ence of only two fingers indicates that the touch is a gestural touch. In other cases, any number of more than two fingers indicates that the touch is a gestural touch. In fact, the gestural touch may be configured to operate whether two, three, four or more fingers are touching, and even if the numbers change during the gesture, i.e., only need a minimum of two fingers at any time during the gesture.

[0080] Following block **1106**, the zoom gesture method **1100** proceeds to block **1108** where the distance between at least the two fingers is compared. The distance may be from finger to finger or from each finger to some other reference point as for example the centroid. If the distance between the two fingers increases (spread apart) at **1110**, a zoom-in signal is generated at **1112**, otherwise a zoom out signal is generated at block **1114**. The zoom-in signal, in turn, causes the haptic devices associated with the two fingers to provide a zoom-in haptic signal at **1116**. Such a zoom in haptic signal can be, for example, faster (or slower) or more intense (or less intense) vibration as the distance between the two fingers increases. If the distance between two fingers decreases (close together), the zoom-out signal generated at block **1114** can cause the haptic devices associated with the two fingers to provide a zoom out haptic signal at **1118**.

[0081] In most cases, the set down of the fingers will associate or lock the fingers to a particular GUI object being displayed. For example, the touch sensitive surface can be a touch screen, and the GUI object can be displayed on the touch screen. This typically occurs when at least one of the fingers is positioned over the GUI object. As a result, when the fingers are moved apart, the zoom-in signal can be used to increase the size of the embedded features in the GUI object and when the fingers are pinched together, the zoom-out signal can be used to decrease the size of embedded features in the object. The zooming typically occurs within a predefined boundary such as the periphery of the display, the periphery of a window, the edge of the GUI object, and/or the like. In some cases, a haptic effect can be provided giving the user a warning that the predefined boundary is being approached. The embedded features may be formed on a plurality of layers, each of which represents a different level of zoom. In most cases, the amount of zooming and the associated haptic effect varies according to the distance between the two objects. Furthermore, the zooming typically can occur substantially simultaneously with the motion of the objects. For instance, as the fingers spread apart or closes together, the object zooms in or zooms out at the same time and the corresponding haptic effect will change. Although this methodology is directed at zooming, it should be noted that it may also be used for enlarging or reducing. The zoom gesture method **1100** may be particularly useful in graphical programs such as publishing, photo, and drawing programs.

[0082] FIGS. **12**A-**12**H illustrate a zooming sequence using the method described above. FIG. **12**A illustrates a display presenting a GUI object **1202** in the form of a map of North America with embedded levels which can be zoomed. In some cases, as shown, the GUI object is positioned inside a window **1204** that forms a boundary of the GUI object **1202**. Also shown are the haptic profiles for each of the fingers relating the distance d between the two fingers to the corresponding haptic response H(d) experienced at each finger. It should be noted that in this example, the magnitude of the haptic response H(d) at each finger is denoted by the size of the circle for each response. In this case, as the distance between the two fingers increases, the haptic effect H for each finger increases linearly with distance d. For example, when the two fingers are close together as in FIG. **12**B, the haptic effect H is quite small as evidenced by the small size of the circle whereas as the two fingers move apart, the haptic effect H becomes progressively stronger at each finger. It should be noted that for the sake of simplicity only, the haptic profile H(d) is presumed linear for zooming in/out and non-linear for the rotation gesture shown in FIG. **12**F. In the described embodiment, as the zoom factor increases, the haptic profile H(d) can change by, for example, the slope becoming more steep as the resolution of the underlying map increases as shown in FIG. **12**G. FIG. **12**B illustrates a user positioning their fingers **1206** over a region of North America **1202**, particularly the United States **1208** and more particularly California **1210**. In order to zoom in on California **1210**, the user starts to spread their fingers **1206** apart as shown in FIG. **12**C. As the fingers **1206** spread apart further (distance increases) the haptic effect felt by the two fingers changes as the map zooms in further on Northern California **1212**, then to a particular region of Northern California **1214**, then to the Bay area **1216**, then to the peninsula **1218** (e.g., the area between San Francisco and San Jose Area), and then to the city of San Carlos **1220** located between San Francisco and San Jose as illustrated in FIGS. **12**D-**12**H. In order to zoom out of San Carlos **380** and back to North America **368**, the fingers **366** are closed back together following the sequence described above, but in reverse (along with the corresponding haptic effect).

[0083] FIG. **13** is a diagram of a GUI operational method **1300**, in accordance with one embodiment of the present invention. The method generally begins at block **1302** where a virtual scroll wheel is presented on the display. In some cases, the virtual scroll wheel can include a virtual button at its center. The virtual scroll wheel is configured to implement scrolling as for example through a list and the button is configured to implement selections as for example items stored in the list. Following block **1302**, the method proceeds to block **1304** where the presence of at least a first finger and more particularly, first and second fingers (to distinguish between tracking and gesturing) over the virtual scroll wheel is detected on a touch screen. The touch screen is positioned over or in front of the display. By way of example, the display can be an LCD and the touch screen can be a multi-touch touch screen. Following block **1304**, the method proceeds to block **1306** where the initial position of the fingers on the virtual scroll wheel is set. By way of example, the angle of the fingers relative to a reference point can be determined (e.g., 12 o clock, 6 o clock, etc.).

[0084] Following block **1306**, the method **1300** proceeds to block **1308** where a rotate signal is generated when the angle of the fingers change relative to the reference point. In most cases, the set down of the fingers associate, link or lock the fingers (or finger) to the virtual scroll wheel when the fingers are positioned over the virtual scroll wheel. As a result, when the fingers are rotated, the rotate signal can be used to rotate the virtual scroll wheel in the direction of finger rotation (e.g., clockwise, counterclockwise) at **1310** as well as provide an audible as well as palpable "click" at **1312** using at least two haptic actuators at **1310** to provide a physical sensation at the two fingers concurrently with the audible click simulating the "feel" of the click. In most cases, the amount of wheel rotation varies according to the amount of finger rotation, i.e., if the fingers move 5 degrees then so will the wheel. Furthermore, the rotation typically occurs substantially simultaneously