

able display elements or with empty space, and can be stored in the memory of the electronic device. Similarly, each piezoelectric actuator in a grid can be defined by Cartesian coordinates and/or by any other means. The processor can compare the coordinates of the display elements with the location of the input signal. When the location associated with an input signal does not correspond with any user-selectable display element, or with any empty space associated with vibrational characteristics for nearby user-selectable display elements, the electronic device may return to step 812 and wait for another user input. When the location associated with an input signal corresponds to the coordinates of a user-selectable display element of the visual display, or with empty space near a user-selectable display element, the processor determines, based on the vibrational characteristics stored in memory, whether the location of the user input is associated with haptic feedback. Vibrational characteristics can be used to generate actuator control signals that cause one or more piezoelectric actuators to be activated. The actuator control signals can cause one or more piezoelectric actuators to vibrate at, e.g., a particular frequency, amplitude, and/or period as well as for a particular length of time. If the user-selectable display element is associated with vibrational characteristics, process 800 proceeds to step 832.

[0076] At step 832, the processor can provide actuator control signals to feedback circuitry, such as tactile feedback circuitry 710. In response, the electronic device can provide localized haptic feedback. As used herein, the term localized, when used in reference to haptic or tactile feedback, refers to one or more specific piezoelectric actuators being active, causing only a portion of the grid of actuators to vibrate. As discussed above, the haptic feedback response may depend on both the type of user input, the user-selectable display element, etc. Furthermore, the haptic feedback response may be predetermined or may be adjustable by the user. In addition, the haptic feedback may be dynamic and change over time, in response to, e.g., a user's interaction (or lack thereof) and/or the passage of time.

[0077] For example, if the user's finger lightly touches or hovers above an icon on the touchscreen, the appropriate haptic feedback response may be a weak vibration unique to that icon. The user can identify which icon is beneath the user's finger by the haptic feedback response. Once the user has found the desired icon, the user may select the icon by pressing, tapping or removing the finger from the touchscreen.

[0078] At step 834, the processor receives an indication of a user's selection and determines whether a user-selectable display element was selected. In response to the user selecting a display element, the electronic device can generate a response such as, for example, return to step 806 and present the user with a new visual display, emit one or more audio signals, communicate with another electronic device or server, and/or perform any other function.

[0079] One skilled in the art would appreciate that the processes described herein can be modified without departing from the spirit of the present invention.

[0080] The above disclosure is meant to be exemplary and not limiting. Persons skilled in the art will appreciate that there are additional features in accordance with the present invention that have not been discussed in great detail herein. Accordingly, only the claims that follow are meant to set any bounds.

What is claimed is:

1. A method for enabling non-visual use of an electronic device, comprising:
  - presenting a visual display, wherein the visual display includes a virtual button;
  - associating a haptic feedback response with the virtual button; and
  - providing the haptic feedback response enabling a user to feel the location of the virtual button.
2. The method of claim 1, wherein the haptic feedback response is provided while the virtual button is included in the visual display.
3. The method of claim 1 further comprising:
  - receiving an indication of a user's desire to locate the virtual button; and
  - providing the haptic feedback response in response to receiving the indication.
4. The method of claim 3 wherein receiving an indication of a user's desire to locate the virtual button further comprises receiving a touch event.
5. The method of claim 4 wherein the haptic feedback response is provided only in response to a touch event.
6. The method of claim 1 wherein providing the haptic feedback response comprises providing vibrational feedback to the user.
7. The method of claim 1 wherein providing haptic feedback comprises selectively activating a piezoelectric actuator.
8. The method of claim 7 wherein selectively activating a piezoelectric actuator comprises:
  - applying a first control signal to a backplane; and
  - applying a second control signal to a control electrode.
9. The method of claim 7 wherein selectively activating a piezoelectric actuator comprises:
  - applying a first control signal to a first control electrode; and
  - applying a second control signal to a second control electrode.
10. The method of claim 1, wherein providing the haptic feedback response further comprises emitting an audible noise.
11. A method for enabling non-visual use of an electronic device comprising:
  - detecting a touch event; and
  - selectively activating one or more piezoelectric actuators in response to the touch event.
12. The method of claim 11 further comprising applying a first control signal to one electrode of each of the one or more piezoelectric actuators and applying a second control signal to another electrode of each of the one or more piezoelectric actuators.
13. A user input component for an electronic device comprising:
  - a touch-sensitive surface that detects a touch event;
  - a grid of piezoelectric actuators in planar configuration with the touch-sensitive surface; and
  - circuitry configured to selectively activate one or more of the piezoelectric actuators included in the grid of piezoelectric actuators in response to the touch event.
14. The user input component of claim 13, wherein the grid of piezoelectric actuators provides localized haptic feedback.
15. The user input component of claim 13, wherein the grid of piezoelectric actuators comprise:
  - a plurality of transparent electrodes; and