

[0029] FIG. 7C is a schematic for illustrating another chapter index displayed on the display unit;

[0030] FIG. 8A is a flowchart of a display control; and

[0031] FIG. 8B is a flowchart of the display control.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0032] Exemplary embodiments according to the present invention will be explained in detail below with reference to the accompanying drawings.

[0033] FIG. 1 is a block diagram of a display control apparatus according to an embodiment of the present invention. A display control apparatus 100 includes a detecting unit 101, a determining unit 102, a display controller 103, and a display content retaining unit 104. The detecting unit 101 and the display controller 103 of the display control apparatus 100 are connected to a display unit 110.

[0034] The detecting unit 101 detects the bend level of the display unit 110 connected thereto, and outputs a detection result to the determining unit 102 and the display content retaining unit 104. The detecting unit 101 detects, for example, a position of a bend, a direction (inside or outside) of a bend, a degree (frequency) of a bend, and bending speed.

[0035] Based on the detected bend level that is input from the detecting unit 101, the determining unit 102 determines a display command made by an operator to the display unit 110 and outputs the command to the display controller 103. The display command includes a command to sequentially display a previous page of a display content, a command to sequentially display a subsequent page of the display content, a command to display indexes, a command to display a display content corresponding to an item in the indexes, a command to mark a page currently being displayed, a command to cancel marking of the page, and a command to stop/restart display.

[0036] Basically, when a right edge or the left edge of the display unit 110 is bent, the display content is switched in a direction in which the end is turned. Namely, the display unit 110 is controlled to display an image of pages being turned. When such bend is detected that is caused when the display unit 110 is folded in two at a central part of the display unit 110 so that the display unit 110 faces inside, the display unit 110 is controlled to stop display. When such a bend is detected that the display unit 110 is reopened from a two-folded state, the display unit 110 is controlled to restart the display. By matching the display commands to actions of handling an actual book in this way, the display control apparatus 100 can be easily controlled by an operator. In addition, commands can be set associating with various kinds of bends as necessary depending on an individual.

[0037] Based on a determined display command, the display controller 103 controls the display unit 110 to display the display content corresponding to that command. When the display content is switched one page at a time, it appears as if pages are leafed through on the display unit 110. This differs from a scroll screen display in that even if the page is turned at high speed, some of the display contents can be read accurately. The display contents can be confirmed even more speedily if captions are displayed in the left and right

side sections. The display contents displayed by the display controller 103 are not limited to electronic books and may be text data including images or image data including multiple pages.

[0038] The display content retaining unit 104 retains page data to be displayed on the display unit 110 and bookmark information that has the current display content at the time of detection of bends corresponding to the command to mark a page currently displayed and a command to stop/restart display by the detecting unit 101. The display content retaining unit 104 outputs the bookmark information to the display controller 103.

[0039] More specifically, when the detecting unit 101 detects a bend that corresponds to the command to mark a page, the display content retaining unit 104 retains the display content currently being displayed on the display unit 110 as an index item. Information relating to the index that a new item has been added to is output to the display controller 103. If the command is made for a page that has already been marked, the display content retaining unit 104 determines that the command is for canceling the mark, and deletes the item from the indexes retained in the display content retaining unit 104. When the operator makes a command to display the indexes on the display unit 110, following processes by the detecting unit 101 and the determining unit 102, the display controller 103 display the latest index input from the display content retaining unit 104.

[0040] When the detecting unit 101 detects the two-folded state of the display unit 110, the display content retaining unit 104 retains the display content currently displayed on the display unit 110. When the detecting unit 101 detects the reopened state of the display unit 110, the display content retaining unit 104 outputs the retained content to the display controller 103. The display controller 103 displays the display content input from the display content retaining unit 104 on the display unit 110.

[0041] The display unit 110 includes a flexible display that has a function of outputting a bend level in a numerical value. The output value of the bend level is output to the detecting unit 101. A command relating to the display content is input from the display controller 103, and is displayed on the flexible display based on the input command.

[0042] FIG. 2 is a flowchart of a display control procedure by the display control apparatus 100. The display control apparatus 100 determines whether the detecting unit 101 has detected a bend level of the display unit 110 (step S201), and if not, waits by until a bend level is detected (step S201: NO). When a bend level is detected (step S201: YES), the determining unit 102 determines whether the detected bend is an index display command (step S202).

[0043] If it is determined that the detected bend is not an index display command (step S202: NO), the determining unit 102 determines a display command based on the detected bend level (step S203). Lastly, the display controller 103 controls the display to display an image of pages being turned based on the display command (step S204). Thus, one series of processing ends.