Application of QR Code Technology in providing Library and Information Services in Academic Libraries: A Case Study

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Outline

- Objectives
- About Central Library, IISER Bhopal
- About QR Code
- Features of QR Code in Academic Libraries
- Requirements for scanning QR code
- Process of generating QR codes
- Benefits of using QR Code technology
- Limitations of QR code technology
- Conclusion

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 promote mobile technology based services and promote mobile learning
- To increase users satisfaction toward library services
- To save the time of the user
- To provide quick CAS services
- To provide quick ready reference services at the time of need

About Central Library, IISER Bhopal

- Central Library, IISER Bhopal is a State -of-the -Art modern academic library

- Having high quality research based information resources
  - 9000 print books
  - 34000 e-journals
  - 1000 e-books
  - Audio-Visual materials
  - Theses and Dissertations
  - Projects Reports, etc.

- Seating capacity for 410 users
- Wi-Fi enabled, having modern e-library (with 110 computers)
- RFID enabled services
- CCTV surveillance
- Touch screen Web-OPAC terminals
- Complete Library Automation (by using Open source library management software (KOHA))
- Institutional Digital Repository by using D-Space software

Central Library offers following services:

- RFID enabled self check-in/check-out
- Document Delivery Service
- E-library with internet facility
- Resource discovery tool service
- Inter Library Loan
- Current Awareness Service / SDI
- Email alert service
- Reprographic service
- Display of new books/Current periodicals / in-house publications
- Reading zone facility

- Discussion Room (online booking)
- Seminar Trial Room
- Bibliographic service
- Abstracting service
- Indexing service
- Ready Reference service
- Referral service
- Library website
- Orientation classes for Reference management tool (ex. Zotero, Mendeley), anti-plagiarism software (ex. Turnitin), Citation database (Scopus, Web of Science, Google scholar), Remote Login access (VPN), etc.

Central Library, IISER Bhopal

Central Library, IISER Bhopal (Ground Floor)

Personal Belongings Area

Library Entrance Gate

Reading Zone

Circulation Desk/e-Bulletin

Browsing Area

Discussion Room

Central Library, IISER Bhopal (Ground Floor)

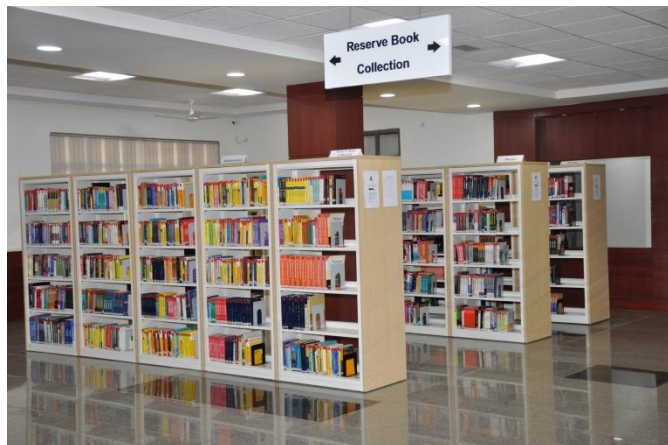**Browsing Area**

Reading Zone

Text Book Collection

RFID enabled Self Check-In/Check-Out Kiosk and Web-OPAC Terminals

Central Library, IISER Bhopal (First Floor)

Reserve Book Collection

Current Periodicals

Reading Zone

Faculty Publications

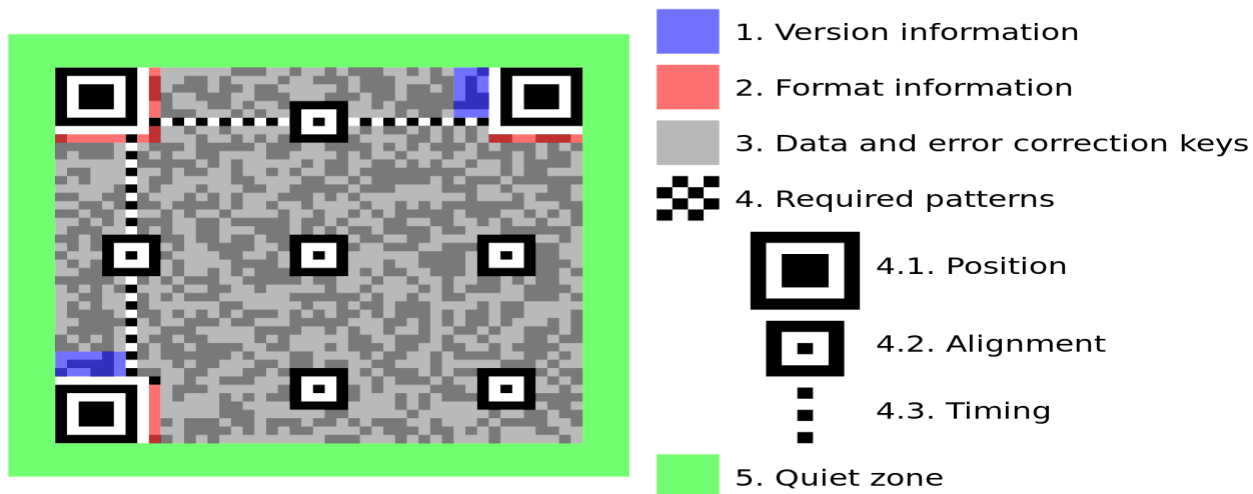# Central Library, IISER Bhopal (Second Floor)

e-Library

Reference Collection

Reading Zone

About QR Code

A Quick Response (QR) code is a matrix barcode readable by smart phones and mobile phones with cameras. They are sometimes referred to as 2d codes, 2d barcodes, or mobile codes. The QR code typically appears as a small white square with black geometric shapes, though coloured and even branded QR codes are now being used. QR codes can hold much more information than a regular barcode. The information encoded in a QR code can be a URL, a phone number, an SMS message, a V-card, or any text. They are referred to as QR because they allow the contents to be decoded at high speed.

1. Version information
2. Format information
3. Data and error correction keys
4. Required patterns
  4.1. Position
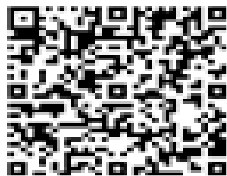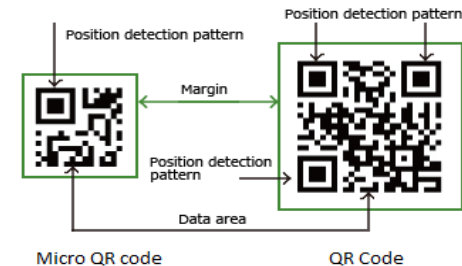 4.2. Alignment
  4.3. Timing
5. Quiet zone

Usually five type of QR codes are available. These are QR code model 1 and model 2, micro QR code, iQR code, SQRC and frame QR code. Frame QR code is more advanced type of QR code with canvas area where available space for inserting other thing for promoting as you like. Static and dynamic are two type of QR code where dynamic QR code is editable anytime even after printing. The images of different types of QR code is given below.

QR Code Model 1

QR Code Model 2

Micro QR code   QR Code

iQR Code

Frame QR Code

Features of QR Code technology

- Free and open sources technology

- High storage capacity of data

- Small space required for print

- Reading capability of QR Code from any direction

- Capability to restore partially data or content of damaged QR codes

- Structure appending feature

Requirements for scanning QR code

- Smart phone with QR Code reader/scanner or
- Handy scanner/handy terminals/fixed scanner
- Internet Facility
- Printer

Process of generating QR codes

The process of generating QR Codes is very simple. There are many QR code generators easily available on the web.
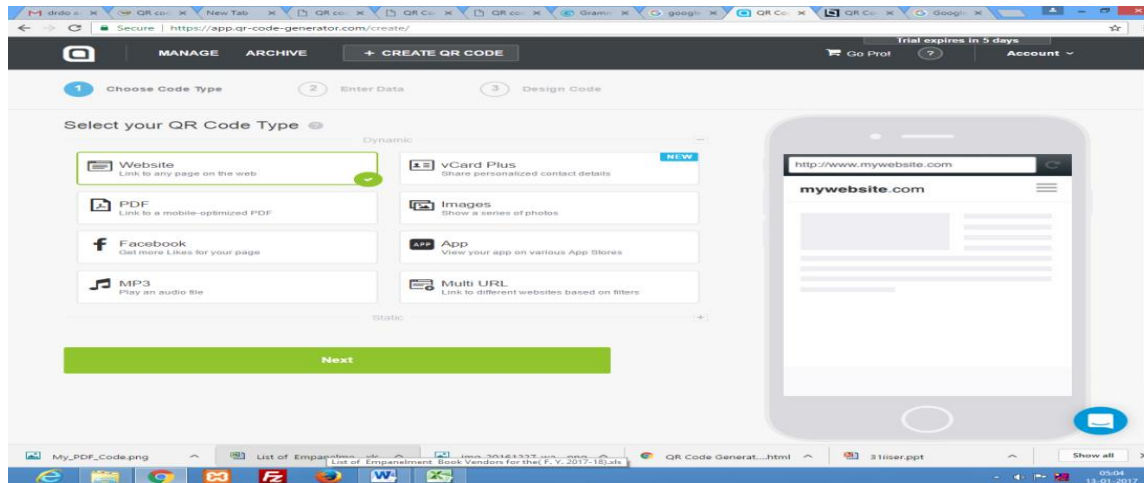
Steps for generating QR code for any document

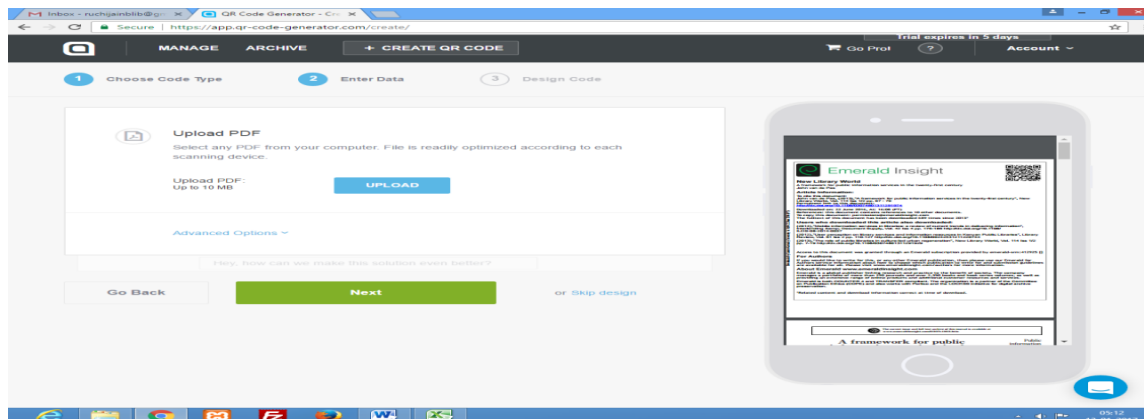- First one need to select QR code generator website (ex.: http://www.qr-code-generator.com)

(Screen shot-1)

- Need to select one of the desired navigation tools (like PDF, URL, images, text, MP3 etc.)

(Screen shot-2)

- Uploading the desired document (ex. pdf document) and click at next

(Screen shot-3)

- Click at done

(Screen shot-4)

- Now file is ready to download and save

(Screen shot-5)

Benefits of using QR Code technology

- Open source technology, available free of cost

- Simple implementation process and user friendly technology. Users do not need special knowledge for using QR code, only required smart phones like iPhone, Android phone etc. with QR code scanner

- QR code are also being used in providing Document Delivery Services by academic libraries

- It is also helpful in increasing information literacy and technology literacy among library users

- It enables to connect users with library resources like Web-OPAC, Institutional Digital Repository, Library website, e-Resources, Library Guide, New Arrivals and others useful resources of the library without wasting the time of users

- Large storage data capacity in small space

- When awareness increase towards this technology, it will become an interesting technology among library user community and helpful to achieving library goals

Limitations of QR code technology

- QR code technology only effective when users have a smart phone / iPhone etc. with QR code reader and internet facility.

- Awareness among users toward QR code technology is also essential.

Application of QR Code in Academic Libraries

Use of QR codes in providing Current Awareness Service / Ready Reference Service

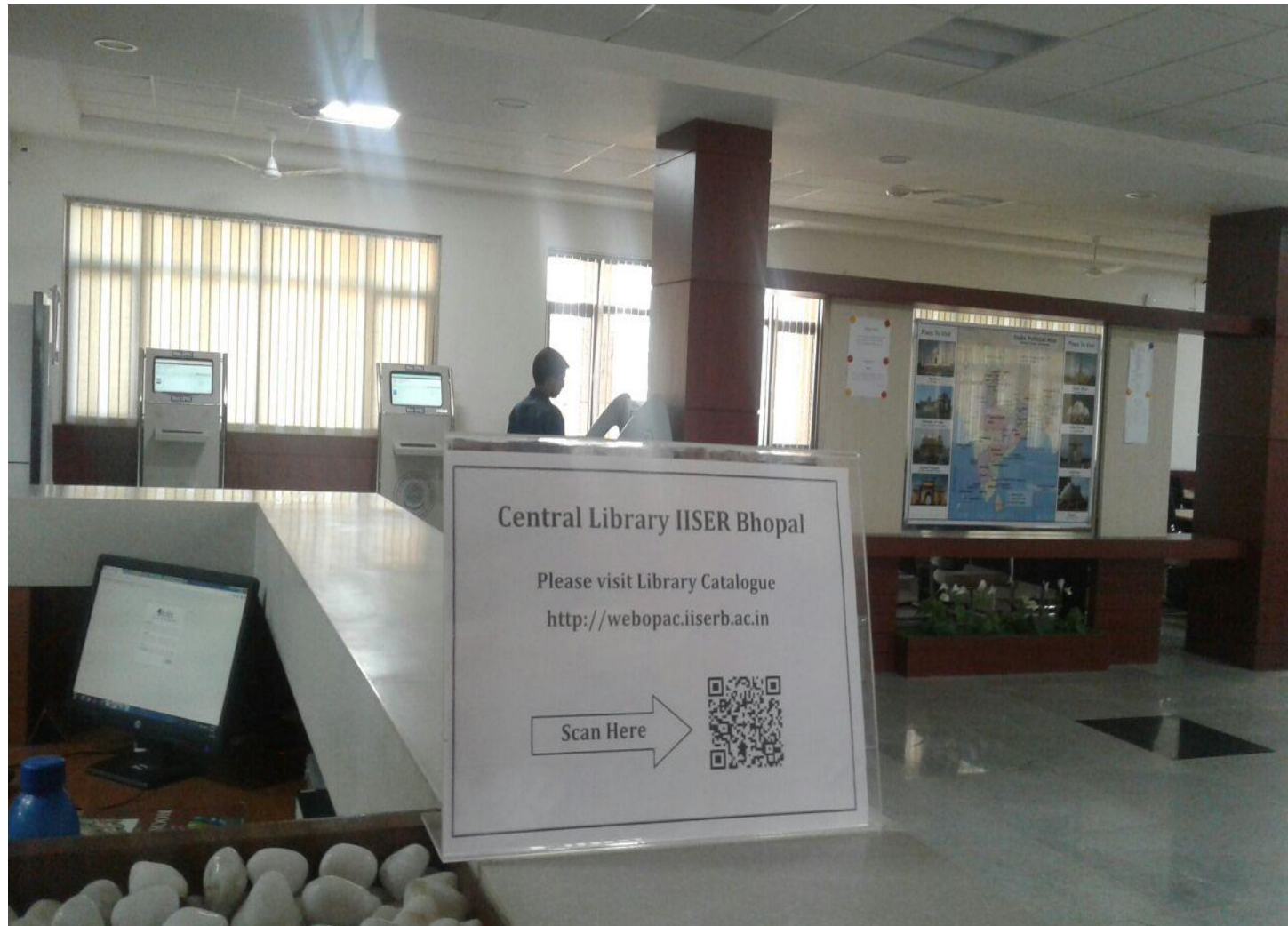|			
Library Website	**Web OPAC**	**List of Ph.D. Theses**	**e-Resources**
Book Requisition / Library Membership Form	**Digital Payment for Library Book overdue**	**List of CD-ROMs**	**Library Guide**
Library Manual	**Institutional Digital Repository (IDR)**	**Open Access Resources**	**Union Catalogue of e-Resources**
New Arrivals	**List of print magazines**	**Discovery Tool Service**	**List of News Papers**

QR Code Panel @ Central Library, IISER Bhopal

QR Code Panel @ Central Library, IISER Bhopal

QR Code for Web-OPAC @ Central Library, IISER Bhopal

Library Mobile App

Central Library, IISER Bhopal is also working on to develop Library Mobile App and soon it will operational. Users can access library resources even when they are not present in library. By using Library Mobile App, users can access their library account such as due dates, place a hold, renew a book. Library hours, phone numbers can also be checked. Users can also search the catalogue by author, title, subject, accession no, or keyword.

Beta version: http://182.30.1.60/mkk.apk

Conclusion

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. 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. Although the future of QR codes is not clear right now, QR codes are being used in increasingly larger numbers across the India especially for cashless transaction. Now QR codes have appeared in magazines, newspapers, cashless shopping, retail stores and several other places. QR codes will not replace any technology however efficient uses of these QR codes can enhance the user experience at large and alter how s/he interacts with the academic libraries, the librarians and the library collection.

References

1. http://www.qrcode.com/en/history/

2. http://www.qrcode.com/en/about/standards.html

3. Ashford, Robin. (2010). QR codes and academic libraries: Reaching mobile users, College and Research Libraries News. 71 (10), Pp 526-530

4. Structure of QR code. https://en.wikipedia.org/wiki/QR_code

5. http://www.qrcode.com/en/about/
6. http://cooins.com/images/docs/QR-code.pdf
7. http://www.denso-wave.com
8. Schultz, M.K., A case study on the appropriateness of using quick response (QR) codes in libraries and   museums, Library & Information Science Research (2013), http://dx.doi.org/ 10.1016 /j.lisr .2013.03.002

9. Bruce E. Massis, (2011),"QR codes in the library", New Library World, Vol. 112 Iss 9/10 pp. 466 – 469http://dx.doi.org/10.1108/03074801111182058

10. (2009),"Quick response codes and libraries", Library Hi Tech News, Vol. 26 Iss 5/6 pp. 7-9 http://dx.doi.org/10.1108/07419050910985255

11. Dantrea Hampton , Amanda Peach & Benjamin Rawlins (2012) Extending Library Services with QR Codes, The Reference Librarian, 53:4, 403-414, DOI: 10.1080/02763877.2012.704576

12. Walsh A. 2010. QR Codes – using mobile phones to deliver library instruction and help at the point of   need. Journal of information literacy, 4(1), pp. 55-64. http://dx.doi.org/10.11645/4.1.1458

Thank You

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