ORIGINAL RESEARCH PAPER
VOLUME-6 | ISSUE-6 | JUNE-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

Need for Development of Smart Mobile Library Application for ease of access in University / Academic Libraries.

Library Science

Rajasekhar Gopalasetti Junior Research Fellow, Deptt. of Library and Information Science, Andhra University,

Prof. C. Sasikala Professor, Deptt. of Library and Information Science, Andhra University,

ABSTRACT

As Information Communication Technology (ICT) and Mobile Technology (MT) advents, the use of Mobile application became popular. Now a day's Library is being area of knowledge resource which can be stored and retried by using digital library software's. Libraries has been used web-based Digital Library, where its application is still not available for most of the library users, because the majority of the library users are not aware of the digital library and the purchase of personal computers are may not be affordable to all users. At present in India the smart mobiles, which are compatible with mobile applications are available at an affordable cost and the mobile users are increasing with a rapid growth. Therefore, there is a need to develop the mobile applications which can be best viewed the library services in the hand of the users. This study shows the requirement of a system that allows the members of the library to access library services, especially the process to view the M-OPAC (Mobile - OPAC) and availability of books online using mobile library application.

KEYWORDS:

Smart Mobile, Android, Mobile Application, Mobile Library Application, M-OPAC, ICT, Library Services, Internet.

INTRODUCTION:

The annual Mobility Report from Ericsson in June 2015 has estimated and published that by 2020 the smart phone subscriptions in world will rise to 6.1 billion, where as in 2014 there are 2.6 billion subscriptions. In India the statistics showing that by 2020 there will be 520 million smart mobile subscriptions, where as in 2013 there were only 90 million users. These statistics are showing that with advancements in mobile technology and the rise in Smartphone use, people are taking advantage of mobile applications whenever and wherever they are. Today Mobile phones are using to access online information, finding ways by using GPS enabled mobiles application, video chats and various other activities. The telecommunication technology also making an advantage of using mobile phones by offering data charges at low cost. Library is a place where fruits of ICT are fully utilizing to make the library services to reach every citizen. With the great advantages of mobile phones, there is a need to develop a smart mobile based application to access the library and information resources online with a click. Due to current economic considerations, free mobile applications were chosen over similar paid applications.

There are various mobile operating systems which are being used to introduce by companies to popularize their smart mobiles in the world. Out of these, Symbian was the most popular mobile operating system in early 2000 followed by Windows Mobile, Black Berry, Apple's i-OS and Android. In today's world the android mobile operating system is popularized for its incredible advantages given to the smart mobile users. The mobile users are habituated to use the mobile applications and each and every business organisation or educational organisation or social community organisations are building up their own mobile applications to familiarize and to reach the users with their services. Android is being an open and major source to create and publish mobile applications in its play store, the libraries may be taken the advantage of android platform to create and publish their own mobile application to reach around 65% of mobile users in India.

Introduction to Android:

The version history of the Android mobile operating system began with the release of the Android alpha in November 2007. The first commercial version, Android 1.0, was released in September 2008. Android is continually developed by Google and the Open Handset Alliance (OHA), and has seen a number of updates to its base operating system since the initial release. Google released as an open-source mobile phone operating system is a Linux-based platform; it consists of the operating system, middleware, and user interface and application software .The success and development of the current android capable of occupying the highest position gadgets and computer market, it is certainly due to the sophistication of technology systems and applications that are on it are currently a trend among mobile phone users because it can help all areas of work so that it becomes easier. The advantages of android is the open source license so it is possible for anyone with an android programming ability to create or develop applications to run on Android based gadgets. Based on Android and smart phone, mobile library system implements communication between client and server to provide users' query and request.

Why to choose android operating system to develop mobile library application?

As per the statistics of "The Statista Portal", it is showing that in Jan-2012 the share of android operating system among all smart phones in India was only 5.05%, but where as in December 2015 it is reached to 64.32 %. This statistics is showing that the rapid growth of android based smart mobile users in India. Therefore, it is very essential to create the libraries mobile based application in android so as to reach maximum number of patrons in a university or academic organisation.

The following figure 1 shows the development of android smart phones in India:

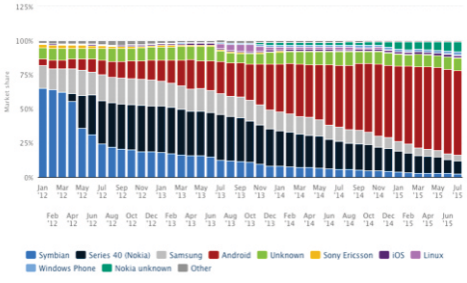

Fig 1 : development of android smart phones in india

Developing an Android Application:

The development of an android application is not a big task now a day, there are several online developers providing a free and commercial applications development sources to develop our own desired mobile application. There are two types of sources available for creating a mobile application according to java programming, one is to develop by writing full java coding and another is to develop without coding. The most of applications are developed by making a coding for its long lasting use. Android development is mostly done by using java script. Therefore, for developing a mobile application the developer should have the basic knowledge of java programming. Most android developers recommend using Eclipse as the development environment for the coding session, Android SDK and required tools to develop an android programming. But fortunately, the android corporation has developed a package called Android Studio for the creation of android application which includes eclipse, android SDK and related tools. After building a smart application it should be checked and published in Google play store for making it downloadable for end users.

Literature review:

Various studies have been conducted for improving and making fast delivery of the library services by using mobile technology such as creating mobile websites and mobile applications for creating an easy access of libraries by library users. A study conducted by TCS a leading software services firm called TCS Gen Y survey 2014-15. The survey was conducted in 14 popular cities across India. According to survey about 72 percent students today own smart phones with a larger user base in smaller cities than the metropolitan cities. The survey was conducted on nearly 14,000 high school students, which revealed that smart devices and unprecedented levels of online access are making this generation the most connected yet. This shows that the use of smart phones by school students and therefore we can estimate the smart mobile users in academic and university level.

Malathy S. and Kantha P (2013) explained various advantages of using mobile technologies in libraries. They have also mentioned some important library and information services, which can be provided on small screens such as SMS services, Reference service and e-resources extra.

Mohan Lal Vishwakarma et al (2013) discussed about the concept of "m-learning" and its formation and said that 'm-learning' will be the next big wave, which will reform education in India by using smart phone technology.

Krithika.M , Dr.S.Vasantha (2013) presented various surveys conducted on smart mobile users in colleges and schools and they have presented various statistics The Mobile Phone Usage Among Teens And Young Adults.

Navin Kumar Soni et al (2015) have made a small survey to examine the Usage and Awareness of Mobile Applications and Technologies by LIS Professional in Library Services: Special Reference to North-West Part of Madhya Pradesh. They have made an effort to collect data on use of mobile technology in libraries among lis professionals by distributing 345 questionnaires. The questionnaire covers user's awareness about ICT, Instant messaging and communication, use of on social network sites for library services, any application for online reading and reference services, applications for use by organization, productivity and their work and comfort ability in using mobile applications, apps for Navigation or Mapping. They have pointed out some suggestions for using mobile application in providing library services to the library users.

Lorcan Dempsey (2009) explained that Libraries have been working to develop network –ready services. Mobile communication intensifies this activity and adds new challenges as they look at what it means to be mobile–ready. This has organizational implications as a shift of emphasis towards workflow integration around the learner or researcher creates new relationships with other service organizations on campus. It also has implications for how space is used, for library skills, and for how collections are developed. We can see the impact of mobile communication on services in two ways. First, services may be made mobile –ready, as with special mobile interfaces for library services, alerting services, and so on. Second, mobilization continues the restructuring of services, organizations and attention that networking has brought about. Think here of how to socialize and personalize services; how to adapt to collection and service use which spans personal, institutional, and cloud environments; how to position and promote the library 'brand' as services become atomized and less 'visible' on the network; and more complex questions about what best to do locally and what to source with collaborative arrangements or third parties.

ACS Publications stands alongside Chemical Abstracts Services in supporting the American Chemical Society's have been created a mobile application known as ACS Mobile for both android and apple platforms. The acs mobile application contains an indexed list of more than 35,000 research articles published annually, complete with graphical and text abstracts.

National library of medicine have also created an application called PubMed for Handhelds. It is an app for discovering relevant health information at the National Library of Medicine. Journal abstracts, TBLs ("the bottom line" summaries) and full text articles (requires subscription to journals) can be accessed anywhere the Internet is available. It offers various services to doctors to know about the clinical queries and recent journals, etc. Ask medline is a free-text, natural language search tool provided in pubmed Hh.

Proposed view of Smart Mobile Library Application:

The main intention to create a smart mobile application in the field of libraries is to advantage the library user for accessing and retrieving the online digital library resources by a smart mobile. Therefore, the smart mobile library application may be created with the following basic features:

Basic library functions need to be presented in smart mobile application:

1. **About library**
2. **Library location**
3. **E- Notice board.**
4. **New arrivals.**
5. **Current awareness service (CAS)**
6. **— OPAC**
   - **I) Search by Title**
   - **ii) Search by Author**
   - **iii) Search by Subject**
   - **iv) Locate the Book**
7. **QR / Bar Code Scanner (for RFID enabled libraries)**
8. **User login**
   - **I) View History**
   - **ii) My Books**
   - **iii) Request for a Book**
   - **iv) Download**
     - **a) E-Journals**
     - **b) E-Books.**
   - **v) Ask Librarian**
   - **vi) SDI – Service.**
   - **vii) Audio/Video Files.**
   - **viii) Log out**
9. **Feed Back.**
10. **Quit App.**

The below figures illustrate the activities present in smart mobile library application:

Fig: 2 (Grandhalayam.app)

Grandhalayam.app : First the library user should download the smart mobile library application. Once the user has installed the application in their Android device, the above screen appears. The main screen module of application contains the links to the various modules like About the Library, Library Location, E- Notice Board, New Arrival List, CAS Module, Mobile OPAC Module, User Login Module, QR/ Barcode Reader, Feedback, Quit App. The Librarian / Developer of the mobile application may add some more modules to this application if necessary.

Fig: 3 About library

About the Library Module: This module helps the new user of the library to know about the library. This module contains pre written history of library, library objectives, rules and regulations, library collection details and library staff details etc.

Fig: 4Library location

Library Location Module: The new user of the Library/ Students who are not aware of the library location may find it helpful. This module connects the present location of the user to the library location by using Google maps. This helps the user to drive safely towards the library surroundings.

Fig: 5 E – Notice Board

E- Notice Board Module: This module shows the download links of the various circulars/ Notices passed by the Library Administration. It may contain special vocation circulars such as library day, orientation map of the library, etc.

Fig: 6 New Arrivals

New Arrival List Module: This module is specially designed to know about the newly arrived library collection.

Fig: 7 CAS

CAS Module: Current awareness services (CAS) are tools which can use to keep up to date with the latest professional literature in the field of interest of the users. This module helps the librarian who can simply paste the data he/she wants to display without using the paper print of the same. The user can also specifically find his interested data by entering a key word in the search function.

Fig: 8 M-OPAC

M-OPAC Module: it is the mobile version of Online Public Access Catalogue (OPAC). M-OPAC helps the user to search the availability of the books he need in the library by searching by subject name, author name or title name of the book.

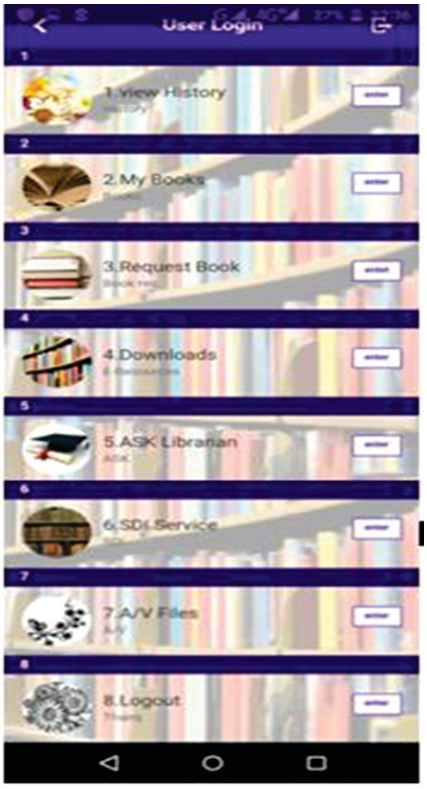

Fig: 9 User Login

User Login module: as soon as the user opens the user login module it requests to sign up for the first time. Once if all the required details are filled, the user gives the option sign up which stores all the information in the data base for next time Login Authentication. After successful log in to this module it shows various sub modules where the user can redirected to view the history about the library use, view the books he/she borrowed from the library, request a book, view the E- Resources and A/V files downloaded, Ask Librarian Service. The user can also enjoy the Selective Dissemination of Information (SDI) service through this login page where he/she gets the information of their requested subject area. The data available in this module can only be seen by the account user only.

Fig: 10 QR/ Bar Code Scan

QR/Bar Code Reader: This inbuilt QR/ Bar code reader helps the user, as an alternative method of accessing Library resources which are enabled with this technology. By scanning the code on the book the user can know the full catalogue details of the book.

Feedback Module: The feedback module helps the library staff as well as the app developer to know the draw backs of the application as well as the suggestions of the library users to improve the services of the library mobile application.

CONCLUSION:

It is very essential for libraries to develop new kind of relationship with users by making dynamic changes in their outlook by adopting new kind of information communication technology liken building smart mobile library applications for the library users. Now use of mobile is as essential as the food in day to day life. The growth and development in mobile technology is fabulous, which makes life smarter and easy. It is need of the hour to grab and use the innovative advancement taken place in mobile technology for making the library better to be used by every academic student as well as staff and research scholars. In this paper it is projected to show the possible ways of building a mobile application and described various services to be included in the mobile application, which enables the user to communicate with the library in a smart way. In this paper the development of android based mobile application is only described, because the android platform is an open source mobile operating system and which is mostly available in smart mobiles at affordable cost where as the other mobile operating systems (i.e apple ios, blackberry, etc) are not open source platforms and are not be affordable to purchase by a common man. Libraries can reach the remote users effectively by adopting of mobile technology in its services.

REFERENCES:

1. ACS Mobile http://pubs.acs.org/page/tools/acsmobile/index.html (accessed on 14.07.2016)
2. Advantages and Disadvantages of Mobile Phones: The Smartphone Generation. http://blog.udemy.com/author/nickemaso (accessed on 13.05.2016)
3. Bilawar Prakash Bhairu (2015). Use of Mobiles by Library and Information Science Professionals: A Survey DESIDOC Journal of Library & Information Technology, Vol. 35, No. 6, November 2015, pp. 422-426
4. Ericsson Mobility Report- JUNE 2015. http://www.ericsson.com/ericsson-mobility-report.pdf (accessed on 12.05.2016)
5. Goria Sunil (2012). Building Website for Mobile Phone Users of an Indian Agriculture University Library: A Model DESIDOC Journal of Library & Information Technology, Vol. 32, No. 4, July 2012, pp. 358-364
6. Hendriana Yana (2015)Development of Mobile Library Application Based on Android in Universitas Ahmad Dahlan. International Journal of Innovative Research in Science, Engineering and Technology Vol. 4, Issue 3, March 2015. http://en.wikipedia.org/wiki/Mobile_operating_system. (Accessed on 20.05.2016).
7. Jim Hahn (2008) Mobile learning for the twenty-first century librarian Reference Services Review Vol. 36 No. 3, 2008 pp. 272-288 http://www.emeraldinsight.com/doi/pdfplus/10.1108/00907320810895369 (accessed on 25.07.2016)
8. Krithika.M , Dr.S.Vasantha (2013) The Mobile Phone Usage Among Teens And Young Adults Impact Of Invading Technology International Journal of Innovative Research in Science, Engineering and Technology Vol. 2, Issue 12, December 2013
9. Lorcan Dempsey (2009) Always on: libraries in a world of permanent connectivity. First Monday, Volume 14, Number 1 - 5 January 2009 http://firstmonday.org/ojs/index.php/fm/article/view/2291/2070 (accessed on 23.07.2016)
10. M Libraries Library Success: A Best Practices Wiki http://libsuccess.org/index.php?title=MLibraries (accessed on 14.08.2016)
11. Malathy S. and Kantha P.(2013) Application of Mobile Technologies to Libraries. DESIDOC Journal of Library & Information Technology, Vol. 33, No. 5, September 2013, pp. 361-366
12. Mobile OS market share in India (Android, iOS) 20122015|Statistic. http://www.statista.com/markets/418/topic/481/telecommunications/mobileos:market shareinindia2012-2015.pdf (accessed on 12.05.2016)
13. Mohan Lal Vishwakarma, Shyam Lal Maurya, Shivani Govil.(2013) USE OF MOBILE AND WIRELESS TECHNOLOGY IN INDIAN LIBRARIES International Journal Of Engineering And Computer Science ISSN:2319-7242 Volume 2 Issue 6 June, 2013 Page No. 1799-1805.
14. Navin Kumar Soni et al (2015) Usage and Awareness of Mobile Applications and Technologies by LIS Professional in Library Services: Special Reference to North-West Part of Madhya Pradesh: 10th International CABLIBER 2015
15. Pillai Prasanna, Singh Sonal and Thakare Shreya "ANDROID APPLICATION FOR LIBRARY AUTOMATION" International Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume 4, Issue 2 (March-April, 2016), PP. 72-74
16. Smart Phones 4 Smart People. https://sites.google.com/site/smartphones4smartpeople/ (accessed on 15.05.2016)
17. TCS Gen Y Report For 2014-15 http://www.tcs.com/SiteCollectionDocuments/ 2013-2014-GenY-Survey-TCS-0614.pdf (accessed on 16.05.2016)
18. Uma Shankar j. et al (2014) "Design and Development of Android Based Library GP1009 Management System"
19. Wikipedia. Mobile app. http://en.wikipedia.org/wiki/Mobile_app. (Accessed on 20.05.2016).
20. Wikipedia. Mobile operating system.