

WORKSHOP 2

Mobile User Interfaces

Author: Tapio Ryhänen, Oulu University Library, Finland

Introduction

This workshop is about mobile user interfaces from the point of view of libraries and current and future library services.

First of all, in order to discuss mobile user interfaces, let's take a short look what the term mobility generally means.

Usually the term mobility is related to either mobile devices (the device is moving), mobile users (the user is moving), or mobile services where users get the same service by using different devices at different locations.

Many mobile devices have some kind of network connectivity, although that is not always the case. The terms wireless and wireless networks are closely related to mobility. A wireless device can be either fixed or mobile.

Mobile / wireless networks

Nowadays some of the most common wireless network techniques are mobile telephone networks, WLANs and Bluetooth.

Currently the most widely adopted mobile telephone networks are called second generation mobile telephone networks based on technologies like GSM and its additions like HSCSD and GPRS. Forthcoming third generation technologies will provide more bandwidth and enable a much wider range of mobile services. The coverage of current mobile telephone networks is very wide but the bandwidth is still quite limited (for example GSM-based 2.5G GPRS tops out at 115Kb/s, although in practice the upper limit is 56Kb/s).

WLAN (wireless local area network) is a smaller area technique (10-100 meters from the base station), but it gives users much higher bandwidth (11Mb/s) thus providing much better network connectivity. The coverage of WLAN depends on many things like the number of base stations, space and planning conceptions.

The coverage of Bluetooth is about 1-10 meters, and it is used for example to connect a mobile device to a PC. Another similar short range coverage technique is IrDA, which is mainly used for device to device communication.

In the future data transfer rates in wireless networks will grow, short range ad hoc networks and public HotSpot networks will become more common, and context and geographical information will be more widely utilized. Mobile terminals will support many different network types and be able to roam between networks (e.g. from WLAN to cellular network).

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Mobile devices

The most common mobile devices are mobile phones, laptops, handheld PCs and PDA devices. Mobile devices can be offline or connected to a network. Today mobile phones and PDAs still have quite limited features and high prices, but in the future they will have more and more features that enable many new mobile services and applications. It is also possible that PDAs and mobile phones will be integrated so that all PDAs have telephone functionality.

Mobile user interfaces

The characteristics of today's mobile devices have usually certain limitations which should be considered when designing mobile user interfaces. Such limitations are typically small screen size, limited bandwidth, limited battery life, limited memory and processing capacity, text-based and/or B/W displays. Allthought mobile devices and their features are developing relatively fast, some of these limitations will remain for quite a long time, especially the small screen size of devices and the limited bandwidth of mobile telephone networks.

Mobile services

If we consider mobile services from a technical point of view, we can divide them into three groups.

The first group is composed of traditional Internet services (Web-services, e-mail, streaming video or audio) that can be used via mobile devices.

The second group is composed of services and technologies that are only available in wireless networks and mobile devices. Among these services are SMS and MMS message services, WAP-services, remote access services, various static or dynamic positioning and personal navigation services, "push" content delivery and context-based information (time, location, user profile and presence status) delivery.

The third group is composed of services where mobility gives tools for automation of certain services and tasks that otherwise would require manual work. The various payment services via SMS messages are a good example of this kind of new services.

Mobile user interfaces for library services

Libraries have already done a lot of work in order to provide services via the Internet for their patrons. Many library web pages have already become "portals" of a sort, which provide access to various information resources and library services for end users. E-mail services are very widely used as well.

However, these "traditional" Internet-based services are still fairly rarely designed taking into consideration mobile users and devices. For example only a few library websites or library catalogues automatically detect mobile devices and change to a PDA-friendly version of the website or library catalogue.

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Some libraries have already brought online some services that are only available in wireless networks and mobile devices. For example SMS messages are already used for overdue and request notices and payments in some libraries. For instance in Oulu University Library, there already is a prototype of a PDA-friendly library catalogue search which also provides a map-based navigation service for locating books, collections etc. Mobility could give libraries a possibility to develop many entirely new services and tools to improve both library automation and customer service.

Some examples of new mobile services and challenges to user interface design could be:

- Designing mobile user interfaces for currently existing Web services and library catalogues (Web/WAP-browsing with PDA devices and mobile phones)
- Building personal navigation services: where is that book, that library, librarian, collection, photocopier, reading room, carrel, service point, magazine reading room, meeting room etc.
- Designing notification and payment services accessible via mobile phones (overdue notices, request notices).
- Designing context-based information and notices based on time, user location, profile and presence status.
- Lending WLAN network cards to patrons, so that they are able to connect to the Internet with their own laptops when they are visiting the library.
- Using microchips in books in to locate them with a mobile device and/or to keep the shelves in order and carry out weeding in a simple manner.

Topics which can be discussed in this workshop

In this workshop we'll discuss the use of mobile user interfaces for library services. Some of the questions that we'll try to answer during the workshop are:

Should libraries design or redesign their websites and catalogues to be compliant with various PDA devices and mobile phones and what requirements should taken into consideration?

New technology provides complete new possibilities for the design of new services, but which services could really provide added value for customers?

Should libraries wait for the development of network technologies and mobile devices? Which technologies are already so widely used that libraries should start developing applications based on them?

Is it possible to save costs or manual work with mobile applications or do they just make librarians work harder?

Which are the basic designing rules for mobile user interfaces?

How should libraries survey user needs for mobile services?

How important is usability testing of mobile applications and services?

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Is it necessary to build separate Web-based library applications, for example ordinary PCs and mobile devices or is it possible to design one application with multiple user interfaces which automatically adapts to the device or browser used?

What kind of new expertise will mobile services require from libraries in the future?
Is this whole talk about the mobilization just hype or should libraries really start designing mobile services, applications and user interfaces?