and wall **390** themselves may have conductive areas and non-conductive areas so as to form an array of pairs of opposing capacitor plates.

[0084] There is a fixed separation between the opposite capacitor plates of each pair when track pad **310** is not being depressed. This is important because the capacitance, C, between two plates is a function of their separation. Departures from the initial separation will cause a change in capacitance, ΔC, which can be detected and processed by device **300**. In this embodiment the first pair of capacitive plates **340** are characterized by C_1 and ΔC_1, the second pair of capacitive plates **350** are characterized by C_2 and ΔC_2, and the third pair of capacitive plates **360** are characterized by C_3 and ΔC_3. In the case of a three by three matrix **330** there will be nine capacitances C_1, C_2, C_3, C_4, C_5, C_6, C_7, C_8, C_9 involved as shown in FIG. **16**. As discussed above, the zero-pressure capacitances between pairs of capacitive plates in track pad **310** (e.g., pairs **340**, **350**, and **360**) may be updated to account for changes due to other factors such as temperature, humidity, age of components, etc.

[0085] Invisible track pad **310** operates in much the same way that invisible slider **110** does, except now a matrix of nine capacitances (for a three by three matrix shown in FIGS. **14-16**) and nine changes in capacitance is generated and processed when a user presses down on the surface of track pad **310**. If a user presses down right on top of capacitor plate pair **350**, a larger change in capacitance ΔC_2 will result. Changes in the other eight capacitances (see FIG. **16**), will be relatively smaller; this allows device **300** to infer the location of the user's finger on track pad **310** as being generally in the middle of the pad. As another example, if the user presses down on the bottom right hand corner of track pad **310**, ΔC_7 will be large, ΔC_1, ΔC_2, and ΔC_8 associated with the nearest neighbor capacitor plate pairs may be moderate, while the other five changes in capacitances will be relatively low (or zero). This allows device **300** to infer that the finger is generally on the bottom right side of track pad **310**. And so on. In this way, track pad **310** can command a tracking function. Using even more pairs of capacitor plates, for example a ten by twelve matrix, gives device **300** greater positional resolution but the overall concept remains the same.

[0086] As with conventional track pads, invisible track pad **310** can also compute the speed of an object scrolling over its surface, and it can also employ multi-touch technology. Multi-touch consists of a touch surface (track pad, screen, table, wall, etc.), as well as software that recognizes multiple simultaneous touch points, as opposed to the standard touch-screen (e.g., computer touchpad, ATM), which recognizes only one touch point.

[0087] In some embodiments, it may not be desirable to have track pad **310** visible or invisible all the time. As previously mentioned, although frame **320** may have markings (e.g., paint, texture) to indicate the location of track pad **310**, these markings would be visible all of the time and detract from the aesthetic simplicity of frame **320**. To selectively control the visibility of track pad **310**, tiny micro-perforations or holes (not shown) can be formed in frame **320** in the area of track pad **310**. Track pad **310** can be selectively backlit to highlight its location by, for example, shining light through the invisible holes. In one embodiment, a light source, for example a light emitting diode (LED) can be placed on surface **390** under the location of track pad **310**. As shown in FIG. **17**, the location of track pad **310** is visible when the backlight (LED) is activated.

[0088] In one embodiment, the backlight (e.g., LED) can be activated whenever device **300** is "on." In another embodiment, the backlight can be activated as a function of an operating state of device **300**, for example, when a CD-ROM is inserted, when a memory stick is inserted, and so on, depending on the nature of electronic device **300**. In another embodiment, the backlight can be activated as a function of ambient lighting conditions, for example, in low light (dark) conditions. In this embodiment, a light sensor (not shown) may interface with the backlight (LED). In another embodiment, the backlight can be activated continuously. In another embodiment, the backlight can be activated when a user taps or presses down on track pad **310**. In another embodiment, a motion sensor (not shown) may interface with the backlight and activate it when motion is detected. In another embodiments heat and/or sound sensors (not shown) can interface with and activate the backlight when heat and/or sound is detected.

[0089] A pattern (similar to pattern **22** shown in FIG. **5**B) of holes can be disposed on frame **320** to indicate the borders of track pad **310**. This pattern can be formed by, for example, laser cutting through frame **320**. These holes may be formed such that they are too small for the unaided human eye to detect; therefore, they appear to be invisible. However, light shining through these holes is visible to the naked eye. This gives the impression that track pad **310** can be made visible or invisible at will.

[0090] The measurable changes in capacitance caused by changing the separation between two capacitor plates, for example plates **80** and **85** (FIGS. **2-4**), capacitor plate pairs **170/175** and **180/185** (FIGS. **7-10**), and capacitor plate pairs **340**, **350**, and **360** (FIGS. **14-16**) is known as "mutual capacitance." Mutual capacitance is but one general method for measuring capacitance. Another general method is to measure the capacitance between a single capacitor plate and a ground reference. This is known as "capacitance-to-ground." This can effectively cut in half the number of capacitor plates necessary in the present invention, as long as there is a ground reference associated with the remaining capacitor plate(s). Each of these methods involve changing a separation between a capacitor plate and some other "capacitive reference." In the mutual capacitance method, the capacitive reference is a second capacitor plate; in the capacitance-to-ground method, the capacitive reference is a ground reference. As used herein, a "capacitive reference" is either a capacitor plate or a ground reference.

[0091] As used herein, the term "ground" does not imply an actual connection to the Earth. Rather, a ground is commonly idealized in the electrical arts as an infinite source or sink for charge, which can absorb an unlimited amount of current without changing its potential. Of course, this is only an idealization, and as such, many surfaces can be considered a "ground" for purposes of the present invention. The term "ground" is to be broadly construed. In one embodiment, the frame of an electronic device can serve as a ground reference. In another embodiment, a ground reference can be disposed on the frame of an electronic device.

[0092] The capacitance-to-ground method can be used in place of the mutual capacitance methods discussed above. In one embodiment, invisible button **20** discussed with reference to FIGS. **1-5** can use capacitance-to-ground instead of mutual capacitance. In this embodiment, either of capacitor plates **80** or **85** can be removed and replaced by a ground reference. The capacitance from the remaining capacitor