MOBILE OPAC PROTOTYPE BASED ON KOHA OPEN SOURCE INTEGRATED LIBRARY SYSTEM

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ABSTRACT

As mobile devices become more ubiquitous among library patrons, the needs of having access to mobile Online Public Catalog (OPAC) is in high demand. Forrester Research estimates that there are about a billion computers in the world as mobile devices continue to proliferate and become more tightly integrated with our daily activities (Bowman & Willis, 2011). A number of libraries have begun deploying customized mobile web portals and applications to promote accessibility for patrons a search for a book and use existing library services. According to Mills (2009), staff at Cambridge University Library have observed customers using their camera phones to take pictures of the catalogue results screen, rather than noting catalogue search results on a piece of paper. 50% of respondents at both universities said they take photos of signs, books, etc to save information for later reference. In addition 55% of total respondents were in favour of being able to access the library catalogue from a mobile phone (Mills, 2009). Therefore, this paper will discuss on an attempt to develop a mobile OPAC for patrons based on KOHA Open Source Integrated Library System. The mobile OPAC offers a great new way to find items and prepared library for future requirements, today.

Keywords: Mobile OPAC, KOHA Open Source, Integrated Library System

INTRODUCTION

Today, we can see the rapid development of information technology where it facilitates our daily activities. It became clear with the emergence of various types of mobile phones with a variety of applications that can simplify the task of us. This also affects the use of mobile phone technology in a library. As mobile devices become more ubiquitous among library patrons, it becomes more and more crucial. Forrester Research estimates that there

are about a billion computers in the world as mobile devices continue to proliferate and become more tightly integrated with our daily activities, a number of libraries have begun deploying customized mobile web portals and applications to promote accessibility for patrons a search for a book about computers and libraries would be in order, the mobile catalog offers a great new way to find items (Bowman & Willis, 2011). According to Mills (2009), staff at Cambridge University Library have observed customers using their camera phones to take pictures of the catalogue results screen, rather than noting class marks on a piece of paper. 50% of respondents at both universities said they take photos of signs, books, etc to save information for later reference. In addition 55% of total respondents were in favour of being able to access the library catalogue from a mobile phone (Mills, 2009).

Naturally, a variety of first-rate books are available on developing websites for mobile platforms and much research had been done regarding this topic. The rich developer tools available for today's mobile devices also make it easier than ever to build and deploy mobile applications. While these technological advances suggest a variety of promising opportunities, library community lacks a detailed understanding of the capabilities catalog access applications for this latest generation of mobile devices (Broussard, Yongyi Zhou & Lease, 2010). The possibility of using the guidance in a PDA or a mobile phone in larger libraries was appreciated for Malaysia scenario. Therefore, this paper will discuss on an attempt to develop a mobile OPAC for patrons based on KOHA Open Source Integrated Library System. The mobile OPAC offers a great new way to find items and prepared library for future requirements, today.

LITERATURE REVIEW

Mobile OPAC basically is not something new in the library. But in Malaysia it has not been as extensively as in developed countries. Japan is one of countries which have mobile OPAC as part of their library services. According to Murakami and Kanata (2008), in Japan mobile phone OPACs (Online Public Access Catalog) have been rapidly spreading in university and public libraries. Analyzing how mobile phone OPACs are used is crucial work in the so-called "Mobile 2.0" age. Another proof of mobile OPAC being used is as according to McKiernan (2009), in "wireless internet use" survey where research done in America showed one-third of Americans accessed the internet via cell phone or smartphone. This proofs the high popularity of mobile devices as tools of accessing information. Though the sources of information may vary, we cannot deny that.

There are quite a high number of availabilities of mobile devices such as smart phones in the market today. People are grabbing the opportunities to not only using it as a matter of necessity, but a means of business. According to Ofcom, 86% of adults in the UK own a mobile phone that they use more than once a month. However the majority of people primarily use them for making calls and sending text messages (Ofcom, 2008). Malaysian

needs to grab this opportunity to use mobile devices as a tool of accessing information, apart from via laptop. Smartphone for example, functions in various manners, the same as computers, or more. Therefore, libraries need to consider of having mobile OPAC as part of their services, along with the increasing number of mobile devices usage in Malaysia. A prototype of mobile OPAC has been developed concentrating particularly in KOHA, an open source integrated library system. KOHA is the first free and open source software library automation package (ILS). Development is sponsored by libraries of varying types and sizes, volunteers, and support companies from around the world. In Malaysia, KOHA has been implemented in more than 100 sites since 2008. The popularity of KOHA is becoming more popular which the number of users undeniably will increase rapidly in the future. Selecting KOHA as the first mobile OPAC in Malaysia is suitable enough. Mobile OPAC is a projection of conventional library OPAC. It functions in a same manner as to name a few accessing bibliographic data, checking availability, placing a hold or even renewing.

Library and Mobile OPAC

The uses of mobile phone are now not just limited to mobile applications only, but also it has changed the learning and teaching environment. Furthermore, it changed the method of information searching, especially in the library. According to Mills (2009), Staff at Cambridge University Library have observed customers using their camera phones to take pictures of the catalogue results screen, rather than noting class marks on a piece of paper. 50% of respondents at both universities said they take photos of signs, books, etc to save information for later reference. In addition 55% of total respondents were in favour of being able to access the library catalogue from a mobile phone. In the short term, libraries could allow patrons to use their phones within the library as long as they are on silent, or in flight mode. In the long term libraries could work with their Library Management System supplier (LMS) to create a mobile version of their library catalogue. But it can facilitate library users by develop a Mobile OPAC that more user friendly in term of mobile interface. Luca et al. (2005) stress that design for use on mobile devices must provide improved navigation and visualization of result sets. These methods enable a user to retrieve documents with fewer interactions and less data traffic. This means that mobile search application should provide a concise overview of the essential elements of a result set rather than a smaller version of everything on a web page.

Generally, the OPAC is the gateway to library's collection. According Kulkarni (2004), an OPAC is an electronic database that contains the same information: that is; author, title, and subject information about the materials that a library owns. Some OPACs are union catalogs meaning that several libraries share the same database. But nowadays, library need to consider about user behavior which technology and rising user expectations have contributed to the changes in user behavior. As Coyle and Hillmann (2007) pointed out today’s library users have a different set of information skills from those of just a few decades

ago. They live in a highly interactive, networked world and routinely turn to Web search engines for their information needs. The idea is supported by Bridges, Rempel and Griggs (2010), when considering the current, non-mobile version of a library website, it is sometimes easy to forget the distinction between the different types of information the library website offers. The library website provides access to the catalog, databases, and information about events and programs within the library, directory and location information, and directions on how to ask for help. A user might think they are simply going to the library website to look for a book title, rather than process the fact that they are navigating to the library (Bridges, Rempel & Griggs, 2010).

Why KOHA?

The mobile OPAC prototype is developed based on KOHA version 3.2 as it is the latest stable version at the time of development. At the end of the researcher's development, KOHA Community has released KOHA version 3.4 (KOHA-Community.Org, 2011).

Why KOHA version 3.2 has been chose because the open source software frameworks allow flexibility in term of accessing the source code. This is the main reason why we choose KOHA to develop mobile OPAC prototype as oppose to other Integrated Library System (ILS). Besides, we choose KOHA from other Open Source ILS because at the time being, we do not have resources to other Open Source ILS experts. KOHA also chosen because it is a fully web based ILS where KOHA has offered suitable platform for mobile platform. We choose KOHA version 3.2.x as oppose to version 2.2.x based on several reasons. Version 3.2.x has separated its template from its logical process as oppose to version 2.2.x. Template in this case is referring to OPAC template which separate content from presentation. OPAC Template defines the format of how KOHA will present its OPAC in term of font size, font colour, colour scheme, and layout. KOHA version 3.2.x has a totally separate logical processes (content) from the presentation which by default OPAC template (presentation) is stored under [installation directory]/koha/opac/htdocs/opac-tmpl/prog/ while its logical process (content) mostly stored in [installation directory]/koha/bin/ . 'prog' in this case is a default template for KOHA version 3.2. The separation of presentation and its content is important as it saves a lot of time in mobile OPAC development. For example, programmer does not need to figure out how to calculate overdue and fines from the system. We also decided to use KOHA as opposed to develop a library system from scratch because it is an 'insane' work. Why should reinvent the wheel? Currently KOHA user has reached more than 1,000 libraries worldwide involves hundreds of thousands patrons. At least half of them is using version 3.2.x and will benefits from this work.

Development of Mobile OPAC Prototype

We have developed mobile OPAC using one programmer and one KOHA consultant in three days (8hours x 3 days x 2 man = 48 man hours). Basically we make a duplication of 'prog' template and rename it as 'prog-mobile'. The process of developing mobile OPAC prototype as follows:

1. Template Cleaning – Removing unnecessary layout, images, and menu from the template.
2. Adaptation to mobile device – OPAC template has been adjusted to mobile devices. In this case we have used iPhone 4 based on iOS 4.2, iPad based on iOS 4.2 both using Safari web browser configured to use mobile mode and Samsung Galaxy S device which run on Android 2.1 Eclair using Android browser. Most of cases, font size, layout and buttons have been adjusted to fit mobile device display. Font size need to be reduced, layout need to be simplified and adjusted according to mobile screen resolution (using flexible width - % instead of fix width) and button has been resize bigger suitable for touch screen environment. List of search result has been limited to 10 results per page as more than 10 results per page will be slower and mobile user needs to scroll longer. A browser detector also has been added to the default page. It will detect mobile browser and force it to use mobile template, while non mobile browser will display the normal template which is more suited for desktop.
3. Remove unnecessary features - Unnecessary features which we feel do not suitable for mobile user has been removed. List of some removed functions:
    a. Refine your search
    b. Advance Search
    c. Browse by Subject (Authority Search)
    d. Tag Cloud
    e. Subject Cloud
    f. Expanded MARC View
    g. Shopping Card
4. While removing unnecessary features, we try to retain as much features related to user, which we think they will use using their mobile devices. For example:
    a. User Account
    b. Account Summary
    c. List of Holds (Reserve Item)
    d. Place Hold (Place Reservation)
    e. Overdue and Fines
    f. Items Renewal
    g. Change Password
    h. Reading History

i. Hierarchy Browser (browse by call number – Subject)
j. Item Status and Item Availability
k. Normal View and
l. MARC View

Screenshot of mobile OPAC prototype is shown below and the system is accessible via http://demo.koha.my.

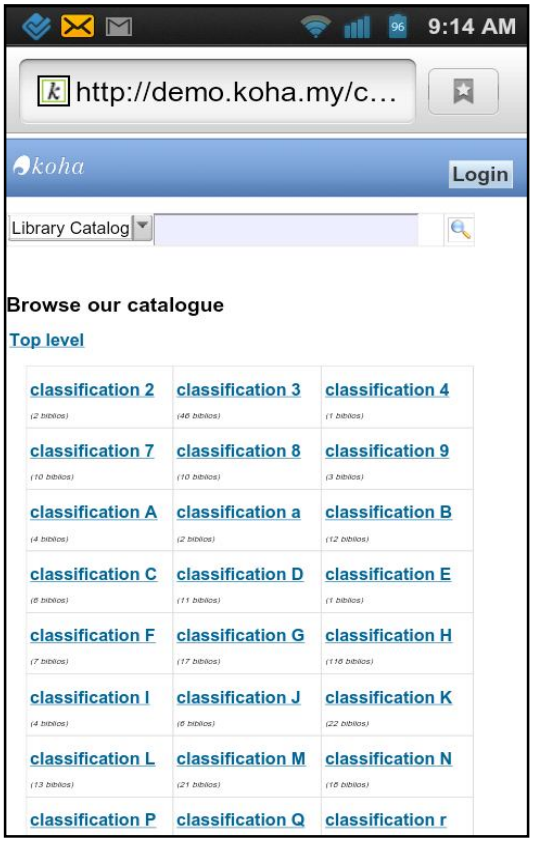

Figure 1. Hierarchy browser – user can browse by call

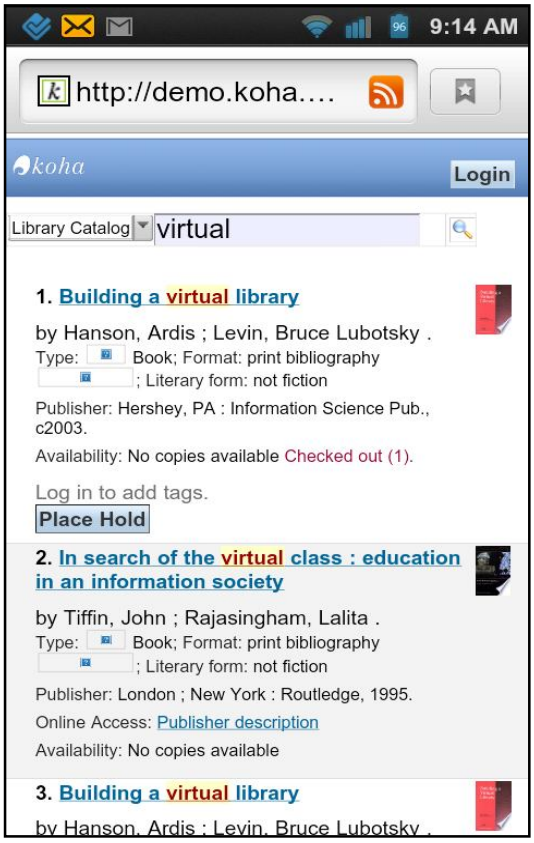

Figure 2. Search result view on web devices

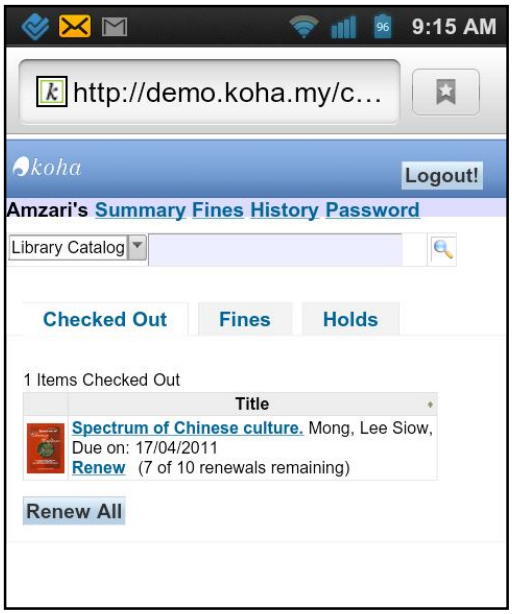

Figure 3. User account - summary

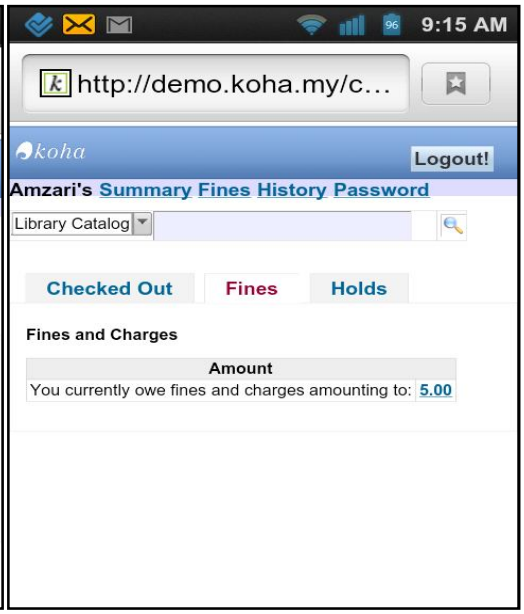

Figure 4. User account - fines

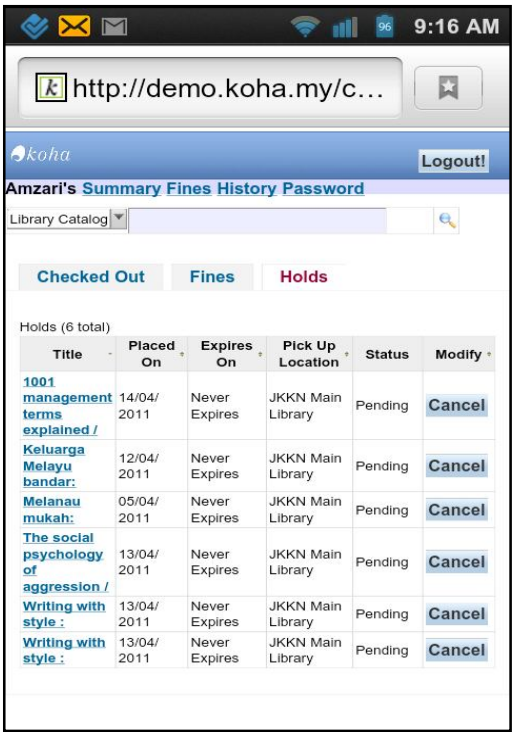

Figure 5. User account – list of items place on holds

Figure 6. User account – reading history (item that has been checked out)

The mobile OPAC has been successfully deployed on 13th April 2011 at http://demo.koha.my. It has been presented at Invention, Innovation and Design (IID) 2011 on

14th April 2011 at Universiti Teknologi MARA, Shah Alam, Malaysia. Students, lecturers and visitors of the IID 2011 have an opportunity to try the mobile OPAC by themselves. Most of them gave positive feedback and appreciate the innovation. The mobile OPAC source code will be released back to the KOHA Open Source Community. It should be tested in production mode and a survey should be done in the future.

CONCLUSION

Mobile OPAC Prototype is essential project whereby it becomes one of popular tool among library users nowadays. It shows that a new technology is needed for library. In addition, KOHA is open source and very appropriate in order to develop integrated library system. In the future it is hoped that this project could be one of important tool that can be used in all libraries in Malaysia and at the same time it will facilitate library users in finding information or collections in those libraries. In Malaysia, mobile OPAC is something new and not yet widely used in all libraries. Thus, the existence of these initiatives is to expand not only in academic libraries, but in all types of libraries including school libraries. This project will continue to produce a variety of applications that can simplify the search for information at any time.

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