

Mobile Phones: A New Dimension in Library Services

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ABSTRACT

Mobile phones are becoming more popular nowadays and they are almost indispensable in people's day to day life. People are adapting mobile technology more easily than any other technologies. People are more open in accessing information from their mobile devices. Cellular phones and other mobile devices present a new and exciting opportunity for libraries to provide information to people wherever they are. In this dynamic setting, libraries are expected to adopt these technological changes to deliver their services to the user community. The libraries should be redesigned to accommodate the changing needs of the users. Mobile library services can meet people's need for information in a fast-paced society. The article reviews the current state of wireless technology, explores the utilization of mobile phone services at library, investigates the nature of mobile phone usage and perceptions of practical mobile phone applications in the context of mobile digital library services.

Keywords: Mobile Phones, Information Communication Technologies (ICTs), Library Services, Mobile Applications, GSM/GPRS, 3G/4G

Library of Congress Classification Number: TK5101-6720

1. INTRODUCTION

Communication, in general sense, is the information exchanging process using a known protocol. In line with the technological development, communication protocols also constantly evolve. The pattern of communication today is changing - new technologies constantly emerge thereby changing the ways people communicate and organize information. From telephone to television, from computer to internet, every time the advent of new invention in communication system saw the change. Mobile phones do not use wires or cables, but work with radio waves and can be carried about and used anywhere.

Mobile phones are becoming more popular in recent years and becoming almost indispensable in people's day to day life. Previously people need to visit the libraries to find any information, but now can easily find the same information online. People who have specific information to be searched no longer have to visit libraries. But their need to access information is ever expanding. The services offered by the libraries should be re-designed to cater to the ever changing needs of the users. Innovations in Mobile library services are required to meet people's hunger for information in this fast-paced society. These Mobile library services are an extension of digital library in the mobile

communication network. Digital library and mobile communication technology serve as basic foundation upon which the mobile library services can be built.

Prior to advent of Information and Communication Technologies (ICTs), communication channel between library and the users was primarily through newspapers, books, pamphlets, microforms, slides, etc. Meanwhile scientific knowledge increased resulting in development of electronic communication systems. Internet came into picture via the combination of telephones and computers. If the internet principles are applied to automated library system, it can bring more efficiency to library services. Wireless Technologies such as GSM, GPRS, 3G (UMTS, HSPA) and 4G (LTE) has revolutionized the daily lives of individuals and these technologies can also enhance library operations [2].

The author believes that use of mobile devices in library services will help the users in following ways: transmission of information over long distances, easy exchange of information between libraries and users, enhanced ICT services, improvement in products and services such as sending alerts to users regarding available resources, sending renewal notices or sending invitation on upcoming events.

2. BRIEF HISTORY OF MOBILE PHONES

Mobile technologies has evolved from support of voice services to high data rate advanced packet services. Advancement in mobile technologies allow for a greater bandwidth and permit the development of mobile applications. History of cellular networks starts with introduction of old analogue system, which is known as first generation (1G) network. Then digital communication principles are applied to cellular technology resulting in 2G system, popularly termed as GSM. GSM networks, since based on most matured digital-cellular standard, offer voice and simple data services well in advance of networks based on other standards.

Use of Mobile phone is very pervasive amongst common people and hence the popularity of mobile phones amongst the staff and students need not be stressed further. Wireless Technologies have helped to bridge the communication gap in university environment as well as in any other environment. Because of data services offered by networks such as GSM, information retrieval in various formats, processing of such information, storage of such information and dissemination of the same is possible. Thus, wireless technologies has great impact on socioeconomic and information-based sectors of the economy.

From GSM to 4G, improvements in mobile communication technology have been made in the last thirty years. There is a tremendous leap to new level in WAP technology because of introduction of GPRS. This resulted in efficient (increased speed and better web content) display of Internet material on GPRS enabled mobile phones. With the integration of broadband just coming into force, we will be able to view videos in high quality from mobile phones along with the increased access to Internet based services.

After the maturity of GSM, advancement in mobile technologies resulted in development of 3G and 4G systems. With advent of 3G and 4G system, users can access internet via mobile at a higher speed thereby improving the user experience.

3. PURPOSE OF THE STUDY

This study explores the prospect of providing library services via mobile phones/devices. The objectives of the study are to:

- encourage librarians and library users in the use of wireless technologies in library operations
- examine the benefits derived from the use of wireless technologies in library operations
- discover possible problems affecting the use of wireless technologies in library operations

4. MOBILE PHONES AND LIBRARY SERVICES

For some years now, people have been creating applications which can be downloaded to mobile phones for some specific needs. Examples include mapping software, games, mobile email clients, Photo/video uploading software, etc. Until recently the take-up for these applications was relatively low, but the advent iPhone and Android devices, users download a great many more applications.

ICT has not only collapsed barriers but also promoted fast communication amongst the concerned entities or people. Libraries should develop interest in new channels for the dissemination of information. The new communication channels includes telecom PSTN networks, mobile networks, cable television, and the ubiquitous internet. Users for example teachers, researchers, and students can easily know the information they want without visiting the library. Most academic libraries have started exploring the viability of Internet technologies. Libraries need to support different kinds of online interactions such as user-to-library, library-to-user and user-to-user.

Users' enquiries can be handled promptly via telephone and email. SMS facility, which is supported by almost all of the mobile phones, can also be used to communicate to the users regarding information such as new arrivals, upcoming events etc. Library can send one information to all of its users or selected users via "broadcast" facility where one message can be sent simultaneously to multiple users.

"Libraries in Hand" is latest trend because of advancement in Mobile Technology. Our librarians are in move to determine how these devices are affecting information access [10] and ensure that they are communicating with patrons and providing web content in the most appropriate and effective ways. Our Librarians must be prepared to take this challenge and put his efforts to increase the market and demand for mobile access to personalized facts and information anytime, anywhere on one's own hand-held device [11].

Libraries today are working with most of the technologies given by mobile industry such as PDA [9],

Blackberry, iPod, Mobile phones, UM PCs (Ultra Mobile PCs) and creating library contents in a portable form suitable for small screen and delivering short services in the form of contents/information with device's multiple searching.

Some of widely used mobile services are described in below subsections.

4.1 Voice service

Voice service is the most basic and the first service supported by mobile phones. This service is widely used service.

4.2 Short Message Service / Text messaging

This service allows sending text between mobile terminals with a maximum of 160 characters. Despite being short text messages, the service is the most popular in the history of mobile telephony. Text messaging is accessible these days to practically anyone, for relatively low costs, so it is an easy way to get into providing a mobile friendly service for a library. Perhaps the easiest service for a typical library of any sector to introduce is a 'text a librarian' service. This is simply allowing members of your library to text a question, alongside all the other ways your reference service may be accessible.

4.3 Multimedia Service

Almost every mobile phones have the capability to store and send ring tones, photos, audio or video files. They have become small multimedia consoles. Multimedia message service is not as popular as SMS. On the one hand because all terminals have not available this service and on the other hand because they have a high price.

4.4 Mobile OPAC

Traditionally the Online Public Access Catalogues (OPACs) served as the binding wine between the user and the library collection. With the advent of mobile services, new Mobile based OPACs are being developed for mobile users in various libraries. Development of mobile optimized OPACs nicely cater for both the regular desktop OPAC users and mobile OPAC users. The biggest challenge in this endeavor is to scale the information display into the mobile optimized output. Sometimes it is very difficult since most of the library catalogues [3] make use of the web 2.0 advancements and use lot of content enrichment and other allied services to their regular catalogues which will be very difficult to scale for the mobile phones.

4.5 Data service

Even in second generation, mobile networks support Internet connectivity. So, this connection can be the base to others services. For example e-mail in a terminal and Web browsing are now two of the main applications of data service and it is expected to grow in the future.

4.6 Digital Collections

Libraries are moving forward in providing access to digital collections via mobile devices. No longer do visitors have to visit a library or find a computer with internet access, but they can experience digital

collections through a mobile phone in the palm of their hand.

4.7 Medical Library Applications

As early as 2000, Medical libraries adapted mobility feature and started offering services via mobile devices. PubMed on Tap is an iPhone/iTouch application that allows the patrons to search PubMed on a mobile device. Users can access as well as order articles. Many publishers offered medical textbooks to be used on mobile devices.

4.8 Audio books

Digital audio books continue to grow in popularity although the service was initially offered in libraries only from 2005. Recently, most mobile devices did not have the memory needed to house huge audio book files. As mobile devices are now having increased storage and memory, the number mobile devices that can now accommodate big audio files continues to increase. Audio book vendors now offer downloadable audio books compatible with the iPod. Libraries have opportunity to loan out audio books on a portable player so that an individual does not have to have a computer.

5. OPPORTUNITIES AND CHALLENGES

With the development of information technology, mobile phones are no longer tools to communicate with other people; they are also tools to get necessary information. Mobile banking service, electronic newspaper/magazine etc. are all related with mobile communication technology and are becoming more and more popular in recent years.

The improvement in mobile communication technology made in recent years will greatly facilitate library service in the future. Mobile services of library are an extension of digital library in the mobile communication network. Mobile library services rely on mobile communication technology, mobile phone users and digital library systems and so on.

6. CHALLENGES FACING

Libraries are moving forward in providing access to digital collections via mobile devices. In the near future, more and more people will be able to experience digital collections in the palm of their hand through a mobile phone. No longer do visitors have to visit a library or find a computer with internet access. In order to meet these requirements, libraries are facing some challenges.

6.1. Challenges in technology

Though mobile communication technology is not a problem, our librarians should know how to use this

technology to serve our readers [13]. We have to think about the access authority to our data bank, otherwise there could be a security breach. Also we need to find a proper operator whose gateway is trustworthy to cooperate with us. Besides, user interfaces are nearly always varied and lack of standards and we need to spend our effort in choosing best user interface.

6.2. Expensive mobile services

A smart phone application [1] allows you to find books, DVDs and other items from the catalogue. You

can also search the catalog and place items on hold or renew the checked-out items. Library community needs to be aware of new issues in library services which are unique to the mobile environment.

Many aspects of mobile devices that make them powerful such as pervasive connectivity, location awareness, close integration with social networks, etc. call for careful scrutiny. Also the relationship between libraries and their users are changing as the users tend to access content and services online. The change from physical, in-person interaction of the librarians with users to more of virtual and mobile interaction present new and unique challenges for libraries.

7. FUTURE POTENTIALS OF MOBILE APPLICATIONS IN LIBRARIES

More and more changes are expected in coming years in the field of mobile technology and its application to libraries. The day is not far when we will use phone to read barcodes or RFIDs in the library. OPACs will develop GIS sensitivity and be able to communicate with users through mobile devices regarding the users' holds, fines, late notices, alerts, etc.

There are two main areas of information in which libraries can offer mobile library services [4]:

- practical information
- bibliographical information

Practical information includes contact information such as address, email ids, phone numbers of the library, other information such as library opening hours, rules and regulations of library, information regarding staff, etc. Most existing mobile library sites have a similar set of links to quick information – hours, news, mobile catalogue, workshops/programs, and contact information.

The information provided will be even more precisely aimed at the user's personal situation, if the "*location awareness*" feature is enabled or available. Up to date static and dynamic information for the locations in the immediate vicinity of the customer is shown first, using the device's automatic relocation properties [5],[7].

Bibliographical information Searching library catalogues or online databases is in essence not location dependent. Online digital bibliographical metadata can be stored remotely in a server or "in the cloud" and could be accessed any time, anywhere. Users can enquire about the books, catalogues etc. using their mobile.

8. CONCLUSION – A NEED FOR VISION

The progress of mobile technologies on wireless networks has largely changed the way people access information. A mobile library is one area being actively explored by many libraries to support remote users in their access to and use of library resources. The widespread use of cellular phones and mobile devices might have also led to the positive opinion and perception on their application in the library services [13]. Mobile technology has the potential to offer many new possibilities for

accessing information from online catalogues, databases, digital content, e-learning, digital library, etc. The development and application of new mobile technologies has brought about many changes and possibilities and encourages users to increase utilization of the mobile library services.

Mobile library services [4],[6] are an integration of tradition library service and mobile communication technology, from which readers can enjoy library services anywhere and anytime. We can safely assume that majority of library users will have a mobile phone and so incorporating mobile feature in existing library services will result in better relationship between library and its users. This results in attracting and retaining users. The increasing pervasiveness of mobile devices with internet access promises an exciting time for libraries as we adapt and extend existing services to these devices and explore opportunities for innovative services.

The findings can be summarized as follows:

- Providing access to digital content of library via mobile devices is essential. In developing countries, people have more access to mobile devices than computers [12]. Also people are more comfortable using mobile devices than computers. So access to library via mobile device will benefit wide range of users.
- Unnecessary visits to the library by the user can be reduced if library services are provided via mobile devices. This results in reduction in operating costs of the library.
- Users will have better satisfaction and user experience is enhanced.

9. RECOMMENDATIONS

Based on the findings of this paper, the following recommendations are made:

- Library management should explore the possibility of providing mobile phone library services “anytime” and “anywhere” at reduced tariff by liaising with mobile phone operators
- Different telecommunication infrastructures from various telecom operators shall be evaluated and the best infrastructure should be chosen for efficient delivery of mobile library services to the users.
- Library users as well as library staff shall be trained on appropriate use of mobile phone for library services in order to know any pitfalls and to eliminate abuse.

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