

Web Page Marker: a Web Browsing Support System based on Marking and Anchoring

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ABSTRACT

In this paper, we propose a web browsing support system, called WPM, which provides marking and anchoring functions on ordinary web browsers. WPM users can mark words and phrases on web pages by using their browsers without any extra plug-ins like similar systems, and can anchor words to refer them later. WPM makes it possible to carry out marking to the existing Web page so that marking carried out to paper. By changing character decoration partially, the text is indicated by emphasis and improve readability. WPM is implemented using proxy agent. This system can be used in everyday browsing, without a user being conscious of a system by using a proxy.

Categories and Subject Descriptors

D.2.2 [Software Engineering]: Design Tools and Techniques - User interfaces; H.4.3 [Communication Applications]: Information browsers; D.5.3 [Group and Organization Interfaces]: Web-based interaction

General Terms

Design

Keywords

browsing support, proxy agent, marking

1. INTRODUCTION

In the real world, people often highlight important or/and interesting text with a marker pen on paper. We call this act marking. By marking, it becomes possible to find the important portion of a document immediately, and readability of a document and reusability improve. If marking can be similarly used in a Web page, it will be thought that it leads to the increase in efficiency of Web browsing.

We developed a system which realizes marking on the web page called Web Page Marker(WPM). This system indicates

the portion which the user chose with the mouse by emphasis. The efficiency of Web browsing is increased because a user enables execution of a highlight display etc. freely.

There are Google Toolbar[1] and a Mozilla Firefox[2] as an existing tool with a similar function. Google Toolbar has the function which indicates the word used for reference by highlight. Firefox is a Web browser with an emphasis display function in the reference in a page. Since WPM is not the function or plug-in of a browser, there is no necessity of preparing plug-in and special software. Moreover, since marking can be carried out in operation by the mouse, the input by the keyboard is unnecessary.

2. WPM: WEB PAGE MARKER

WPM is a system which makes it possible to carry out marking to the existing Web page by operation on a web browser. By choosing a text with a mouse, the font of the selected portion, a background color, a character color, character size, etc. are changed. Since operation of this system is performed by operation similar to carrying out marking to paper, it is intelligible for a user. Whole character size and a whole font can be changed by the function of a browser. On the other hand, the arbitrary parts which the user chose can be changed in WPM. Moreover, WPM has an anchor creation function to the page which carried out marking. By enabling creation of an anchor in arbitrary parts, the ease of reading is improved and revisit is supported.

3. IMPLEMENTATION

3.1 Execution Example

Figure 1 shows an example of marking using WPM. First, the user selects the target text "World Wide Web", by mouse dragging in the Web browser(Figure 1-(a)). Next, he/she clicks the right mouse button to carry on marking(Figure 1-(b)). When the user does marking to some particular text, the same text else where on the same page is automatically marked. The user can grasp visually where of a page the word which carried out marking is contained. A portion to see only by marking a page scroll can be specified without reading the text of a Web page by carrying out marking on an interested keyword or the text.

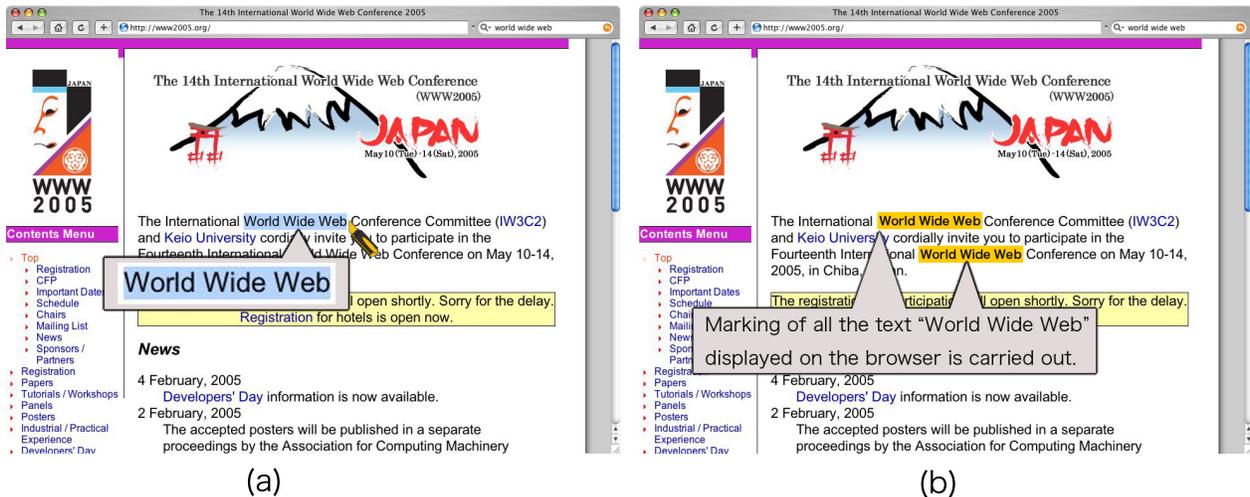


Figure 1: Execution Example of WPM

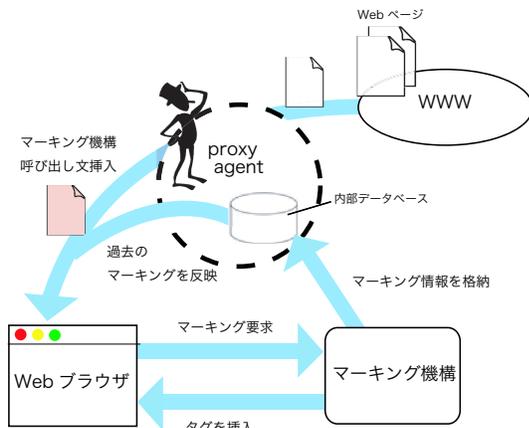


Figure 2: Architecture of WPM

3.2 Architecture of WPM

Figure 2 shows the system architecture of WPM, which is based on proxy agent and marking mechanism implemented by JavaScript. The proxy agent is implemented using MiLog[3], which is a multi agent development environment that is familiar with WWW.

The proxy agent analyses the HTTP header sent from the Web browser to get the URL. The agent then downloads the HTML files for the URL. Next, proxy agent adds marking mechanism to the HEAD tag of each HTML file. By this processing, a marking mechanism can be called from on a Web browser. When a text is chosen on a browser, the marking mechanism will change the character decoration on a browser. The information used for marking is stored in the database which the proxy agent has.

3.3 Implementation

Marking processing on the Web browser

WPM realizes marking by inserting the tag which specified the style attribute. An example of tag for marking is as follows:

```
<span style="background-color:FFC000"
  name = "wpm"
  onClick = "clearMarking();">
  selected text
</span>
```

First, the selected text on the browser is acquired by JavaScript. Second, the marking mechanism searches for the text from HTML file by pattern-matching. On the Web browser, marking to the selected text is immediately carried out by this processing. By the function described as "onClick", a click of the text by which marking was carried out calls the processing of which marking is canceled. The above processing can perform execution/release of marking easily.

Marking reflection to other pages

By using JavaScript and DOM, marking is realizable as mentioned above. However, the changed contents will be lost by reload/unload of a page in JavaScript. Since information is saved, this system performs the following processing. When marking is carried out, information for marking(selected text, character decoration) is stored in a database. When load a Web page, proxy agent outputs JavaScript objects. Processing the outputted objects at the time of "onLoad", the past marking is reflected in a page.

This processing is used also for an anchor creation function. Creation of an anchor is performed by the same operation as marking. This function adds anchor(A) tag which specified the name attribute to be the part which the user selected. In usual, in order to access with an anchor, the anchor tag must be beforehand created by the author of a page. In WPM, the user can create an anchor in arbitrary parts by embedding an anchor tag in the part which carried out marking.

4. CONCLUSIONS

In this paper, we proposed a system which enables user to marking on Web page like marking on papers. Advantages of wpm can be described as follows; (1)In arbitrary Web pages, marking is made possible, (2)It can use from the usual web browser and there is no necessity that a user prepares plug-in and special software.

5. REFERENCES

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