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Use of QR Code in Library

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Abstract

This chapter deals with the use of QR codes, especially in Libraries. The full form of QR code is Quick Response code. The QR code technology is just like the barcode technology. The differences between barcode technology and QR code technology is that barcode technology can handle the information only in horizontal direction and QR code technology can handle the information in both horizontal and vertical direction. QR code technology is widely used as a medium to deliver a message to end users. The QR codes are mainly used by libraries for the purpose of promoting their services. Nowadays the QR code technology is widely used by many libraries for providing quickly access to their resources.

Keywords QR Code, QR Code Reader, Barcode Technology

Introduction

We all know that mobile is one of the powerful devices that people use in day-to-day life. A study was conducted with the help of 470 volunteer users of smartphones and tablets from December 15, 2013 to January 15, 2014. It was found that 85 per cent of people say the mobile device is a significant part of their everyday-life (Salesforce 2014). Mobile devices are mainly used for voice communication. Along with the voice communication facility, these devices also offer different types of services to its patrons. Now-a-days there is huge variety of mobile phones with different features with a very low price. They have cameras and support Android or Windows operating system. With the advent of ICT, the concept of the library has changed. Libraries are procuring E-journals, Magazines, CDs, DVDs, etc. Now libraries are providing online services, references services and RFID-based circulation system. In recent past, the European countries have used QR code for their existing library system. The QR coder is the technology that can deliver to the user the information in a code. Quick Response Codes (QR Code) are two-dimensional images that, when scanned by a smart phone's camera, prompt the smartphone to open a webpage or display an image, video, or text (Kumar, Chikkamanju and Mamtha 2014).

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. QR codes represent text that is then used by the mobile device for performing an action. Codes can be created to link directly to a URL, create a vCard (saved to the mobile device) or initiate a phone call, text or e-mail, among other functions (Whitchurch 2011). QR codes have some data limits up to Max. 7,089 Numeric character, Alphanumeric Max. 4296 character and Binary (8 bits) Max. 2953.

Literature Review

QR code usage is increasing and it is used for marketing purposes. The embedded information is readable by mobile phone (Sahu and Gonnade 2013). QR codes are attached with any Print media (Kumar, Chikkamanju and Nayak 2014). QR (QuickResponse) codes are two-dimensional images which are likely to completely change and improve Library services in terms of delivering instruction, marketing their services, connecting customers/financial supporters to inform about library materials. Naik *et al.* (2015) stated that QR code is much easier a way to access the

information with the help of the inbuilt QR scanners of the smart phones. Users do not need to memorise the critical web addresses.

Functioning of QR Code

A QR code is a two-way dimensional square-shaped barcodes that comprise many black square dots on a white setting. There are mainly four kinds of data such as numeric, alphanumeric, byte or binary and Kanji which are encoded into information or through supported extensions. The processor locates the three distinctive squares at the corners of the image, and normalises image size, orientation, and angle of viewing, with the aid of a smaller square near the fourth corner. The small dots are then converted into binary numbers and the validity is checked with an error-correcting code (Wave 2011).



Figure 25.1 Showing QR Code Bitmap

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

Limitations of QR Code

- Lack of familiarity among people and users

- Need of scanning device. If you want to access the information in the QR code, you should have a device that supports the QR code scanning facility
- It takes time to scan the code embedded in the QR code
- You need a QR code reader software
- It needs an internet connection

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.

QR Code Website/Software and Reader

There are a number of software freely available in the market for creating QR codes and also there are readers for PC and Mobile. The following are some examples of Softwares and readers:

- Website/software:
 - o GoQR.me
 - o QRMobilize
 - o QR Stuff
 - o ZXing
 - o Delivr
 - o SnapMaze
 - o RACO
 - o SparqCode
 - o QR-Code Studio

- o Code two
- o QR Code Generators
- QR code reader
 - o NeoReader
 - o TapMedia's QR Reader
 - o i-nigma
- iPhone QR Code Reader Apps
 - o ScanLife (Free)
 - o Barcode (Free)
 - o Optiscan
 - o QuickMark
- Android Free QR Code Reader Apps
 - o Barcode Scanner (Free)
 - o ShopSavvy (Free)
 - o ScanLife (Free)
 - o QuickMark (Free)
- Windows Phone 7 QR Code Reader Apps
 - o BeeTagg (Free)
 - o Quickmark (Free)
 - o Stripes

Use of QR Code In Library

QR code is used in a variety of ways by different organisations for their personal purposes like promoting and marketing the products. Library uses it as a medium to communicate the users to their documents/information that they want. The 21st century libraries are fully automated and they know the users' demands. They always try to provide world class services to their users beyond physical boundaries. There are many libraries abroad that have implemented QR code. The names of some notable libraries are given below:

- Lafayette College Library
- Syracuse University Library Learning Commons
- Half Hollow Hills Community Library
- Contra Costa County Library
- Topeka & Shawnee County Public Library

With the advent of ICT and awareness of technology among people, QR codes are being used everywhere. So QR codes can be used in library books, journals,

CD-ROMs, ticketing, entertainment and transport ticketing, VCard information, commercial tracking, product/loyalty marketing and in-store product labelling. So we can say that QR code can be used in a variety of ways as per need. The main aim of using QR code is to give brief message to the users. There are several ways to use the QR code in Library environment.

- To give directions to the user
- To provide brief information to user
- To inform of required documents
- To promote the library services
- To create link to all the resources available in the library
- To create link to virtual tour of library sections
- To use in library exhibitions like Videos, Audios, and websites
- QR code is used to provide text messages for reference service and contact information of library staff as well as library patrons

Conclusion

Libraries are now being very challenged by the development of various technologies. In this present era, the new technology like QR code 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. So to make the effective use of QR code among the user community, library professionals must organise user awareness program, orientation programme, etc.

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