in four different directions and sensors cover the surface to its corners, it is not possible to create a line of bend which does not cause at least one of the bend sensors to be activated. In the flexible display shown in **FIG. 2***a*, **FIG. 3***a*, and **FIG. 3***b*, a vertical bend of the display as shown in **FIG. 3***b* will create a change in the values expressed by some of the diagonal sensors (contained in layers L**3** and L**4** of **FIG. 3***a*) and all of the horizontal sensors (layer L**1**), but no change will be registered in the vertical sensors (layer L**2**). In this way, the sensor layers can be used to determine where a bend is located and how the bend is oriented. Similarly, diagonal bends (of approximately 45 degrees) can be detected at the top right and bottom right corners. In the case of corner bends, some of the vertical sensors and some of the horizontal sensors will be activated as shown in **FIG. 3***a*, but the values of sensors which run parallel to the bend will not change. Alternative embodiments could provide sensors along the periphery of the display as in **FIG. 2***b* or use smaller sensors arranged in a grid or some other pattern as in **FIG. 2***c*. Multiple lines of bend may be detected by the line detector **4** in order to provide additional levels of control. These lines may be detected simultaneously if the sensor arrangement permits, as in the sensor grid shown in **FIG. 2***c*, or a single line of bend may be detected at different times, perhaps as its location or orientation changes. [By looking at how the bend changes from one to the next] In an example embodiment, the output from the line detector **4** is a description of each line detected **3**, in terms of position, orientation, and degree of bend. This output can be combined with other sensor values (a touch sensor, for example) to provide additional dimension of control to the display controller **5**.

[**0033**] In the above embodiments, a controller **5** uses the output from the line detector **4** to select and modify user interface elements. Such a controller can feature a set logical rules expressed in hardware or software to unambiguously define what action should be performed given a set of input values which describe the bend or bends exhibited by the flexible display. In one example, the following rules are employed: (1) a vertical bend of at least 20 degrees located to the right of the display centerline selects the item at the end of the list; (2) a vertical bend of at least 10 degrees located to the left of the display centerline selects the item at the beginning of the list; (3) a diagonal 20-degree bend forming a diagonal line (approximately 45 degrees) dividing the bottom right corner from the other portions of the display will scroll forward in the list, selecting a subsequent item every second; (4) a diagonal 20-degree bend forming a diagonal line dividing the top right corner from the other portions of the display will scroll back in the list. In this example, the bend readings are processed once every 0.25 seconds. In this embodiment, the degree of bend determines the speed with which the changes to the display may occur. When a bend of between 20 and 60 degrees is detected, changes to the display are processed once per second. If a bend is greater than 60 degrees is detected, changes to the display will be processed two times per second.

[**0034**] **FIGS. 4***a* and **4***b* show the operation of the display described above before and after the user bends the display to select previous and subsequent items from a list. According to the above embodiment, in **FIG. 4***a*, a bend **3** at the top right corner of the flexible surface **1** of the display causes the controller **5** to select the subsequent item in the list. The image **6** is updated accordingly. **FIG. 4***b* shows a bend **3** at the bottom right of the display, which causes a previous item to be selected. A vertical bend as shown in **FIG. 3***b* would select the very first or very last item in the list, depending on whether the vertical bend was to the left or the right of the display's center.

[**0035**] While changes and variations to the embodiments may be made by those skilled in the display field, the scope of the invention is to be determined by the appended claims.

What is claimed is:

1. A display comprising:

(a) a flexible surface operable to exhibit images, said flexible surface being capable of exhibiting variable degrees of bend;

(b) a plurality of bend sensors for creating a plurality of bend measurements from a line of bend; and

(c) a line detection device operable to detect orientation and position of said line of bend based on said plurality of bend measurements.

2. A display as recited in claim 1, wherein at least one of said bend sensors comprises a strain gauge.

3. A display as recited in claim 2, wherein said strain gauge comprises a peizo-electric bimorph.

4. A display as recited in claim 2, wherein said strain gauge comprises a fiber optic curvature sensor.

5. A display as recited in claim 1, wherein said bend sensors are located along the edges of said display.

6. A display as recited in claim 1, wherein said bend sensors form layers of said flexible surface.

7. A display as recited in claim 1, wherein said line detection device is operable to detect the degree of bend of said line of bend.

8. A display as recited in claim 1, wherein said flexible surface comprises at least one organic light emitting diode.

9. A display as recited in claim 1, wherein said flexible surface comprises at least one liquid crystal display element.

10. A display as recited in claim 1, wherein said display comprises multiple flexible surfaces, each operable to exhibit images.

11. A display as recited in claim 1, said display further comprising a controller operable, when activated, to manipulate an element of said image, said line detecting device being operable to activate said controller.

12. A display as recited in claim 11, wherein said element of said image comprises a scroll bar.

13. A method of controlling the information presented on a display, said display comprising: (1) a flexible surface operable to exhibit images, said flexible surface being capable of exhibiting variable degrees of bend; (2) a plurality of bend sensors for creating a plurality of bend measurements from a line of bend; and (3) a line detection device operable to detect orientation and position of said line of bend based on said plurality of bend measurements, said method comprising the steps of:

(a) obtaining the orientation and position of a line of bend present on said flexible surface; and

(b) making a change to the information displayed by said display in response to the orientation and position of said line of bend present on said flexible surface.

14. A method of controlling the information presented on a display as set forth in claim 13, wherein said line of bend orientation and position are used to control at least one graphical user interface element.