QR Codes: Use in Library Services

P. Latha Sree[1]; Dr. D. Ravinder[2]

Research Scholar, Department of Library and Information Science, Sri Krishnadevaraya University, Anantapur, Andhra Pradesh[1]; Professor, Department of Library and Information Science, Sri Krishnadevaraya University, Anantapur, Andhra Pradesh,India[2]

ABSTRACT

This article discusses how to utilise QR codes in library services. QR (Quick Response) code technology is similar to barcode technology in that it saves data in a printed form that computers can comprehend and read, except QR code is a 2-D representation of data that is used to scan and retrieve data. A barcode can only handle information in one way, but a QR code can handle information in both directions. It is mostly utilised by libraries to promote their services. Many libraries utilise it to provide rapid access to accessible resources.

KEYWORDS: QR codes, 2-D, Barcode, Retrieve, Services, Resources.

INTRODUCTION

The Acronym QR code refers to a machine-readable optical label that contains information about the linked object or commodities. QR codes are two-dimensional bar codes that look like a tiny white square with black geometric patterns that encode data dependent on the location and combination of the black spots read by smart phones/androids with cameras. They are sometimes referred to as mobile codes. Otherwise, we may refer to it as a matrix barcode that mobile phones' cameras can read. QR codes can store far more information than traditional barcodes.

A QR code is a bi-dimensional code made up of black and white pixels organised in a square matrix that includes information that can be read by smart phones or other similar devices. By scanning the code, which is generally written on newspapers, posters, or subtitles, and processing it using ad-hoc software, users may obtain more information and data about items or services without completing extra searches. Many libraries are experimenting with the use of QR codes to provide library services in a more friendly and efficient manner, particularly given the extensive use of mobile devices (such as smart phones) among consumers. By scanning a QR code, library users may have access to guides, manuals, a library map, audio files, and movies.
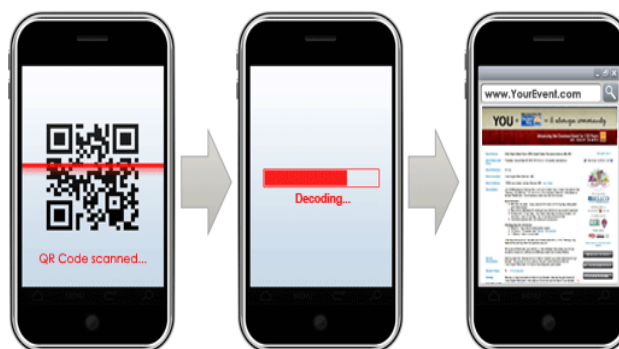
Figure: QR code and it is ready by smart phones with help of software

The abbreviation QR code refers to a machine-readable optical label that includes information about the connected object or product. QR codes are two-dimensional bar codes that resemble a small white square with black geometric patterns that encode data based on the location and combination of the black spots read by smart phones/androids with cameras. Another name for them is mobile codes. Otherwise, it's a matrix barcode that cell phones can read with their cameras. QR codes can hold a lot more data than regular barcodes. A QR code can include a URL, a phone number, an SMS message, a V-card, or any other type of information. QR codes are so-called because they allow data to be decoded rapidly. Many libraries use modern technology to make information more accessible in order to attract people to visit the library. The QR code is one such technology that encourages student interaction with the library. Libraries may use QR codes to give additional support and contact to customers. Many academic libraries now use QR code technology to enable users with smart phones or tablets with quick access to their information.

As of now, QR codes are still in their infancy, and it will take some time for the world to fully migrate to the digital one. QR codes will become vital to access any specific information in the same way that the internet has become a part of everyone's life. Libraries should take action to implement their various parts and encourage their users to do so after they are done to make users' lives easier.

In order to automate procedures, and construct dynamic websites with useful aspects like context and connections that are easy to access, etc., the use of ICT tools is bringing about revolutionary changes in the ways that information is stored, accessed, and delivered. It opens up new channels for conversing and exchanging data and expertise. They are working hard to provide just-in-time virtual and physical locations as well as help when needed in order to fulfil the informational needs of their clients. In this way, a new tool called a QR code makes it possible for libraries to reach out to their customers on a budget while yet giving them context without overwhelming their visual senses. Customers might be able to use this technology to get information about the library's resources and services.

Many QR code readers, including those described following this page, are available on the internet for no cost. The most effective approach is often to type your mobile phone model and a "QR reader" into a search engine. An appropriate reader should show up on the first page of the results for well-known models. When applied to mobile devices, QR codes may be used to encode a variety of data types, most frequently text, URLs, phone numbers

(prompting your phone to call the number), text messages, and numbers (prompting your phone to SMS the number), as well as contact information (V-card).

HISTORY

The QR code was developed in 1994 as an improvement to the existing barcodes for use in inventory management by Toyota subsidiary Denso Wave. Since its creation, the QR code has gained popularity across a wide range of industries, including office automation, manufacturing, warehousing and logistics, business, healthcare, and life sensing. The QR code is currently being used in mobile marketing as a quick and efficient way to communicate with clients and provide end users with information due to the rising use of smart phones. In the present environment, libraries are also fast adopting this technology.

STRUCTURE

QR codes have gained in popularity in recent years, and they are currently used in a wide range of applications and systems. This section will introduce the QR code system and how it may be used, emphasising the intended application of QR codes in a library management system. Anyone considering creating a QR code should be aware of its anatomy. However, you should be aware of the QR code security risks associated with free internet services. QR codes are made up of three squares selected from the symbols four corners and zones. The QR code's placement pattern proves that it is a QR code, as seen by unique positioned components.

TYPES OF QR CODES
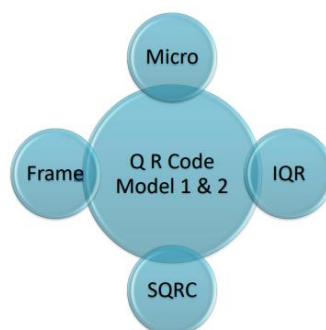
- ➢ QR codes are classified into five types: QR code model 1 and model 2, Micro QR code, IQR code, SQRC code, and Frame QR code:
- ➢ QR code Model One and Model Two are the most common varieties of QR codes that serve as the foundation for additional variants.
- ➢ Micro QR code is a sort of QR code that has a single position detecting pattern and has a smaller printing size.
- ➢ IQR code is a QR code that is available in both square and rectangular shapes, allowing it to be readily printed on cylindrical objects as well. It holds more data in less space than a standard one. SQRC stands for Secure QR code, and it gives security to encoded data by imposing reading constraints on it.
- ➢ Frame QR codes are QR codes that provide a canvas space for adding different forms to the QR code and making it more appealing to users and consumers.

APPLICATIONS AND PURPOSE OF QR CODES

Because of the technology is "open source," or accessible to everyone, QR codes are becoming more and more common. Greater data capacity and greater fault tolerance are additional benefits of QR codes compared to traditional barcodes. It's simple to create and utilise QR codes. They offer a practical technique to pack a lot of info into a little area. A single QR code may carry up to 4000 characters if the information you wish to put in it is exclusively composed of alphanumeric characters. QR codes are employed for a variety of things since they may contain various kinds of data.

They let you embed a wide variety of material and are both free and simple to use. Once a code has been created, you can alter its design to include a photo or company logo. Since users no longer have to type lengthy URLs, library websites are used more frequently. Quick response (QR) code usage in libraries is just starting to develop, with a wide range of features. They have been used successfully in libraries to give information that is relevant for the user's context and location. Displays in libraries that link to songs, films, websites, surveys, competitions, etc. using QR codes. Codes that direct readers to online electronic versions of print resources or relevant subject guides can be found in magazine and journal sections, stacks, or end caps. **Some of the important activities, QR codes are applied in libraries are as follows:** Easy access to previous year's test papers, a link to the website, an electronic resource link, a group study room scheduler, marketing and promotional materials, and a link from print to electronic journal holdings, Offering a digital substitute for actual books, Publicizing online audio-visual content, Finding the right assistance, bringing outside resources into the library, embedding video assistance, taking the catalogue record with you etc.

Data like the following is frequently stored in QR codes

- **Simple text:** greetings at conferences.
- **addresses:** residences and places of work.
- **Phone numbers:** home and place of attendance.
- **e-mail addresses:** personal or professional accounts.
- **URLs** are the addresses of certain websites or online pages.
- **Payments:** QR codes can store information about your credit card or bank account.
- **WI-Fi Authentication:** QR codes can be used to store Wi-Fi network authentication information, such as password and encryption type, so that when you scan one with your smart phone, it will automatically join that network.
- other uses, such as for diplomas and transcripts.

ADVANTAGES OF QR CODES

- Being accessible is free.
- Anyone may utilize it at anytime, anyplace.
- It complies with Ranganathan's fourth law, "save the reader's time," in a millisecond.
- It is a library service that uses technology to improve mobile learning.
- Only smart phones like Android phones and iPhones with a reliable internet connection are needed; no further technological gear is necessary.

- ✓ If anything is lost or destroyed, it is possible to retrieve the data.
- ✓ It may be utilized in either direction and has a larger storage capacity than barcodes.
- ✓ No specialized knowledge or abilities are required.

DISADVANTAGES OF QR CODES

- Lack of Awareness: One drawback of QR codes, and maybe the largest issue, is that most people are unfamiliar with them.
- Expensive Smartphone and applications necessary: In order to utilise an app, a user must have a smart phone. They require a smart phone as well as a QR code reader app. Since not everyone in the world has a smart phone, not everyone can use QR codes.
- The majority of phones do not come with a QR code reader preloaded. The customer installs it.

OBJECTIVES

- ✓ To identify the area of applications
- ✓ To study the working mechanism of QR code
- ✓ To study the advantages/disadvantages of QR code technology in the library

REVIEW OF LITERATURE

Whitchurch, M. J. (2011)

This article will include a selection of current QR code implementations as well as a discussion of what has been utilised to enhance student interaction with the library through the usage of QR codes at Brigham Young University's Harold B. Lee Library.

Mohamed, S (2013)

This report deals with an innovative project to facilitate access to information using QR code. Even, talks about the need & use of QR code in Libraries in a University of Cape Town, Brand Vanzyl law library for accessing academic library services.

Dr. Neeraj Bhargava, Anchal Kumawat, Dr. Ritu Bhargava (2014)

This studies the encoding process on how to use QR code & Barcodes. This article discusses various applications in brief with the structure, properties and symbology. This research paper deals with the facility to generate QR codes with help of document software such as Ms-Word Document 2007/2010. Its main goal is to achieve creation & understanding the technology of QR codes in today's environment.

Shettar, I.M. (2016)

This studies about the applications and service awareness actives in library and information field. It gives brief introduction on how to use and how it works with its features. It explains the use of QR codes in Libraries with special reference to QR code implementation in central library, NITK.

Saleeq Ahmad Dar and Margam Madhusudhan (2016)

This study engages the survey approach to examine the user expectations at university of Delhi. A survey was conducted through a structured questionnaire with the help of interview method with 80 students and research scholars in Delhi university library system. The main purpose of this study is highlighted with Pros & Cons of QR code technology in library settings.

Gaonkar, M. S. (2016)

The usage of QR codes at the AIKTC (Anjuman-I-Kalsekar Islam's Technical Campus) Central Library has been used to promote student interaction with the library, and this article includes a brief sampling of some of the current QR code implementations.

Ajay Shankar Mishra*, Sachin Kumar Umre, Pavan Kumar Gupta (2017)

This article discusses the idea of QR codes and describes how to read and generate QR codes. It also discusses library procedures and the benefits and drawbacks of the QR code. It aims to identify the various libraries to utilize QR codes as a holistic tool for the library system using an example set.

Mishra *et al (2017)

This article reviews the concept of QR code and describes the practice of reading & Generating QR codes. Even talks about the basic concept, structure, pros & cons and their applications.

Bellary, R. N. (2018)

This article analyses the efforts made to understand the implementation of QR codes in libraries and discusses the approach used to communicate information to its user population.

Vijaykumar B. Gopale (2019)

This article deals with QR code & useful applications in libraries like how to generate and implementation, advantages

H. Kadli (2020)

This paper has discussed and highlighted on QR codes & their use in library. It also discusses on how the QR code technology can enhance the library services with quick and quality.

Indrakshi Das, Digbijoy Das (2021)

This paper studies the concept of QR code and how it works to disseminate information in a quick way along with these it gives us a basic concept of QR code structure, advantageous nature and its activities.

METHODOLOGY

The entire study is based on the benefits & purpose of QR Codes in the present scenario of library. This study carried out with the concept, Structure, Methodology & advantages and disadvantages of QR code technology and

some literature reviewing of similar type of study. The applications of QR codes and its benefits of using secondary information.

Mobile tagging is the process of utilising a camera phone to scan, decode, and read out the data of a 2D barcode, such as a QR code. One needs a QR code scanner in order to read a QR code. These scanners are incorporated into a variety of camera-enabled mobile phones, and virtually any smart phone can be downloaded with third-party scanner programmes. A QR code is processed by the programme and turned into the text after being photographed. The code could include a company's phone number or website address. Streaming video, instant messaging, email, and other programmes may all be launched by QR codes to provide customers with a rich and engaging experience.

Creating a QR code

Examine two items prior to making your QR codes. Make careful to first identify the categories of data you wish to save. Where do you want to disseminate the QR codes, exactly? Using an online QR code generator is the simplest approach to obtaining a QR code. You may instantly produce the code by entering the desired data there. Once you've decided on your decision, utilize your preferred search engine to hunt up "QR code generators." The internet is full of such no-cost resources. I use QR code Monkey and QR code generator as two of the finest. Creating and spreading information in the following easy steps:

1. Select which type: You may choose from URL, V-card, Plaintext, e-mail, SMS Twitter,   Wi-Fi, Bitcoin.
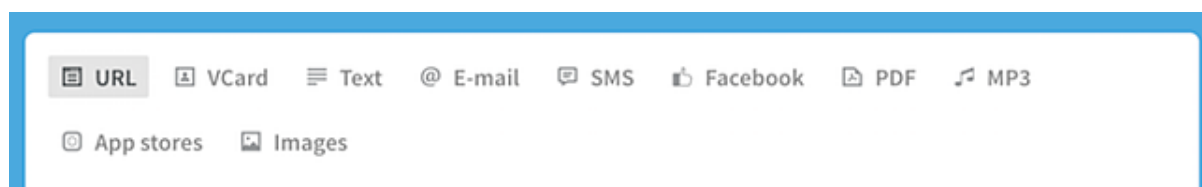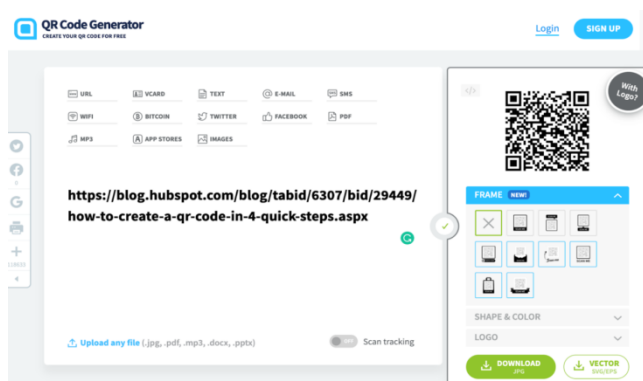
2. Fill in the details: Enter all the data required in the fields that to showing. This could be a link, Contact data, text (or) some other kind of Data whenever you're done choose create/generate.
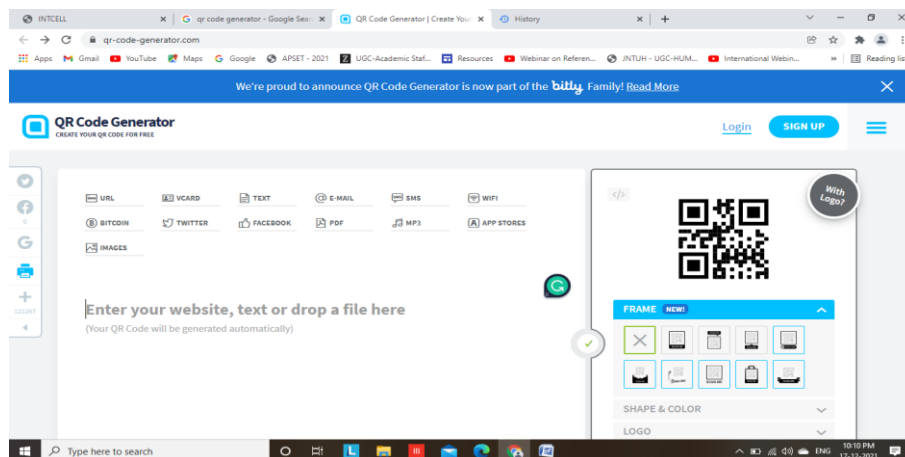
3. Download the QR code: You might decide to have a standard black and white design (or) pick any shades of your decision and casings to assist you with drawing in additional outputs. On the off chance that not, continue to download your completed code.

Top QR Creators

1. Kaywa
2. Scanova
3. Free Shopify
4. Visualead
5. The-QR code-generator.com
6. QR Stuff
7. QR code-generator.com
8. Using QR code Monkey

There are several tools available for creating QR codes. The better ones allow you to customize your QR codes to a large extent and are compatible with almost all mobile QR code reader applications. If we can track and evaluate performance in real-time and create a code that is specifically tailored to your business, they are additional features to look for when selecting a QR code generator.

CONCLUSION

This research paper studies that generation of QR code with the help of a document-based software. A common user can get their own QR code in a user-friendly environment & a user may get to generate by following above steps. To scan QR code by different readers available online like (examples) and desktop readers like (examples) and then information will be displayed on users mobile or desktop.

REFERENCE

[1] Ajay Shanker Mishra, S. K. (2017) QR Code in library practice some examples. *International Journal of Engineering Sciences & Research Technology*, 319-326.

[2] Bellary, R. N. (2018) Quick Response (QR) Codes Connecting Library Patrons to Information Resources Anytime Anywhere. *Indian Journal of Information Sources and Services*, 16-18.

[3] Dr. Neeraj Bhargava, D. N. (2014) Demonstration of Barcodes to QR Codes through Text Using Document Software. *International Journal of Innovative Research in Science, Engineering and Technology*, 16243-16249.

[4] Gaonkar, M. S. (2016) QR (Quick Response) Codes Application in Academic Libraries: Case study of KRRC (Central Library), 1-9.

[5] Indrakshi Das, D. D. (5-26-2021) QR Code and it's effectuality towards library services. *Library Philosophy and Practice (e-journal).*

[6] Margam Madhusudhan, S. A. (March 2017) Mobile Information Services and Initiatives in University Libraries: A New Way of Delivering Information. *DESIDOC Journal of Library & Information Technology*, 109-118.

[7] Mohamed, S. (2013) Initiating Mobile Phone Technology using QR Codes to Access Library Services at the University of Cape Town. I*nformation Development. 30(2)*, 148-158.

[8] Saleeq Ahmad Dar, M. M. (October 2016) Quick Response Codes in University Libraries: User Expectations for Fast Retrieval of Information at the, 114-127.

[9] Shettar, I. M. (2016) Quick Response (QR) Codes in Libraries: Case study on the use of QR codes in the Central Library, NITK, 129-134.

[10] Whitchurch, M. J. (2011) QR Codes and Library Engagement. *Bulletin of the American society for information sciencee and technology*.

—————————