

Building Website for Mobile Phone Users of an Indian Agriculture University Library: A Model

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ABSTRACT

Use of internet through mobile phones and smart phones has increased very fast all over the world. Looking at the increasing internet users of mobile phones, an attempt has been done to create a model of website for mobile phones users of University Library, GB Pant University of Agriculture and Technology, Pantnagar. The paper includes simple steps to create the website for mobile phones and smart phones. There are various tools on Internet to create the websites for mobile phones. The Wirenode website tool has been used on the basis of its simplicity and popularity to create this model website. The paper also includes information about the university library and its services. The model will be useful for Indian library professionals to develop websites for their mobile phone users.

Keywords: Mobile phone website, smart phone website, mobile library, agriculture university library, mobile internet

1. INTRODUCTION

In the present age of internet, information and knowledge sector have become the powerful sector in the world. Internet is playing vital role for providing information and knowledge in the society. It has become daily need of the society for social, educational, entertainment and other activities. Development of websites was started to access the information through internet. Earlier most of the websites were static and users were allowed to read only information. Now most of the websites have been developed dynamically and interactive with the application of web 2.0 services. In the present age of digital information, websites have become major source of information for researcher, academicians, students and other users. In academic environment, now most of the information sources (online journals, online/CD-ROM bibliographic databases, OPAC, etc.) are available in digital form and delivered through websites.

Web technologies are changing very fast in both ways, i.e., creation of websites and accessing the information. These are supporting the easy access of any information, anytime, anywhere in the world. With the development of website technologies, advanced hardware technologies for communication have also been developed in terms of wired networks, WiFi networks, mobile phone networks, etc. Mobile phone networks have

revolutionised the access of internet through wireless mode. Now smart phones are also becoming popular in the society. Smart phones combine both mobile phone and handheld computers into a single device¹. They allow users to do most of the internet activities of computers using mobile phones.

In the developing country like India, mobile phones have become so popular and have reached to all most every corner of the country. Public and private telecom sector have been achieved to provide mobile phone facility to the poor at affordable cost up-to the remote areas of the country. In the present age of internet, most of the students of Indian universities have their personal mobile phones. Internet access on mobile phone is also becoming popular among students at affordable cost in India. These latest information and communication technologies (ICT) have provided the new ways to provide information services to the users. Looking to the impact of new ICT on library and information science, this model has been created. In the current ICT trends at national and international level, it is expected that future of internet is mobile internet.

2. UNIVERSITY LIBRARY OF GBPUA&T

Established in 1960, G.B. Pant University of Agriculture and Technology (GBPUA&T) is the first

Agricultural University of India. Presently, the university has 8 colleges namely College of Agriculture, College of Basic Sciences & Humanities, College of Veterinary & Animal Sciences, College of Technology, College of Fisheries Science Studies, College of Agri-Business Management, College of Home Science, and College of Post Graduate Studies in the main campus. It has another college, namely, College of Forestry & Hill Agriculture at hill area of Uttarakhand State. The College of Post Graduate Studies of the University offers 121 post-graduate programmes through the 70 departments of constituent colleges of the university.

University library has been effectively supporting the teaching, research and extension activities of the university by making efforts of acquiring, processing and organising scientific and technical literature. The basic ICT infrastructure, i.e., library LAN, web server, library server, digital library server, CD server, broadband VSAT internet connectivity, WiFi networking, video conferencing facility, etc., has been developed by the library. An integrated library automation software package Libsys is used for the management of all housekeeping activities of the library. Library catalogue is available in digital format as Web-OPAC (Online Public Access Catalogue). A DSpace digital repository is also established which includes rare digitised books and thesis. The library has developed its website (<http://202.141.116.194>) to integrate all the online resources for the benefit of its user for use. University Library has a highly specialised collection of 3.9 lakh documents in the field of agricultural sciences, technology and other allied subjects. The Library subscribes important bibliographic databases in CD form. Library is the member of CeRA (Consortium for e-Resources in Agriculture) and INDEST (Indian National Digital library in Engineering Sciences & Technology) consortia for providing full-text e-journals to the users. About 3000 online journals access is provided to the users through consortium and university library resources.

The information seeking behaviour of the academic community for teaching and research now expects that the contents should reach at their desktops through intranet or internet. Taking into consideration these changing needs and expectations of the academic community at the campus and out campus, university library has started providing web-based library services to its users. New web services play a key role for the growth of knowledge, development of research, teaching and extension.

3. LITERATURE REVIEW

Various studies have been conducted on use of mobile phones and access of internet through mobile phones and computers in developed and developing countries. A study conducted by Boston Consulting

Group² on 'Internet's New Billion Digital Consumers in Brazil, Russia, India, China and Indonesia' The study² discussed the purposes of highest internet access for the year 2009 in these countries i.e. 95 per cent in India for e-mail, 87 per cent in China for Instance messaging, 83 per cent in Brazil for search engine, 81 per cent in Russian for Search engine and 59 per cent in Indonesia for e-mail. The study² found that in 2009, the highest mobile internet users are in China (180 Millions) as compared to India (12 Millions), Brazil (11.2 Millions), Russia (40.6 Millions), and Indonesia (9.0 Millions).

In South Africa³, mobiles have spectacular growth over the past decade, with more than 60 per cent of all South Africans above the age of 16 already owning a phone themselves. According to the study³, computer-based internet usage is far less frequent than mobile use: 39 per cent use the internet on a typical day on a computer, whereas 68 per cent do so using a mobile phone. Use of internet and mobile phones has a rapid increase in Kenya⁴. The important mobile services, i.e., voice service, short message service (SMS), multimedia service, location services, video service, applications on the mobile and data service discussed by Sánchez⁵ while future of mobile services in academic libraries discussed in detail by Lippincott⁶. According to the study⁶, "use of smart phones for reading, watching, listening and producing digital content that will have the most impact on libraries'.

Bridges⁷, *et al.* found that database and e-resource providers, i.e., EBSCO Mobile, Summon from Serial Solution, IEEE Xplore Mobile, PubMed, etc., offer mobile versions of their search interfaces. Other publishers, i.e., Web of Science, Worldcat.org, JSTOR, Taylor & Francis, etc., are offering databases for mobile phones users. Other full-text collections, i.e., SciVerse ScienceDirect for all the full text articles of Elsevier journals, BBC audio books, EBL e-book library, Google books, etc., are also available for accessing on mobile phones. Oregon State University Libraries mobile website is discussed by Bridges⁷, *et al.* and suggested significant implications for libraries planning to implement a mobile website. Broussard⁸, *et al.* discussed about mobile search application for the University of Texas library catalog and suggested that customised mobile applications have potential to significantly better serve patrons in return for a relatively small investment in development and maintenance.

As per the survey conducted in America⁹ nearly half of all American adults (47 %) reported that they get at least some local news and information on their cell phone or tablet computer. As per the study, 42 per cent of mobile device owners reported getting weather updates on their phones or tablets; 37 per cent said they get material about restaurants or other local businesses. These consumers are less likely to use their mobile devices for

news about local traffic, public transportation, general news alerts or to access retail coupons or discounts. Looking to the popularity of mobile phones in India, a study¹⁰ was conducted on plan of M-Library for Smt. Hansa Mehta Library. In Japan¹¹, over 75 per cent of internet users already use a mobile as their first choice for access. "This shift in the means of connecting to the internet is being enabled by the convergence of three trends: the growing number of internet-capable mobile devices, increasingly flexible web content, and continued development of the networks that support connectivity"¹¹.

4. NEED OF WEBSITES FOR MOBILE PHONE USERS

Internet has revolutionarily changed in the way of information generation, information communication, and accessing information. Today's students are quickly using internet for searching information. Nowadays, most of the Indian universities and their libraries are maintaining websites for providing information to its users. These websites are developed keeping in mind to accessible through internet on desktop personal computers and laptops. Therefore these websites are developed for display of information on big screen (i.e. 14 inches or 15 inches or more) and maximum contents are available on these sites. Generally, the mobile screen size is about 3 inches to 5 inches and about 7-8 inches in case of tablet computer.

Mobile phone users have been increased tremendously in India. According to Telecom Regulatory Authority of India's (TRAI) report India has about more than 800 million mobile subscribers as on March 2011. Use of internet through mobile phones has also been increased very fast in India. As per report of August 2011, internet and Mobile Association of India (IAMAI) (<http://www.iamai.in/>), India has presently 35 million mobile internet users, out of which, 26.3 million users are classified as active users.

Mobile sites¹² are useful because they are developed specially for mobile phones having many features like limited important contents, speed, fast access on mobiles, comfortable view on small screen etc. Internationally, web-based library services for mobile phone users have been offered by many academic libraries (<http://www.libsuccess.org/index.php?title=M-Libraries>) like Aalborg Libraries (Denmark), Boston University Medical Center Mobile Library, California State University (Fullerton, Pollak Library), Cambridge University Library, London School of Economics (LSE) Library, Mississippi State University Libraries, Michigan Technological University Library, University of Illinois Library, University of California (San Francisco), Universitaetsbibliothek Heidelberg (Germany), New York Law School, etc. Another revolutionary event in Indian information technology history was held on 5 October

2011 with the launch of world cheapest computer tablet i.e. Aakash at affordable cost (approximately \$35 per tablet) by Ministry of Human Resources Development of India. As part of the pilot run (<http://indiatoday.intoday.in/story/>), the first one lakh units of Aakash procured by the government will be given to students for free. As per government plan, Aakash could be purchased by undergraduate and postgraduate students at a subsidised price. Government of India has targeted of delivering one crore Aakash Tablets. The screen size of the Tablet is 7 inches so websites for mobile phones will also be very useful for Aakash Tablet users. Tablet PC is notebook computer on which you can also write using a stylus. The handwriting is digitised and can be converted to standard text.

The main purpose of library is to maximise use of its resources. Leading publishers of online databases and fulltext online journals have already started to publish their content for mobile phone users. Looking the popularity and accessibility of mobiles phones in India, it is high time to provide the access of university library websites on mobile phones and smart phones. Mobile websites are becoming important because in the mobile, the screens are small to read the too much information. So it will be very important and useful to develop the websites for mobile phone users with less contents.

5. GUIDELINES FOR WEBSITES FOR MOBILE PHONES

The most important factor in developing the websites for mobile phone users is small size of the mobile phone screen. There are various guidelines available on internet to develop websites for mobile phones. The Webcredible web tool is used to create this model of website. Following usability guidelines suggested by Webcredible (<http://www.webcredible.co.uk/user-friendly-resources/web-usability/mobile-guidelines.shtml>) are users friendly:

- Reduced amount of content
- Single column layouts work best
- Different navigation
- Minimise text entry
- Decision whether to create more than 1 mobile site
- Design for touch screen and non-touch screen users
- Advantage of inbuilt functionality

6. OPERATING SYSTEM FOR MOBILE PHONES

In mobile phones, different operating system (OS) cannot install easily, if one does not want preloaded OS. A mobile OS reflects your lifestyle because it determines the choice of applications and phone functionality. There are various OS (i.e. Google's Android, Apple's iPhone OS,

Microsoft's Windows Phone, Linux, Nokia's MeeGo, etc.) for mobile phones, smart phones and tablet computers. The most common mobile OS is Android from Google Inc, Blackberry OS from Research in Motion Limited etc.¹³. The Android Open Source Project (AOSP) is tasked with the maintenance and further development of Android. Android has a large community of developers writing applications that extend the functionality of the devices. As per the study¹⁴ for mobile internet uses in India by OS, 38 per cent hit is from Nokia series 40 OS and 31 per cent form proprietary OS.

Gartner (<http://www.geek.com/smartphone-buyers-guide/operating-system/>) an analyst firm says that Google's Android will overtake the iPhone OS by 2012. The number of Android devices is expanding rapidly, and includes phones from HTC, Motorola, and Sony Ericsson. Google is adding new features to Android at a rapid pace, providing device vendors with the OS code on an open source basis so they can make it their own. Android is Linux-based so it scales from basic phones, to fully featured smart phones, to note-books.

7. DEVELOPMENT OF WEBSITE FOR MOBILE PHONES

Nowadays development of websites for mobile phones is not a difficult task. It does not require programming skills. As for as content on website for mobile users is concerned, it is expected that one has to reduce the content of the present websites to optimise it for mobile phone users. There are free and commercial tools which provide the facility to convert website and blog into mobile phone user-friendly websites. With help of free web tool Wirenode, one can create a mobile friendly website. It works on Android and other operating systems for mobile phones and smart phones. Presently, most of the applications for mobile phone devices have been developed on Android. Here, an attempt has been made

to optimise website of University Library, Pantnagar as a model of website for mobile phone users with the help of Wirenode.

7.1. Steps for Creating Websites for Mobile Phones

It is required to create an account for developing website of mobile phones users with Wirenode (<http://www.wirenode.com/>). After creating account, account holders are able to create home page of their mobile phone websites. Important pages can be linked with home page. At the time of creating the website for mobile phones one has to give the name of the site. Here the name of the model site is libgbpuat and the address of the site is <http://libgbpuat.wirenode.mobi>). The homepage of this site is shown in the Fig. 1. Important pages of the university library, i.e., About the library, online journals, Krishi Prabha, CeRA, OPAC, etc., are linked with this homepage. Some of the link pages are also created with this tool. The mobile website editor of Wirenode is important tool to edit the page. Creating internal and external links are very easy with Wirenode. After completing the website, it is required to publish the site with the help of publish command of Wirenode, then it will be able to access all the mobile phone users. The preview facility is also provided by the Wirenode so that website developer can preview its look on mobile phones. The preview of the model website is shown on mobile emulator in Fig. 2. Mobile phone users can access this site through <http://libgbpuat.wirenode.mobi>.

7.2 Adding Widgets to Mobile Websites

Other widgets, i.e., blogs, RSS feeds, twitter, social media, etc., can also be added through Wirenode in the mobile websites. The blog (<http://e-agrinformation.blogs.pot.com/>) is added to the mobile website. The new post 'Book Fair' on blog is shown on the mobile website automatically at Fig. 3.

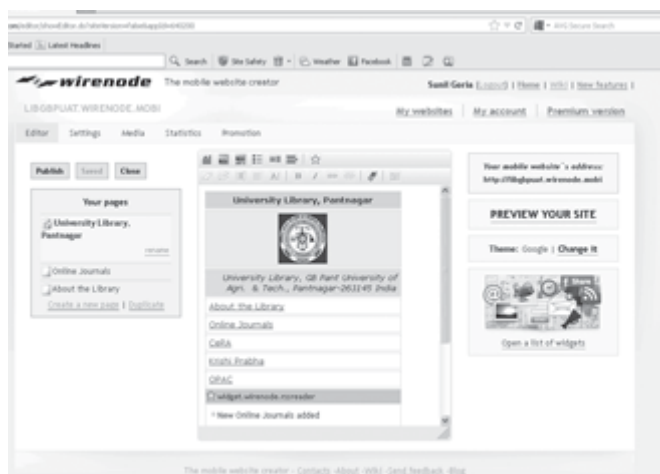


Figure 1. Homepage of the Pantnagar Library mobile wesite.



Figure 2. Preview of the mobile website.

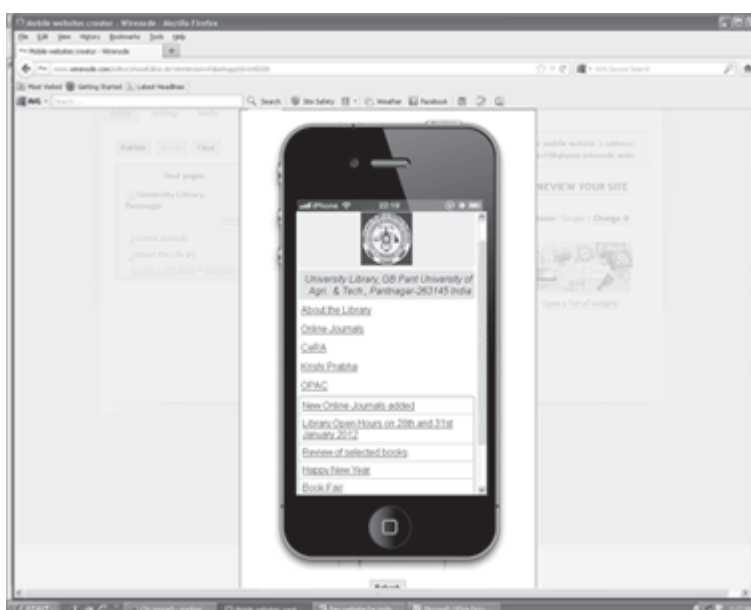


Figure 3. New post on mobile website.

7.3 Quick Response (QR) Code

The QR code is two dimensional barcodes. It was first designed in Japan for automobile industry¹⁵. Now the QR code is very common in mobile phone web industry. The website's address is easily transformed into QR code by various software. These QR codes are quickly read by mobile phone devices. The QR codes are very helpful rather than typing web address on small phone devices. These are more useful than barcode because they can store much more data. Following QR code at Fig. 4 of this model website is created with the help of Wirenode.



Figure 4. QR code of the website.

8. BENEFITS OF MOBILE WEB

Academic libraries all over the world are most affected by internet and digital technology. Indian academic libraries have been adopting new information and communication technologies. Websites for mobile phone users is beneficial because:

- In India, mobile coverage has reached up-to the remote or village-level so the information from these websites can be accessed remote areas level at any time.
- At university level most of the students and academicians have the mobile phones. internet mobile users are also increasing every day in India.
- It will increase the use of online resources without restriction of time, place, etc.

9. SUGGESTIONS

- There is an urgent need for library management software like LibSys, SOUL Koha NewGenLib, etc. being. used in Indian libraries to promote the facility of WebOPAC on mobile phones.
- Training to develop mobile website and mobile services is need of the hour for Indian Library professionals. National Informatics Centre (NIC), National Institute of Science Communication and Information Resources (NISCAIR), Information & Library Network (INFLIBNET), etc., may provide the training to library professionals in this growing area.
- The library services like reference service, Web-OPAC, etc. can be started to develop for mobile phones/smart phones users in Indian academic libraries.
- Now third generation (3G) and fourth generation (4G) technology of mobile are coming in the market which provide very fast internet on mobile phones and smart phones. So internet-based libraries services on mobile phones will be useful in future.

10. CONCLUSIONS

In the present digital environment, use of internet through mobile phones, smart phones, and tablet PCs have been increased tremendously among youths all over the world including India. So the future of websites for mobile phones is very bright and it is need of the hour. The library professionals have been playing very vital role in providing the information to the user. The simple steps for developing website for mobile phone users through free web tool (i.e., Wirenode) have been discussed in the paper. This web tool also provides the free hosting facility for the mobile website with widgets facility. Therefore, the present model (i.e. <http://libgbpuat.wirenode.mobi>) will

encourage and will be helpful for library professional to develop their library websites for mobile phone users. There are commercial sites like iSites which also provide the facility for developing mobile websites with many features. Many individuals around the world who are involved in developing, using, and monitoring technologies in higher education believe that mobile computing has great significance for educational institutions. Development of websites in Indian libraries for mobile phones, smart phones, and tablet computer will be the great contribution for providing prompt information services to the maximum users specially to the students.

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