WAP APPLICATIONS OF LIBRARIES

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The mobile communication was the most significant domain of the last decade. That domain improved most of all. The mobile tools became an integral part of our life. These things totally changed our life. We became available whit a small mobile phone everywhere and every part of the day.

The mobile phones and the mobile services have changed in course of time. We were able to use these phones only to ring somebody up at the very beginning. The phone's size and weight decreased in time, and appeared the liquid crystal displays. These phones were able to store data and use many extra functions. The Sort Message Service (SMS) was initiated in the nineties which is the most popular service of the mobile service company at present. We are able to send text message by phones whit the SMS.

The evolution of the mobile phones continued. The phone's display increased and these were able to display simple graphic pictures. Color displays appeared shortly afterward.

The phones of the 21st century are able to store names and phone numbers, wake up, reminds the deadline and discussion. The service has developed too. Whit the Multimedia Message Service[1] (MMS) – which is founded on the General Pocket Radio Service[2] (GPRS) – we are able to send and receive multimedia message. These messages are able to show text whit pictures and movies, and play music. Whit this service appeared the Wireless Application Protocol (WAP) service too. The WAP opened the door to reach the Internet by mobile phones.

New idea appeared in the 21st century, the 3G. This is a new generation of the mobile networks, which is produce grater transfer rate – approximately 384 Kbps – like others. This technology opened new prospects like video phoning, online mobile Television etc.

Multimedia applications are the basic attribute of the present mobile phones. We are able to take color photograph, store or send it to somebody else whit these phones. We are able to download and listen our favorite music in digital format like MP3 or WMA. The WAP opened up new opportunities to browse across the Internet, send or receive e-mails, download or upload files or obtain new information direct or world wide environment.

What is the correspondence between the libraries and the WAP? Why should we deal with this subject? The answer is in the changing of the human behavior. The technologies have developed and these changing influenced the humanity. Man of the 21st century is running all the time. They have not enough time to go to the library, so they use rather the Internet. And now here is a new possibility: the mobile phones whit WAP.

Only libraries provided for people whit information for long time. That monopoly continued to the second part of the 20th century. If somebody wanted to know something from the world just go into library. It was most likely that the answer was in the books.

[1] The MMS means an another less known service: Mobile Mapping System.
[2] This is the packet-switched data transmission service of mobile phones. Whit this system the data transmission is the same like the Internet. In this way the user must pay only the real data transmission amount.

The first rivals appeared in the 20th century, like radio and television. These devices broke the information source monopoly of the libraries. We was able to here news or performance on radio, or watch nature films on television. These mediums gave new dimensions of information and enticed readers to turn away from the libraries. Many people predicted the end of Guttenberg's Universe, but these prophecies were not realized. The books remained the most important information source in our world.

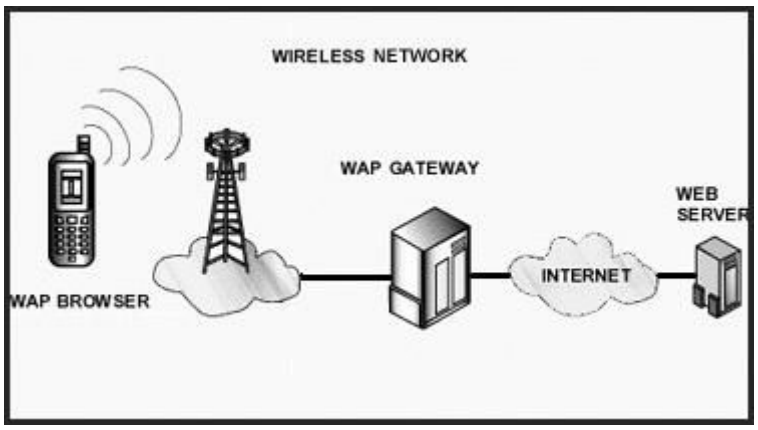
The most significant rival appeared in the last decade of the 20th century. This is the Internet. The Internet users search their answer on Internet, and do not visit the library for information. This is comfortable, surely the user sit at home, and must not go anywhere. And this is fast too if the user knows effective information search methods. The development of computer and web technologies results that more and more information carrier depends on the web. These are not only text but pictures, volume of voices and motion pictures too.

The librarians recognized immediately the advantage of the web technologies. The first home pages of libraries presented very soon. The library databases were accessible on these home pages the progress of time. These rendered document finding and status polling possible. The collection of libraries networks become researchable by combine catalogue. The full text databases appeared on the Internet over and above. Therefore the contents of rare printed documents were able to reach to the readers.

The mobile communication throws down the gauntlet to libraries by the WAP technologies. For this reason we have to examine what means the WAP and what eventuality are offered to the libraries.

What is the WAP? WAP is the abbreviation of the Wireless Access Protocol. This protocol is an extension of the Internet. It makes the connections between Internet and mobile phones possible. This protocol ensure that the information of World Wide Web get to mobile phones and other mobile devices.

We need a special hardware tools to make connection between mobile network and Internet. This is the WAP gateway. These tools transform mobile signals into computer data and vice versa. These tools do the appropriate data compress too. These gateways are insured by the mobile suppliers. The goal of gateway is to open way for WAP-browsers of mobile phones to the HTTP servers of Internet. In this way the computer network serves are useful for "wireless world" without transformation. (1. picture)



1. picture: Hardware structure of WAP

The displays of the mobile phones are very small. These can not able display the original home pages of Internet which are scaled high resolution displays. To be more exact the display of mobiles is able to display the original home pages, but it is totally unusable in this figure. Another problem is the memory problem. The memory of mobile phones is

limited. These two qualities of mobile phones are determined what can represent the provider on it. For this reason the libraries must think through what contents and how represent on this medium.

The mobile phones can not interpreter the original home pages which are written in HTML. The mobile phones use WAP-browsers programs to browse the WAP. These programs are full value browsers which are able to reach home pages by URL. The WAP-browsers are able to handle dynamic contents or CGI-script or Java Servlets. But these programs can interpreter only document which is written by the Wireless Markup Language (WML). This markup language is made for the limited scale display.

The WML is a markup language which was developed from Extended Markup Language (XML) by WapForum. The acquiring of WML is easy with the basic knowledge of another markup language like HTML.

The HTML and the WML are made for same reason but these two languages are optimized for different media. The home pages are written by HTML and the WAP pages are written by WML. These languages use similar tags to build up home pages. The WML – like the HTML – is able to show text and monochrome pictures and create link between two different pages.

The analogy between the WML and HTML is well observed on the next simple example.

```
<html>
    <head>
        <title>Konyvtar</title>
    </head>
    <body>
        <p align=”center”>
            <b><i> Isten hozta konyvtarunk WAP portaljan!</i></b>
        </p>
        <p align="center">
            Vegye igenybe mobilos szolgaltatasainkat is!
        </p>
    </body>
</html>
```

1. example: Source code of HTML-page

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">
<wml>
    <card title="Konyvtar" id="Konyvtar1">
        <p align="center">
            <br/>
            <b><i>Isten hozta konyvtarunk WAP portaljan!</i></b>
            <br/>
        </p>
        <p align="center">
            Vegye igenybe mobilos szolgaltatasainkat is!
        </p>
    </card>
</wml>
```

2. example: Source code of WML-page

The similarity of the “instruction set” of two different languages is fully visible. The <p> paragraph tag, the <b> bold or <i> italic font style tag are used for same reason. The architecture of pages and the order of tags is the same. The different are issued from the property of the display items. The pages which are created in WML are determined by these properties. The most significant different is that the HTML codes define virtual pages and the WML codes define packs. These packs build up cards. The cards point at one virtual screenful content. Another decided difference is that mobile phones have not mouse. For this reason the navigation on the pages is possible only by buttons. The WML give eventualities to program the control knobs by <do> tag. This problem becomes solved in this way.

The above mentioned WML code is displayed on phone in the following ways. (2. picture)

2. picture: The visualization of the WML page

The new mobile phones are able to make and show color pictures, record and play back sounds or motion pictures. The new technologies brought high resolution true color displays. These mobile phones can reach the World Wide Web whit restriction. But the new technology required new standard, which is suitable for new technologies. The WapForum worked out consequently the WAP 2.0 standard. This standard use new markup language: the Extended Hyper Text Markup Language Mobile Profile (XHTML MP). This language was worked out from XML and HTML by World Wide Web Consortium.

The XHTML MP is such a markup language which is based on the SGML like HTML, WML or XML. That is the reason why the learning of this language is easy.

The next example is written by XHTML MP (3. example). This example shows the same page, which was showed before in WML language.

```
<?xml version="1.0"?>
<!DOCTYPE html PUBLIC "-//WAPFORUM//DTD XHTML Mobile 1.0//EN"
"http://www.wapforum.org/DTD/xhtml-mobile10.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
    <head>
      <title>Konyvtar</title>
    </head>
    <body>
      <p align="center">
        <b><i>Isten hozta konyvtarunk WAP portaljan!</i></b>
      </p>
      <p align="center">
        Vegye igenybe mobilos szolgaltatasainkat is!
      </p>
    </body>
</html>
```

3. example: Source code of XHTML MP-page

The next picture shows how it looks like on mobile phone (3. picture).

The analogy between XHTML MP, WML and HTML is seemed very well. The basis of three languages is the same. But there is some syntax rules which is much more strict like HTML MP syntax rules. First rule is that every tag must have end tag. The <br> tag is without end tag in HTML. But this tag is appeared with </br> end tags in XHTML MP. The next rule is that every attributes of tags must be written by lower case. Additional rule is that the values of attributes must be written in quotation marks. These rules require more attention but have many advantages too. One of them is that WAP Cascade Style Sheet (WCSS) is useful in XHTML MP. The WCSS is a style sheet markup language, like Cascading Style Sheet in HTML. With this WCSS is possible to simplify the source of XHTML MP pages.

3. picture: The visualization of the XHTML MP page

The next question is what for can use libraries the WAP?

The public relationship (PR) is very important to libraries. The principal purpose of libraries is to “decoy into” users to libraries. For this reason the libraries must catch every possibility to popularize libraries. The WAP is one of the media with which libraries can reach this purpose.

The library can service the most important data from own institution on WAP. These are the name, address, phone and fax number, e-mail, URL of home page. Moreover library can display the opening hours. It is especially important when opening hours are different from to common.

Different varieties of programs are arranged in library. The WAP is very good tool to library inform the users from these. This part of pages of library contains the title, scene and date of programs.

The library can display the newest books of library on WAP. The WAP-page of the newest books contains the photo of the dust-cover and a sort text of content of book.

The poem of the day, extraction of the day or picture of the day is very interesting attempt to make remarkable the WAP-pages and popularize culture. The length of text on these pages is small, so these are suitable for demands of WAP portal. It is important because the reading of longer text is very difficult on mobile phone.

Reader of the month is a similar possibility. Librarians can choose and present one reader by statistic data with picture. It motivates the readers, and give and impulse to be in library.

The most important possibility is that the electronically catalogues of library are able to reach by means of WAP. The Online Public Access Catalogues (OPAC) is really popular in circle of users. The graphics interface on Internet was appeared a litter later than the OPAC, and became a very useful service. The search in the OPAC became independent from the building of library. The users only need a computer with internet connection to reach the OPAC of library in any time. This service is independent from the opening hours of library, because the servers always run. For this reason the users can reach comfortably the OPAC in any time from home. But established connection is needed to reach Internet and OPAC.

This problem is smoothed away by mobile technology whit WAP. The mobile networks are given, and these are reachable almost everywhere. For this reason the WAP is reachable too almost everywhere.

The WML and XHTML are able to communicate with CGI scripts and Java servlets which is run on server. In this way these are fit to handle dynamic context, therefore the access of electronically catalogues of library is achievable on WAP. It means that OPAC is reachable by mobile phones too.

Anybody can access these dynamic WAP portals in any time from everywhere. The catalogues of library are reachable by mobile phones which are possessed with WAP service. Almost every mobile phone has this basic function nowadays, so the possibilities are unlimited.

Another possibility can join with OPAC. When the users found the searched document then he is able to make a note of document. So the librarians can get ready the documents to readers. When the reader arrives in library the document will be ready to lending.

The system keeps in hiding other functions. When readers enroll in library then they get library card with unique identity number. These qualify the system for accessing unique data of readers. The readers can reach personally information from the OPAC with these. The reader can query which books are borrowed, and what is the expiration time of the borrowed books. If necessary, these expiration times are extendable by the system.

Another application of mobile technologies is useful in library like SMS or MMS. These are used like e-mail. If the readers give mobile phones number to library, the librarians

can inform the readers by SMS or MMS. The readers can be informed in this way too. The main question is financing. If the library wants to use SMS or MMS it has to find financial source. The SMS and MMS service are expensive, and the library has not enough functional sources to finance these at the moment. For this reason the WAP is the best way for library.

Why should abreast of library with new way of mobile technologies? Library is a service provider institute. The main destination of library is to serve reader as much as possible. This service must be quick, high level and user-friendly. These features are very important to keep the readers. To that the library reach this aim the library must be in every day of readers. The library can reach this aim, if the library use the new technologies of mobile telecommunications and build up services of high level. The libraries need such a service, which is reachable for every man. The WAP is a very good possibility to realize this intention.

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