

[0042] In a third example of the second variation, as shown in FIG. 9, the user interface may provide an interface on the device 10 that allows the user to provide a preference for the operation of the device, for example, vibrating and/or producing a sound when a particular region 113 is deformed or when a particular application of the device is actuated. This is particularly applicable to retrieving a user preference for the operation of the device in Step S133.

[0043] In a fourth example of the second variation, the user interface may allow the user to select the desired location for a particular region. For example, in the variation where the device 10 includes an application which uses a keyboard, the user interface may prompt the user to select the desired location for each key in a keyboard instead of providing options to the user for the location of each key in the keyboard. The user may alternatively be asked to place the fingers of their hand in the most natural position onto the tactile interface layer 100. The location of each finger is detected and the cavity 125 and particular region of the surface 113 that is substantially adjacent to the location of the finger is then selected as the location of the keyboard key.

[0044] In a third variation of the user interface, the user interface may be provided on a device that is external to both the device 10 and the tactile interface layer 100. For example, the user interface may be provided an application on the Internet, on a personal computer, or any other suitable medium.

[0045] The user interface of the preferred embodiments is preferably one of the variations described above, but may alternatively be a combination of the variations described above. For example, the user interface may provide a slider on the device 10 that functions to control the characteristic of an "example region" on the tactile interface layer 100, allowing the device 10 and the tactile interface layer 100 to cooperatively provide a user interface to the user. The device may also provide a visual indicator (for example, a numerical level setting) that indicates the level of a particular setting. This may facilitate in communicating setting options to the user. However, any other suitable user interface may be used.

[0046] As shown in FIGS. 1 and 2, a processing unit retrieves a user preference that is provided by the user on the user interface S130 and sets the user preferences to the operating conditions S140. The processing unit may actuate the manipulation of the volume of fluid based on the user preferences to the operation of the tactile interface layer S132, the operation of the device S133, and/or the interaction between the device and the tactile interface layer S134. In a first variation, the processing unit may be included into the tactile interface layer 100 and may also function to control the displacement device 130, sensor 140 and/or the display 150. The processing unit may communicate directly with the components of the tactile interface layer 100 (e.g. the displacement device 130), but may alternatively communicate with the components of the tactile interface layer 100 in any other suitable manner. The processing unit of this first variation may function to communicate with a processing unit of the device 10 to receive signals representing user selections.

[0047] In a second variation, the processing unit may be included into the device 10 and may also function to control the applications of the device 10. The processing unit of this second variation may communicate directly with the components of the tactile interface layer 100 (e.g. the displacement device 130, but may alternatively communicate to the components of the tactile interface layer 100 in any other suitable

manner. The processing unit of this second variation may communicate with the components of the tactile interface layer 100 through a wired communication protocol, a wireless communication protocol, or any other suitable kind of communication protocol.

[0048] In a third variation, the processing unit may be external to both the tactile interface layer 100 and the device 10, for example, a personal computer that is communicably coupled to the tactile interface layer 100 and/or the device 10. In this variation, when the user desires to provide and/or apply user preferences to operating conditions, the device and/or the tactile layer 100 may be connected to a personal computer that may include an interface that allows the user to provide a user preference.

[0049] The processing unit of the preferred embodiments is preferably one of the variations as described above, but may alternatively be any combination of the above variations. For example, the tactile interface layer 100 may include a processing unit that functions to control the tactile interface layer 100 and the device 10 may include a processing unit that functions to control the device 10. The processing units of the tactile interface layer 100 and the device 10 may function to communicate with each other to provide control for an operating condition. In this variation, the processing unit of the tactile interface layer 100 may communicate with the processing unit of the device 10 through a wired communication protocol, a wireless communication protocol, or any other suitable kind of communication protocol. However, any other suitable arrangement of the processing unit may be used.

[0050] As a person skilled in the art will recognize from the previous detailed description and from the figures and claims, modifications and changes can be made to the preferred embodiments of the invention without departing from the scope of this invention defined in the following claims.

We claim:

1. A method, for adjusting a user interface of a device, comprising:

providing a user interface comprising:

a substrate comprising an attachment face and a plurality of support members continuous with the attachment face, each support member including a fluid channel configured to communicate fluid through the support member, the substrate defining a fluid network fluidly coupled to a portion of the fluid channels;

a tactile layer comprising an outer tactile surface and a back surface opposite the tactile surface, the back surface coupled to the attachment face at an undeformable region of the tactile layer, the back surface adjacent to and disconnected from the support members at a plurality of deformable regions of the tactile layer, each deformable region of a thickness at least as great as a width dimension of a corresponding fluid channel, each support member configured to limit inward deformation of a corresponding deformable region due to a force applied to the tactile surface; and

a displacement device configured to displace fluid through the fluid network and toward the back surfaces of a portion of the deformable regions to transition each of the portion of deformable regions from a retracted setting to an expanded setting, each deformable region defining a tactile guidance at the tactile surface in at least one of the retracted and expanded settings;