

DISPLAY CONTROL APPARATUS, DISPLAY METHOD, AND COMPUTER PRODUCT

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a display control apparatus, a display method, and a computer product with which displayed data is switched by an operation similar to turning a page of an actual book.

[0003] 2. Description of the Related Art

[0004] Electronic books that display text data and image data on an easy-to-carry compact display have become widespread. In such electronic books, improvement in a display quality and operability at the time of making a command to display a desired page is demanded.

[0005] Conventionally, to improve operability of an electronic book, a technique in which the electronic book can be operated as an actual book is disclosed. Such a book-type electronic-information browser device includes a page-turning unit provided separately to the display. In the book-type electronic-information browser device, display contents are switched by an operation similar to that in reading an actual book using the page-turning unit (for example, Japanese Patent Application Laid-Open No. H11-312041). An information device for which a flexible substrate having a flex sensor is used as a display (for example, Japanese Patent Laid-Open No. 2001-518185), and in which display contents are switched by bending the display itself has also been disclosed (for example, Japanese Patent Laid-Open No. 2004-318123).

[0006] In the book-type electronic-information browser device, however, since the display and the page-turning unit are separately provided, the size of the device increases. Moreover, operating the page-turning unit to switch the display contents is not as pleasing as turning an actual page.

[0007] In the information devices disclosed in Japanese Patent Laid-Open Nos. 2001-518185 and 2004-318123, the display contents are switched by bending a portion of the flexible display resembling turning a page an actual book. However, in the information devices, a search function of searching a page an operator wishes to browse is not available. To find the page the operator wishes to browse, the operator is required to find the page while sequentially switching the display contents. This causes both operational and visual load on the operator.

SUMMARY OF THE INVENTION

[0008] It is an object of the present invention to at least solve the above problems in the conventional technologies.

[0009] A display control apparatus according to one aspect of the present invention includes a detecting unit configured to detect a bend of a flexible display; a determining unit configured to determine a display command, based on the detected bend; and a control unit configured to control the flexible display to display an image of turning pages sequentially based on the display command.

[0010] A display method of a flexible display according to another aspect of the present invention includes detecting a bend of a flexible display; determining a display command,

based on detected bend; and controlling the flexible display to display an image of turning pages based on the display command.

[0011] A computer-readable recording medium according to still another aspect of the present invention stores therein a computer program for realizing a display method according to the above aspect.

[0012] A display control apparatus according to still another aspect of the present invention includes a detecting unit configured to detect a flexure of a flexible display; a determining unit configured to determine whether the flexure has a first pattern; a command generating unit configured to generate a first display control signal to control video data to be displayed on the flexible display. The first display control signal is generated when the determining unit determines that the flexure has the first pattern.

[0013] The other objects, features, and advantages of the present invention are specifically set forth in or will become apparent from the following detailed description of the invention when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a block diagram of a display control apparatus according to an embodiment of the present invention;

[0015] FIG. 2 is a flowchart of a display procedure by the display control apparatus according to the embodiment;

[0016] FIG. 3A is a schematic of an electronic book according to the embodiment;

[0017] FIG. 3B is a schematic for illustrating a data structure in a display content storing unit;

[0018] FIG. 4 is a schematic of a display content of an electronic book;

[0019] FIG. 5A is a schematic for illustrating a change in a page-turn operation;

[0020] FIG. 5B is a schematic for illustrating the change in the page-turn operation;

[0021] FIG. 5C is a schematic for illustrating the change in the page-turn operation;

[0022] FIG. 5D is a schematic for illustrating the change in the page-turn operation;

[0023] FIG. 5E is a schematic for illustrating the change in the page-turn operation;

[0024] FIG. 5F is a schematic for illustrating the change in the page-turn operation;

[0025] FIG. 6A is a schematic of an electronic book when power is turned off;

[0026] FIG. 6B is a schematic of a display unit when power of the electronic book is switched from OFF back to ON;

[0027] FIG. 7A is a schematic for illustrating a bookmark index displayed on the display unit;

[0028] FIG. 7B is a schematic for illustrating a chapter index displayed on the display unit;