

paginated content. In an embodiment, a display of the computing device includes a plurality of discrete elements, such as pixels. A memory is used to store a data collection. The data collection is arranged or otherwise identifiable as a plurality of pages. The pages of the data collection are arranged in a pre-selected order, and are each individually presentable on the display. The computing device includes a processor that is configured to retrieve the pages from the memory. The processor is also configured to signal each of the pages for presentation on the display. A sensor device is coupled to the processor. The sensor device is deflectable to signal the processor a deflection value when deflected. The deflection value causes the processor to sequentially present all or some of the multiple pages, in a sequential and individual manner.

**[0025]** A display may include any device that responds to electrical signals to output an image. An image presented on the display may be a partial, complete, or approximate rendering of data stored for that page.

**[0026]** When multiple pages are sequentially presented, portions of the display render an image from each of the multiple pages in a sequence, so that one page may follow another on a portion of the display. It is possible that an area of the display presents portions of multiple pages concurrently and in a sequential manner. For example, groups of discrete elements of the display may be assigned values from one of the multiple pages, and then a next, while another group of discrete elements are static.

**[0027]** As used herein, reference to deflection means any type of bending, deformation or movement by a structure that noticeably alters its shape. In one embodiment, deflection refers to a cantilevering movement of one end of a structure relative to another.

**[0028]** FIG. 1 illustrates a computing device 100 equipped with a page flicking mechanism, under an embodiment of the invention. The computing device 100 includes a flexing or deflective display 20 that presents paginated information. The display 20 is connected to a frame 25. In one embodiment, both display 20 and frame 25 are bendable along one or more axes of the computer device 100.

**[0029]** The display 20 may be a form of electronic paper. Electronic paper refers to a flexible display, used for applications such as electronic books. An example of electronic paper for use with embodiments of the invention includes conductive plastic substrates combined with organic transistors, manufactured jointly by E Ink Corp. and Lucent Technologies (see *Electronic Paper Writes New Chapter for Displays*; Brown, C.; EETimes.com, Nov. 30, 2000; hereby incorporated by reference). Another example of electronic paper includes gyricon substrates, manufactured by Xerox.

**[0030]** As will be described in greater detail, the display 20 can be deflected to enable a user to enter an input. The deflection entered by the user causes the pagination being presented on the display 20 to be altered. Specifically, an embodiment provides that a region 22 of display 20 sequentially presents other pages based on the deflection of display 20. The display region 22 may be centrally disposed on display 20 where the deflection is least impairing to the user. The sequential presentation of the pages on display region 22 provides the appearance of page flicking.

**[0031]** The computing device 100 may be configured to measure the magnitude of the deflection and to correlate the

magnitude with a characteristic of the page flicking. A larger magnitude flexing of display 20 may signal rapid page flicking, and possible skipping of intermediate pages. A smaller magnitude flexing of display 20 may correlate to a slower page turn, without any skipping of pages. For example, a large deflection of display 20 may result in display region 22 displaying pages 1, 5, 10, 15 and 20 in one time interval. A small deflection may cause display region 22 to display pages 1, 2 and 3 in a longer time interval.

**[0032]** Other portions of display 20 outside of display region 22 may display content other than the pages being flicked through. For example, the presentation on the other portions of display 20 may be frozen on a current page, or blurred to save processing resources.

**[0033]** FIG. 2 illustrates another embodiment in which computing device 100 separates display 20 from a deflectable portion 30 (FIG. 30). The deflectable portion 20 may be integrated with a sensor (see e.g. 130, FIG. 4) to detect deflection caused by the user of the computing device 100. When the deflectable portion 30 is deflected, the display 20 displays multiple pages in a sequential manner on display region 22. For such an embodiment, display region 22 may be disposed closer to an edge farthest away from deflectable portion 30.

**[0034]** FIG. 3 illustrates an embodiment in which computing device 100 is coupleable to deflectable portion 30. In an embodiment, deflectable portion 30 can be connected to the side of computing device 100 through an attachment mechanism 35. The attachment mechanism 35 may include communication resources for signaling deflection values to a processor 140 (see FIG. 4) of computing device 100. Alternatively, a peripheral expansion slot (see e.g. 102FIG. 4) may extend communications between a sensor contained within the deflectable portion 30 and a processor of the computing device 100.

#### **[0035]** B. Hardware Components

**[0036]** FIG. 4 is a block diagram of computing device 100, including components for presenting and changing pages on a display. The computing device 100 includes a processor 140 coupled to a first memory 144 and a second memory 146. The processor 140 is coupled to a display driver 122. The processor 140 combines with display driver 122 to process and signal data for presentation on a display 120. A sensor 130 is coupled to processor 140 via an analog-digital (AD) converter 132.

**[0037]** The computing device 100 may include one or more expansion slots. In an embodiment shown, a first peripheral port 102 enables one or more types of accessory devices to be connected to processor 140. In addition, computing device 100 may include a wireless peripheral port 104 that enables information to be communicated to processor 140 from an external source. The wireless peripheral port 104 forwards incoming communications to an amplifier 106 for processor 140. A second processor 108 intercepts communications incoming to and/or outgoing from wireless peripheral port 104 for purpose of facilitating conversion of data signals between formats and protocols of wireless communications, and those that can be processed by processor 140.

**[0038]** The display 120 cooperates with display driver 122 to display paginated content such as text-based information.