

ment (101) (e.g., a Braille book) is shown with bar codes (102) printed on its pages. The Braille document (101) can be any kind of document, for example a newspaper, a novel, a textbook, a technical book, a commercial catalog, or any other type of Braille code engraved or embossed surface. The composition of the document can be paper, plastic, wood or any other nonconductive material. Any Braille character or combination of characters (words) on the document can be hyperlinked to different types multimedia information or services (sounds, music, speech synthesizers, Web page readers, tape players/recorders, and so forth).

[0061] A user workstation (105) is provided for accessing and displaying multimedia information and services. The bar codes are read by a bar code reader (103) connected to a user workstation, and are used by the user workstation to identify the document and each page of the document. In an illustrative embodiment, the workstation is connected to a communication network, preferably the Internet. Some of the Braille items on the document are linked to multimedia information and/or services located on the user workstation or on remote servers (106).

[0062] A proximity sensing foil (104) is placed underneath a page of the Braille document. The proximity sensing foil (104) may be made of transparent capacitive films of the type commonly used to manufacture touch screens. The generated signal is generally proportional to the coordinates of the point pressed. One example of such a touch foil is the MicroTouch ThruGlass' projected capacitive technology, with a sensing range of up to 1" (25.4 mm) though paper, glass, or any other non-conductive material. ThruGlass™ (Projected Capacitive Touchscreens) is a trademark of MICRO TOUCH company. The ThruGlass technology is fully described in the Web site of MICRO TOUCH Company at <http://www.microtouch.com/>.

[0063] The user workstation (105) is used to access and display information and/or services locally stored or located on remote servers (106) connected to the network (107). The user workstation may be, for example, an Internet appliance or a multimedia Personal Computer (PC). The proximity sensing foil (104) may communicate with the user workstation, for example using a cable, a wire pair, an infrared link, or a wireless radio link.

[0064] To retrieve and display multimedia information or to access a multimedia service associated with a hyperlinked item on a Braille document (101), the user uses a specific key (108) on the keyboard of his workstation. The position of the hyperlinked item detected by the proximity sensing foil identifies a server and the information associated with the selected hyperlinked item within this server. The user workstation (105) then accesses the identified server (106) and retrieves and displays the information or/and service.

[0065] In the illustrative embodiment of the invention shown in FIG. 6, the user workstation (606) is connected to the Internet (611). The user workstation includes a Web Browser (608) (also called "Web Client") to access the World-Wide-Web (WWW). When the user touches (602) a hyperlinked item (603) on the Braille document (601) placed over the proximity sensing foil (604), the user workstation (606) generates an acoustic signal (605). This signal alerts the user that the item contains a hyperlink. The position of the hyperlinked item (603) detected by the proximity sensing foil (604) identifies a Web server (607) and, within this

Web server, Web pages or Web multimedia services. Once the hyperlinked item is selected, the Web Browser program (608) sends an HTTP request (609) to the identified Web Server (607). The response (610) to the request (HTTP response) is sent back by the Web Server (607) in the reverse direction to the Web Browser (608). The HTTP response (610) comprises the requested Web pages or Web multimedia services associated with the selected hyperlinked item.

[0066] As shown in FIG. 9, the method of creating hyperlinks for accessing multimedia information or services from items engraved or embossed on a Braille document (like the document shown in FIG. 2 entitled "Early British Kingdoms"), comprises the steps of:

[0067] (901) assigning a reference number (201) (identifier) to the Braille document;

[0068] (902) selecting one or more pages of the Braille document;

[0069] assigning an identifying means and marking each selected page of the Braille document;

[0070] for each selected page of the Braille document (or portion of the document):

[0071] (903) selecting one or more items (engraved or embossed items), preferably Braille characters or Braille words (combination of Braille characters) on the page;

[0072] (904) creating hyperlinks from the selected items to information and/or services accessible from the user workstation;

[0073] (905) placing and aligning a proximity sensing foil under the page;

[0074] touching (906), on the page, the selected hyperlinked item;

[0075] determining the position, on the proximity sensing foil, of the touched items; and

[0076] storing, in a hyperlink table, an identification of each selected hyperlink item based on the position on this proximity sensing foil of each touched item.

[0077] As shown in FIG. 2, for the editor or publisher, the step of assigning (901) a reference number to a Braille document comprises the further steps of:

[0078] assigning an identifier such as a reference number (201) to this document (e.g., 873) for identifying the document;

[0079] engraving in Braille and printing the identifier on the document;

[0080] creating a hyperlink table accessible from the user workstation; and

[0081] associating the hyperlink table with the document, the hyperlink table comprising the reference number of the document and other relevant information related to the document such as title, author, ISBN (International Standard Book Number), date, and so forth. The hyperlink table may be stored within the user workstation or may be stored in an external memory accessible from the user workstation.