMS_paper_adarsh.pdf)
- Warasart, M., & Kuacharoen, P. (2021). *Paper-based Document Authentication using Digital Signature and QR Code*.
- Whitchurch, M. (2011). QR Codes and the Library: The Library Audio Tour. *Faculty Publications*. <https://scholarsarchive.byu.edu/facpub/1544>
- Xu, F. (2014). QR Codes and library bibliographic records. *VINE*, 44(3), 345–356. <https://doi.org/10.1108/VINE-12-2013-0070>



  
Principal  
S.S.Dhamdhare Arts & Commerce College  
Talegaon Dhamdhare, Tal. Shirur  
Dist Pune-412 208