

CHAPTER 1

INTRODUCTION

1.1 Background

Since its first founded and used by public on 1980s, Internet usage has grown amazingly. According to Internet World Stats; an international website which provides up to date data of internet usage all over the world, the growth from 2000 to 2009 has reached 380.3%, with total users not less than 1,733,993,741 users [1]. Not only on first country or second country, but even in some of third country, they depend a lot to internet for doing things, such as collecting information, buying something, etc. The dependence on internet is being a level that no one should able to imagine before. Everyone, if it's possible, wants an internet connection wherever they are, even without a computer or a notebook. Because of that potential of market, people trying to invent a Mobile Web, so that the information of the original web is able to be delivered to people who are accessing the web through a mobile phone.

The term Mobile Web refers to browser-based web services such as the World Wide Web, WAP and i-Mode using a mobile device such as a cell phone, PDA (Personal Digital Assistant), or other portable gadget connected to a public network [2]. Tim Berners-Lee, the W3C director and inventor of web explains that the Mobile Web Initiative's goal is to make browsing the Web from mobile devices a reality [3]. Such access does not require a desktop computer, or a fixed

landline connection. The total number of mobile web users grew past the total number of PC based internet users for the first time in 2008.

However, Mobile Web access today still suffers from interoperability and usability problems. This is partly due to the incompatibility of the format of much of the information available on the Internet with mobile devices and partly due to the small physical size of the screens of mobile devices and other device limitations.

Some general problems that may be encountered are small screen size, navigation problem, and slow internet connection. The small screen of several mobile devices makes it really to see the text or graphics that are adjusted to desktop computer screen and most mobile devices do not use a mouse like pointer, but rather simply an up and down function for scrolling, thereby limiting the flexibility in navigation. And the last thing is for mobile devices internet services can be very slow, often slower than dial-up internet access.

Due to these problems, a special markup language called WML (Wireless Markup Language) is developed. Differ from ordinary markup language, WML is created base on XML and intended for devices that implement the Wireless Application Protocol (WAP) specification, such as mobile phones, and preceded the use of other markup languages now used with WAP, such as HTML/XHTML (which are gaining in popularity as processing power in mobile devices increases).

Using the WML, the mobile devices can gain information through the internet and in some way, fit the pages to the size of the limited screen using a mobile browser; and since WML is a lightweight protocol, it is also can overwhelm the slow internet connection.

Currently, there are several browsers supported by mobile phone nowadays such Opera mini and Nokia Web Browser. These browsers have duty of showing the web pages in form of XHTML-MP (XHTML-Mobile Profile), CHTML (Compact Hyper Text Markup Language) or WML into the mobile devices. However, these browsers only support web pages with WAP support while in other hand many web pages that do not support any mobile extensions. Another problem arises with these mobile browsers are that they do not support any plug-in like the desktop versions do. This caused the development of the current mobile browsers only limited to the company that create those browsers.

The goal of this thesis paper is to implement a mobile browser that supports plug-ins as a proof of concept that the development of such mobile browser is worth further study. In addition, this browser will have the main plug-in of HTML to WML conversion. In this way, the browser will able to navigate the entire HTML based website since the plug-in will parse it into WML to be displayed on the mobile device.

1.2 Scope

The scopes of this paper are:

- Create a prototype of generic mobile browser that supports J2ME based mobile devices.
- Support plug-ins within the browser with the default plug-in of HTML to WML conversion.

1.3 Aims and Benefits

For the client side, especially the one accessing it through mobile phone will be able to gain the information in a well and convenient way; for example, less scrolling and minimum information loss caused by not supported feature by the original web.

For the server side which means those who offer and provide information through World Wide Web, they do not need to provide mobile based website for the user since this application is able to parse ordinary HTML document to fit the small size screen of mobile phones.

For the third parties, this browser's prototype will help them building new plug-ins since this browser supports plug-ins. It is expected that this browser will keep on evolving.

1.4 Structure

The thesis will be written in seven chapters as listed below:

- Chapter 1. Introduction
 - An introduction of the thesis topic and explanation of the reason in choosing this topic as the issues.
- Chapter 2. Theoretical Foundations
 - Explanation of the theoretical foundation that will support the thesis making. It consists of detailed explanations of terms and theories used in the later chapter of this thesis.
- Chapter 3. Problem Analysis
 - The explanation of the analysis performed during the completion of the thesis, including the analysis of existing application especially its advantages and disadvantages.
- Chapter 4. Solutions Design
 - This chapter will explain the system architecture of the customizable browser.
- Chapter 5. Implementation and Evaluation
 - This chapter specifies the application testing plans and the results.
- Chapter 6. Discussion
 - The purpose of this chapter is to evaluate and clarify the most important result of the thesis paper.
- Chapter 7. Conclusion and Recommendation
 - This chapter concludes the whole application development and also provides some recommendation or future improvement.

1.5 General Notes

Job divisions:

- Purnama (CS2010 / 1000858603) responsible for building the prototype of mobile browser and plug-in interface.
- Hendrik Kusuma(CS2010-1000860015) responsible for the HTML to WML plug-in .

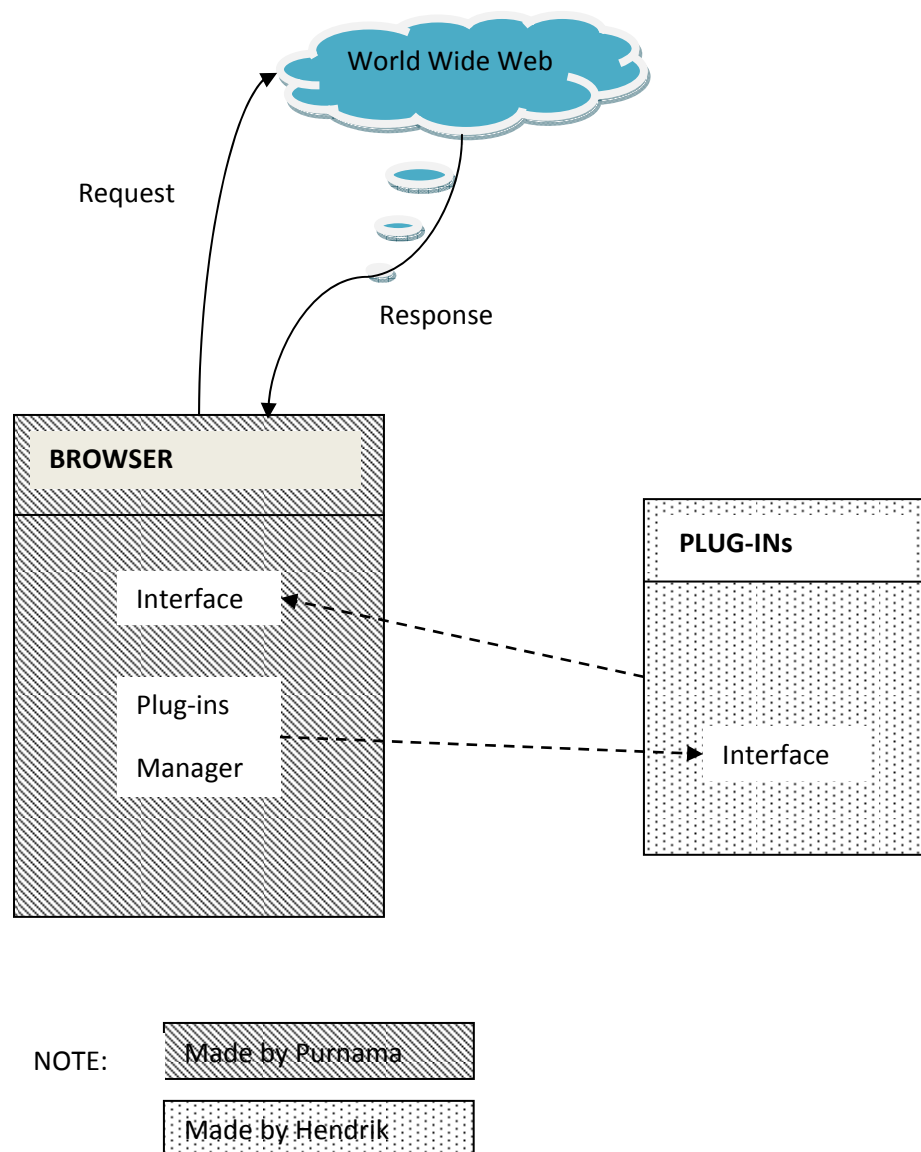


Figure 1 - Overall Architecture of Application Prototype