

USING COLLABORATIVE ENVIRONMENT FOR WEB SURFING

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ABSTRACT

Surfing Internet is a passionate job, especially when specific information is extracted. Sometimes it becomes quite difficult task for the surfer to find relevant information from huge search results. As it is time consuming job by exploring each and every hyperlink of search results. We propose a tool based approach to avoid this difficulty, which provides collaborative way of surfing Internet, where more than one surfer can share information based on mutual interest in real time.

Keywords: Collaborative surfing, netsurf, surfing internet, web surfing

INTRODUCTION

Internet is a source of communication and provides rich information. Since its inception in 1980's, it is still growing day by day. The study conducted by cyveillance.com, a US based internet company, shows that more than two billion pages are available on the Internet. Moreover, it has been argued that the size of Internet will be doubled or tripled in next few years. Hence, today searching for specific information in this huge data is more difficult than ever before. In addition, people are browsing the Internet for information, whether they are skilled or novice user.

There are different search engines available on the internet to search for required information. The most promising engines are google.com, bing.com and yahoo.com. These search engines use search suggestions as queries and provide list of related searches. The result of the search is so huge that surfer faces difficulty to find relevant information from those searches in a short time. Yongpisanpop (Yongpisanpop *et al.*, 2011) suggest that Microsoft provides two ways to search data; searchbar and searchtogether. Searchbar is a plug-in for Internet explorer to keep log and organize user queries and Searchtogether is a collaborative searching, but both of these does not fulfill the main objective of

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information seekers. The disadvantage with searchbar is that users still have to search the required data stand alone and the problem with the searchtogether is that it is not a platform independent.

On Internet there are many online social web services used for information sharing and provides dynamic directory services allowing users to add personal contacts. The social web application allows registered users to communicate synchronously. This synchronous communication is text or video based. The registered users are notified when their buddy list or contact list member is online. The disadvantage of these applications is to preselect their chat partner; this means that people already know each other. With this type of social applications people only communicate those who are already in their buddy list and sometimes divided into different categories for example classmates, office colleagues, etc. Now a day's popular method to combine all these with facebook.com, twitter.com, studivz.com, xing.com, linkedin.com and hi5.com. These are some popular social network services on the World Wide Web. These social services not only increase interaction among the peoples across the geographical borders but also enhance access to user data, although they also present several security and privacy challenges (Moo *et al.*, 2010).

Facebook is the most popular social networking tool, which increases scholarly research by creating new ideas on the web. Even though Facebook has social impact but still surfer of Facebook can only communicate synchronously, either by leaving message on the message board or with synchronous chatting with online friends. Several other websites also tries to get attention of social web community. The way they share information or ideas are based on archived videos or hyperlinks between the web documents.

None of the above applications provide collaborative way of surfing. Collaborative surfing is not a new idea; we already used the collaborative way to watch our television in our homes, in which one TV channel can be watched by more than one person. To watch that channel with more than one partner is a collaborative environment. In the same way browsing on the internet with more than one surfer is a collaborative way of surfing on the Internet. The attempts have been made for collaborative browsing for examples OCEAN (Raphael *et al.*, 2011), ARIADNE (Twidle *et al.*, 1997), GroupWeb (Greenberg and Roseman, 1996), Webhound (Lashkari, 1995); Webwatcher (Mladenec, 2001) and Silhouettell (Okamoto *et al.*, 1998). All of these attempts are based on coupling of user interfaces and do not provide the collaborative surfing in a dynamic way.

Our approach of collaborative browsing is based on the dynamic instance, where more than one surfer can browse the web in a unison way. To achieve this goal, we provide a prototype tool called NetSurf that facilitates the collaborative surfing. The methodology and its results are discussed in the next sections.

METHODOLOGY

To design a software it is necessary to know the working platform (i.e Operating System). In our case the software is designed for the Microsoft Windows Xp and

above. We used Microsoft Visual C++ as a programming language. This language is used to design the Graphical User Interfaces (GUI) and provides different Application Programming Interfaces (API) to achieve different requirements. The Sockets were used for the communication between different GUI's. The surfer web addresses and their ID's are stores using MS Access database. The GUI that display the URL and the ID's are integrated with Microsoft Internet Explorer browser as shown in Figure 1.

Net surf architecture

The NetSurf manages user (i.e. surfer) data and its corresponding web page address at dynamic instances. The registered surfer can share their information on mutual interest. In Figure 2, surfer A is visiting web sites wikipedia.org and ieee.org, while Surfer B is also visiting the same web sites. Therefore, Surfer B will be added to the buddy list of surfer A and vice versa. Surfer B has some more common website with other surfer C and D. Hence B can communicate with Surfer A, C and D and vice versa. Hence, surfers can communicate with each other, as they are added to their buddy list based on the web site addresses.

The advantage of surfing the web in unison is that the surfer knows that someone else is also browsing the same web site, to whom he can inquire for the required information. If surfer A and surfer B are looking for the same information and the A is the one who has already searched the same information that is being searched by the surfer B than surfer A can share the exact location and information of that web page with the surfer B.

Figure 1 Illustrates the Graphical User Interface (GUI) for the websurfing for the Netsurf application. The same web site visitor window has been integrated to Internet explorer browser. The URL list and their corresponding surfers are shown in the GUI. Communication between two or more than two surfers is based on the chatting application, which is also a part of the NetSurf application. NetSurf chat application provides traditional way of chatting, for example text, audio or video based chatting. Additionally, file transfer functionality is also added in the NetSurf chat application.

RESULTS AND DISCUSSION

The NetSurf application was installed on ten workstations at different locations. Researchers from different fields or backgrounds participated to explore the functionality of the Netsurf application, for example; Software engineering, Wireless networks and Biotechnology. They tried to query on the web on different search engines and explored different website for their field of research, it was possible to find the mutual interest topic during their search. Mutual interest researchers started collaborative environment to share information of their interest. It is interesting to note that surfers identified their collaborative partners within very little time. After using collaborative environment of NetSurf

application, a survey was conducted to evaluate the applicability of the software application in the real environment.

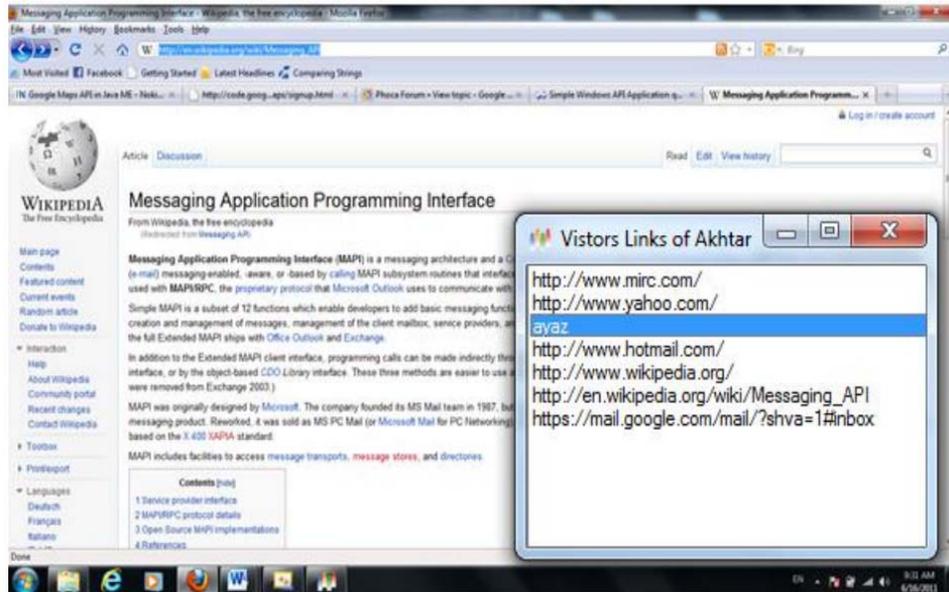


Figure 1. NetSurf GUI Integrated with Internet Explorer.

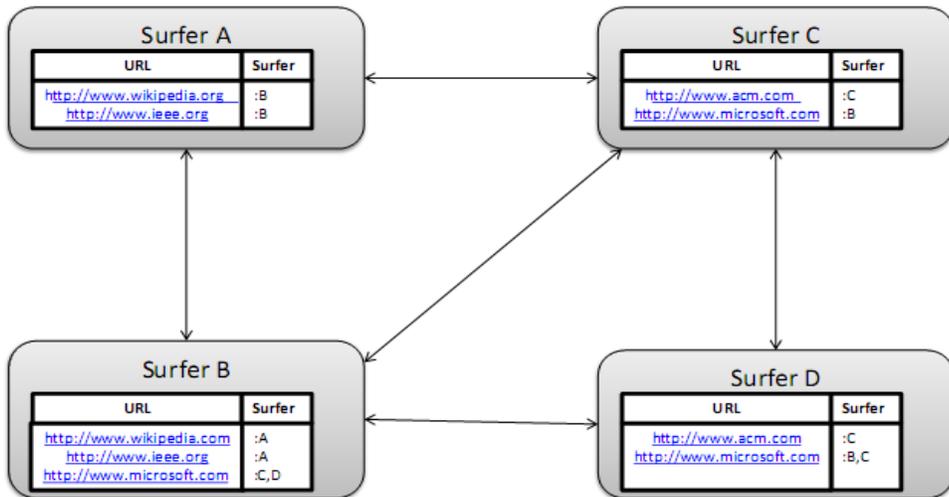


Figure 2. NetSurf Architecture

Table 1 presents a list of questions that were asked from the participants. Question 1 was about the usability of the software. How user of the software rates this software? Question 2 was about their experience of using collaborative

way of surfing on the Internet. Question 3 addressed the reliability of the information, which is the most important objective of the software. Question 4 elaborated the existence of the NetSurf application to the researchers in their research by surfing on the Internet for particular information.

Table 1. Survey questions.

Q. No.	Question Description
Q1.	How easy was to use NetSurf Software in a collaborative environment?
Q2.	How much you are satisfied with the collaborative way of surfing on the Internet?
Q3.	How much you were satisfied with the reliability of the information?
Q4.	How you rate the NetSurf software for the research purpose?

Figure 3 illustrates the survey results conducted during the experiment. S1 to S10 represent the surfers or participants of the survey and Q1 to Q4 represent questions 1 to 4 which were asked from the participants during the survey. The answers of the questions were taken in percentage, hence the vertical line of the graph represents surfer response in percentage and horizontal line of the graph represents one to ten participants. From the graph, it is easy to identify the rating of the software, which is in the range of 70-90 percent.

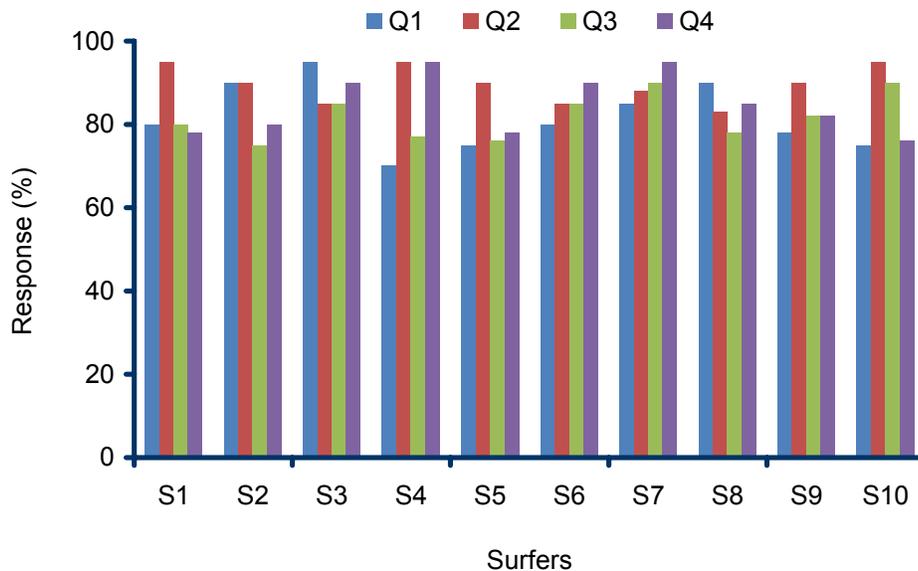


Figure 3. Survey results showing rating of software

CONCLUSION

The web surfing has a central role in the world of Internet. The NetSurfing Application is a very useful Internet utility that makes web surfing easy and information targeted. To date surfer is isolated, surfing alone; whereas surfing together provides easy way to search specific and reliable information in a short time. Our prototype tool NetSurf provides additional facility to the surfers to share their information in real time. NetSurfing application allows two or more surfers to surf the Web in a collaborative environment. It is an important utility for all the Internet users, researchers and students, especially useful for distance learning, business users and researchers, who can use this technology to deliver web presentations by controlling what Web page users are viewing. The application was tested practically at different locations to assess the usability, applicability and reliability of software for getting the required information. A survey was conducted to evaluate the software for real time application, which is rated between 70% to 90% showing that the users of the NetSurf were quite satisfied with the results of the software.

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