

be automatically activated, according to the configuration settings 250, such that they are functional keys. In this way, automatically activating (i.e., setting the user-input elements 110 to the active condition) enables the “functional keys” to provide at least one command to the application 215, the processing unit 205, or any other appropriate component of the touchscreen device 100. As discussed above, the functional keys can be positioned in a pattern that replicate keys of a standard keyboard, dial pad, etc. Conversely, the remainder of the user-input elements 110 held by the retaining components in the retracted position may be set to the idle condition. This configuration allows a user to enter information at a virtual keyboard on the flexible touchpad 115 of the touchscreen device 100 in a similar fashion to entering information at hardkeys on an actual keyboard that are activated by physical contact.

[0047] Persons familiar with the field of the invention will realize that although the extended orientation 116 and the active condition are described as being coupled, the scope of the invention may embrace various configurations which are different from the specific illustrated embodiment above. Therefore it is emphasized that embodiments of the invention are not limited only to the coupled embodiment but include a wide variety of configurations, which fall within the spirit of the claims. For instance, all the user-input elements 110 may be set to the active condition regardless of their positional state. In another instance, a portion of the user-input elements 110 in the extended orientation 116 and a portion of the user-input elements 110 in the retracted orientation are set to the active condition, thereby decoupling the orientation and condition of the user-input elements 110.

[0048] In a second embodiment, the electromechanical device 210 is a magnetic field-inducing device that employs electromagnetic components (e.g., solenoids, coiled wire, and the like) to manipulate the positional state of each of the user-input elements 110. In operation, the electromagnetic components apply a magnetic field 270 that manipulates the positional state of the user-input elements 110 to an orientation within the range between, and including, the retracted orientation and the extended orientation 116. As such, an infinite number of positional states may be achieved by the user-input elements 110 as governed by the magnetic field 270. As discussed above, these positional states may be coupled to, or decoupled from, the active and idle conditions of the user-input elements 110, based on the configuration setting.

[0049] Although two different configurations of the electromechanical device 210 have been described, it should be understood and appreciated by those of ordinary skill in the art that other devices that manipulate a positional state of the user-input elements 110 could be used, and that the invention is not limited to those electromechanical devices shown and described. For instance, embodiments of the present invention contemplate a purely mechanical device, a purely electrical device, hydraulic devices, pneumatic devices, or any combination thereof.

[0050] As more fully discussed above, the user-input elements 110 are configured to provide a tactile feedback upon receiving the user-initiated actuation 275. In an exemplary embodiment, the user-input elements 110 are movable pins, or pin-shaped members. In an exemplary embodiment, the movable pins are disposed in a substantially perpendicular relationship to the overlaying flexible touchpad 115. Typically, the user-input elements 110 employ a feedback com-

ponent that provides the tactile feedback sensation. In one instance, the feedback component is a spring-loaded mechanism that provides a tactile feedback which simulates a “click” response similar to that generated upon depressing a key of an actual keyboard. In another instance, the feedback component is incorporated in the electromechanical device 210. Additionally, a mild vibration, a low-voltage shock, a visual stimulus presented on the UI display 120, and/or an audible signal may accompany the tactile feedback.

[0051] Generally, some aspects of activating the user-input elements include receiving and processing configuration settings 250 at the electromechanical device 210 and/or user-input elements 110, and enabling or disabling sensing devices disposed on the user-input elements 110 in accordance with instructions within the configuration settings 250. As discussed above, the phrase “configuration settings” is not meant to be limiting, but to encompass a broad scope of script that influences the manipulation and/or function of the user-input elements 110. In one embodiment, the configuration settings 250 include a mapping structure for assigning one or more commands to each of the user-input elements 110 in the active condition. For instance, a group of user-input elements 110 may be set to the active condition (i.e., enabling the sensing devices coupled to each of the group of user-input elements 110) such that the sensing devices attached to the activated group provide a signal when actuated. This signal is associated with a command via the mapping structure. By way of example, if the activated group of user-input elements 110 combine to form a functional “A” key within a physically-extending keypad (see FIGS. 5-7), the signal generated upon actuating the activated group is mapped to a command to “input the alphanumeric key ‘A.’” This command may be routed to the application 215, to the flexible touchpad 115 for displaying “A” on the UI display 120, or to any other component of the touchscreen device 100. Although a single embodiment is discussed above, other embodiments of the present invention contemplate mapping any commands common in the relevant field to the signals generated by enabled sensing devices.

[0052] The flexible touchpad 115 is an elastic component that substantially overlays the user-input elements 110 and is in partial communicative contact therewith. In an exemplary embodiment, the flexible touchpad 115 is a self-illuminating film that projects the UI display 120 without the assistance of backlighting. By way of example, the self-illuminating film is a flexible organic light-emitting diode (FOLED), an organic electroluminescence (OEL), a light-emitting polymer (LEP), or any emissive electroluminescence layer composed of a film or organic compounds. In this way, the flexible touchpad 115 may be a display screen that is adapted to deform when contacted by the user-input elements 110 and render a UI display 120. Accordingly, in operation, the user-input elements 110 in the extended position 116 contact and deform the flexible touchpad 115 such that the flexible touchpad 115 expresses outwardly-extending protrusions 125 associated with the extended user-input elements 110. Meanwhile, flexible touchpad 115 can render the UI display 120 (e.g., presenting media content as indicated by the presentation data 285) above and between the outwardly-extending protrusions 125.

[0053] Further, the flexible touchpad 115 may support input capabilities. For instance, the flexible touchpad 115 comprises a resistive touchscreen that may be triggered by a stylus or actuated by a user’s finger-action, a capacitive touch-