

results returned from a search engine are typically designed for a desktop or laptop display and therefore require considerable horizontal and vertical scrolling on a handheld device to view the search results list. Even then, the text on a handheld device may be difficult to read with substantial zooming. In contrast, zooming in to read the text diminishes the context accessible from the overall search results list. For example, it is more difficult for a user to discern his or her current location in the search results list when most of the results are not visible, beyond the boundaries of the display. In an embodiment of the present invention, the user friendliness of the SmartView and detailed view configurations is combined with annotations that signify search hits on one or more documents or logical units of individual documents. In addition, progress indicators are added to the SmartView mode to inform the user of the progress of the background layout and linguistic processing use to generate the annotations. Such combinations, illustrated in the figures as a "SearchMobil" tool, provide easy readability (i.e., focus) in the detailed view mode while preserving context in the SmartView mode.

[0043] FIG. 4 depicts a search results Web page prior to completion of the background analysis of any search results target pages in an embodiment of the present invention. Although Web pages are primarily discussed with regard to the illustrated embodiments, any viewable and searchable resources (e.g., text documents, images, animations) may be operated on by embodiments of the present invention.

[0044] A handheld display 400 shows a search results Web page 402. A text box 404 receives a set of search criteria "hawaii became state", which is passed on to a search engine, such as www.google.com. The search engine performs the Web search and returns the search results shown in the search results Web page 402.

[0045] A Web search control 406 displays a globe and a pair of binoculars to indicate that the SearchMobil tool is in "Internet Search" mode (e.g., that the search will be performed on the Web). For example, one embodiment of the "Internet Search" mode causes search criteria entered by the user in the text box 404 to be passed to www.google.com in FIG. 4. Search criteria may include textual terms, shapes, images, etc. that a search engine may use to identify resources matching or containing matching elements with them. An alternative embodiment of the "Internet Search" mode may pass the search criteria to a file search tool that operates on the Web, FTP (file transfer protocol) sites, and other Internet-based systems. In one embodiment, the drop-down arrow 408 allows a user to select from a variety of search types. The search is executed by selecting the Web search control 406.

[0046] Progress tabs 410 are displayed along the side of the search results Web page 402. Each tab 410 corresponds to a search result in the search results Web page 402. Initially, when the search results Web page data is received from the search engine, the tabs 410 are displayed as white or un-patterned to indicate that background analysis of the search result target pages (i.e., those resource pages referenced in the search results Web page) has not yet been completed. It should be understood that the specific colors, patterns, or other visual characteristics described herein pertain to an exemplary embodiment; however, it should be clear that any distinguishing combinations of colors, pat-

terns, or visual characteristics are contemplated within the scope of the present invention.

[0047] When highlighted, a SmartView icon 412 at the bottom of the handheld display 400 identifies that the handheld display 400 is in SmartView mode, with or without partition lines. In contrast, the magnifying glass icon 414, which is highlighted in FIG. 4, indicates that the handheld display 400 is in detailed view mode.

[0048] FIG. 5 depicts a search results Web page displaying progress in the analysis of search result target pages in an embodiment of the present invention. A handheld display 500 shows a search results Web page 502. However, in contrast to the handheld display 400 in FIG. 4, some of the tabs 510, namely the tabs numbered in 1-4, 6, and 8, show completion indications. In the illustrated embodiment, the completion indication is shown by a diagonal pattern on a tab. In an alternative embodiment, completion indications are shown by changing the tab color to yellow to indicate that the analysis of the search result target page has been completed.

[0049] Alternative progress indicators may be employed within the scope of the present invention to indicate the progress of the background analysis of the search result target pages. Some exemplary progress indicators may include without limitation a set of colored bars, a checkerboard pattern in which spaces corresponding to completed target pages are filled in, and a translucent overlay over the search result entries themselves on the search results Web page.

[0050] FIG. 6 depicts a selected search result target page with annotations in embodiment of the present invention. A handheld display 600 shows an annotated SmartView mode display of the target page 602, which is associated with the third search result in the search results Web page of FIG. 5 (as shown by the highlighted or darkened tab 603).

[0051] The SmartView mode display shows five annotated logical sections (604, 606, 608, 612, and 614) of the target page 602. Eight "hit" annotations 614 are displayed in the upper left hand corner of the logical section 604, indicating that analysis has determined that eight elements (e.g., terms) of the logical section 604 satisfy the search criteria "hawaii became state". Four "hit" annotations 616 are displayed in the upper left hand corner of the logical section 606, indicating that analysis has determined that four elements of the logical section 606 satisfy the search criteria in four locations. Likewise, the logical section 608 shows fourteen "hit" annotations 618, and the logical section 612 shows one "hit" annotation 620. Notice that the logical section 614 does not show any "hit" annotations. Therefore, no elements within the logical section 614 satisfied the search criteria.

[0052] FIG. 7 depicts the logical section of a selected search result target page having the most search hits in an embodiment of the present invention. A handheld display 700 shows an annotated SmartView mode display of the target page 702, which is associated with the third search result from the search results Web page of FIG. 5 (as shown by the highlighted or darkened tab 703). A logical section 704 shows fourteen "hit" annotations 706.

[0053] However, in the illustrated embodiment, the size of the font used to display the logical section 704 on the handheld display 700 substantially prevents a user from