

tered only if the finger is at a certain distance away from the touch sensitive display, preferably one wherein the distance is less than the distance between the most distant point of the deformation of the particular region **113** from the surface **115**, allowing the user to rest their finger on the deformation and the sensor **140** only registering a user input when the deformation is inwardly deformed by force applied by the user. In the variation wherein the sensor **140** is a capacitive or a pressure sensor, the sensitivity of the sensor **140** may be adjusted such that a user input is registered with a certain degree of change in capacitive or pressure reading. However, any other suitable adjustment to the sensitivity of the sensor **140** may be provided to the user.

[0027] In another example of adjusting the operation of the sensor **140**, readings from the sensor **140** may be ignored and/or the sensor **140** may be disabled. In the variation wherein the sensor **140** is a touch sensitive display, certain portions of the touch sensitive display may be disabled and/or readings from certain portions of the touch sensitive display may be ignored. For example, for certain usage scenarios, the particular region **113** that is deformed may be on a first portion of the touch sensitive display. The user may input a user preference to disable the remaining portions of the touch sensitive display to prevent undesired touch inputs, but may alternatively allow the remaining portions of the touch sensitive display to continue to receive touch inputs, allowing the user to select options that are displayed in a location wherein the particular region **113** is not deformed. However, any other suitable combination of ignored readings, disabled sensing, and/or enabled sensing may be used.

[0028] A third variation of manipulating the volume of fluid to deform a particular region of the surface based on the user preference for the operation of the tactile interface layer **S142** preferably includes manipulating the volume of fluid to deform a particular region of the surface independently of the state of the display **140** and is preferably applied to the seventh variation of a user preference of the first embodiment to set a user preference for a tactilely distinguishable formation independent of the operation of the display **150**. For example, the user preference may include disabling the display **150** while enabling the sensor **140**. Subsequently, the volume of fluid is manipulated to expand a particular region of the surface. Because the tactile interface layer **100** provides tactile guidance, the visual guidance provided by the display **150** is not necessary in certain scenarios to guide the user in the user of the device **10**. Disabling the display **150** allows the device **10** to conserve energy, potentially extending the use time per charge of the device **10** if the device **10** is a portable device such as a camera or a cellular phone.

[0029] The user preferences for the operation of the tactile interface layer **100** retrieved in Step **S132** are preferably one of the variations as described above but may alternatively be any other suitable combination of or any other kind of user preference for the operation of the tactile interface layer **100**. The volume of fluid is preferably manipulated in Step **S142** using a system or method described above, but may alternatively be a combination of the systems and/or methods described above or any other suitable system or method.

## 2.2 User Preference of a Second Embodiment

[0030] A user preference for the interaction between the device and the tactile interface layer retrieved in Step **S132** may also be of one of several variations. In a first variation, the user preference of the second embodiment may be a prefer-

ence for the location of the particular region **113** relative to the device **10**. For example, the user may indicate the location of the particular region **113** relative to the device **10** that best fits the size of his or her hand. In a second variation, the tactile interface layer **100** may include a second cavity **125b** that corresponds to a second particular region **113**, and the user preference of the second embodiment may be a preference for the location of a particular region **113** relative to another particular region **113**. For example, the displacement device **130** may manipulate fluid to deform a plurality of particular regions **113** into tactilely distinguishable formations that cooperatively represent a keyboard layout and the user preference may be a preference for the relative location between the keys of the keyboard, as shown in FIGS. **6a** and **6b**. By allowing the user to provide a preference for the relative location between the keys of the keyboard the tactile interface layer **100** is substantially customized to each individual user, which may increase the usability of the keyboard and may potentially decrease the risk of repetitive stress syndrome.

[0031] A third variation of a user preference of the second embodiment may include a preference for the timing of the actuation of a deformation. As an example, the user preference may include the preference for actuation of a deformation when a particular application of the device is actuated. The tactile interface layer **100** may define a plurality of particular regions **113** that cooperatively represent a numeric keypad and device **10** may include a phone application and the user preference may be to actuate the deformation of the plurality of particular regions **113** when the phone application is actuated. In another example, the displacement device **130** may manipulate fluid to deform a plurality of particular regions **113** into tactilely distinguishable formations that cooperatively represent a QWERTY keyboard and the device **10** may include a typing application and the user preference may be to actuate the expansion of the QWERTY keyboard when the user initiates a typing application. In yet another example, the displacement device **130** may manipulate fluid to deform a plurality of particular regions **113** into tactilely distinguishable formations and the user preference may include a preference for the actuation of the deformation of a particular tactilely distinguishable formation at a particular timing. The plurality tactilely distinguishable formations cooperatively represent a keyboard and the user preference preferably includes a preference for a tactilely distinguishable region representing a particular key.

[0032] The user preference for interaction between the device **10** and the tactile interface layer **100** retrieved in Step **S134** is preferably one of the variations as described above but may alternatively be any other suitable combination of or any other kind of user preference for the operation of the device **10** and/or interaction between the device **10** and the tactile interface layer **100**.

[0033] The volume of fluid is preferably manipulated in Step **S144** using a system or method described above for the step of manipulating the volume of fluid to deform a particular region of the surface Step **S142**, but may alternatively be a combination of the systems and/or methods described above or any other suitable system or method. The manipulation of the fluid is preferably actuated by a processing unit of the device **10**, for example, actuating the expansion of the desired cavity **125** during certain usage scenarios such as incoming