FIG. **34**). The pressure of the finger **356** on the unactivated node can stimulate the node **358**-*b*, causing it to change shape and provide an upward force on the surface **351**. That upward force can be a form of haptic feedback felt by the finger **356** to inform the user that the user's finger did indeed press on the user interface **350**. Other forms of haptic feedback can also be provided by the node, e.g., a vibration, an electrical impulse, and the like. The node **358**-*b* can simply change from an unactivated state to an activated state, thereby helping to lift the finger **356** up. This can give the user physical feedback that the button has been activated. The raised section can now be formed by the activation of nodes **358**-*a*, **358**-*b* (symbolically illustrated by circles with "X" therein).

[0167] In the examples of FIGS. **33** through **35**, the shape changeable nodes **338**, **348**, **358** can be proximate to their respective dynamic surfaces **331**, **341**, **351** that can be stretched, retracted, or otherwise flexed by the underlying nodes. The dynamic surfaces can be replaced with individual nodes or with a shape changeable membrane proximate to the shape changeable nodes. Alternatively, both the shape changeable nodes and the dynamic surfaces can be replaced with the shape changeable membrane that itself changes shape to alter the user interface.

[0168] FIG. **36** illustrates an exemplary touch pad having a user interface that can sense a touch or near touch and change topography according to embodiments of the invention. In the example of FIG. **36**, at least a portion of shape changeable surface **361** can form a scroll wheel having center region **364**, outer region **363**, and boundaries **362**-*a* and **362**-*b* that can physically help define the regions. The shape changeable nodes forming boundaries **362**-*a* and **362**-*b* can be raised and the nodes forming center region **364** and outer region **363** can remain unaltered, as shown by a cross section at line A-A. Because the scroll wheel at the center button **364** or within the outer circle **363** can be associated with inputs, these elements can have active touch regions. A touch can be detected in these regions. By way of example, the center region **364** can represent a center button used for making selection and initiating commands, i.e., by pressing, while the outer region **363** can represent a navigation region for traversing content on a screen, i.e., by swirling a finger about the region. Conversely, because the remaining portions of the shape changeable surface **361**, i.e., outside the outer boundary **362**-*b* can be unassociated with inputs, these portions can have null touch regions. A touch can be ignored in these regions. In some embodiments, shape changeable nodes in these null touch regions can also be deactivated so as not to alter during this user interface state. A computing system can have functions associated with the active touch regions that can execute when the user touches these regions. Because the sensing and shape changeable regions can be dynamic, the shape changeable (protruding, recessed, and flat) and sensed regions (active and null) can be changed from what is shown. That is, the computing system can change shape and sensing capabilities while matching them to different functions, thus, enabling switching from the scroll wheel shown to something different, such as a keypad of a phone.

[0169] FIGS. **37** and **38** illustrate exemplary touch pads having a user interface that can sense a touch or near touch and change topography according to embodiments of the invention. In the example of FIG. **37**, touch pad **370** can have a series of nodes **372** that can change the shape of surface **371**. A cross section at line A-A shows the nodes **372** in the touch pad **370**. The touch pad **370** can form a flat surface. In the example of FIG. **38**, touch pad **380** can similarly have a series of nodes **382** that can change the shape of surface **381** to form circular scroll wheel **384**. The scroll wheel can be formed by selected nodes (indicated by "X" in FIG. **37**, for example). The cross section at line A-A shows the nodes **382**-*a* that can change their state in order to raise user interface surface **381** in select areas or points, thereby forming the scroll wheel **384** and informing the user of the location of the scroll wheel. In one example, the nodes can include an actuator that can push upwards on the inner surface of an elastic or flexible member, thereby raising a select portion of the surface. The actuators can be widely varied. The actuators can for example be formed from a shape changeable material. As mentioned above in FIG. **36**, a touch surface can be controlled with null and activate regions as needed.

[0170] FIG. **39** illustrates an exemplary method of changing the topography of a user interface of a touch pad according to embodiments of the invention. The method can for example be used in any of the examples shown in FIGS. **24** through **38**. In the example of FIG. **39**, a determination can be made about whether an input has been received (**391**). The input can be from a user of a touch sensitive device. For example, the user can input a request to form a particular user interface. The input can also be a touch or near touch on the user interface surface. The input can also be from an application running on the device. For example, a telephone application running on the device can input a command to form a telephone user interface. The input can also be from the device itself. For example, upon powering up, a device can input a command to form a user interface for that particular device type.

[0171] Based on the input, a user interface state can be obtained for a user interface surface having a plurality of nodes with at least touch sensing and shape changeable capabilities (**393**). For example, if a user inputs a request for a keypad, the user interface state can be obtained that indicates a user interface with a keypad should be formed. If a scroll wheel application starts running, the user interface state can be obtained that indicates a user interface with a scroll wheel should be formed. If the device is turned on as a media player, the user interface state can be obtained that indicates a user interface with audio buttons should be formed.

[0172] According to the user interface state, the user interface surface can be physically altered from a first physical layout to a second physical layout, where each layout can represent a mode of an electronic device (**395**). For example, for a keypad state, the user interface surface can physically alter from a flat layout with no buttons to a non-flat layout with numerous keypad buttons to represent a keypad mode of the device.

[0173] The surface can be monitored for a touch or near touch as an input to cause the device to perform an operation (**397**). In some cases, the touch sensors can be monitored at select locations, i.e., areas assigned to receive touch inputs in order to initiate a certain functionality. By way of example, the monitoring circuit can create active and null regions.

[0174] FIG. **40** illustrates a side view of an exemplary user interface that can change topography using a shape changeable membrane according to embodiments of the invention. In the example of FIG. **40**, user interface **400** can include dynamic surface **401**. The dynamic surface **401** can be a layer or a matrix of shape changeable material that can elongate, shrink, or rotate to change shape when selectively stimulated. The amount that the surface **401** changes shape can be con-