

11. The portable electronic appliance as defined in claim 10 wherein the keypad further comprises:

a switch substrate disposed beneath the impedance sensing means;

a plurality of mechanical switches, each switch disposed beneath a corresponding aperture through the impedance sensing means, and beneath a post of each of the plurality of keys; and

a dome disposed over each of the plurality of mechanical switches.

12. The portable electronic appliance as defined in claim 11 wherein the switch substrate further comprises light emitting means disposed thereon, to thereby provide illumination to the plurality of keys.

13. The portable electronic appliance as defined in claim 12 wherein the light emitting means further comprises a plurality of light emitting diodes (LEDs) disposed adjacent to each of the plurality of mechanical switches.

14. The portable electronic appliance as defined in claim 13 wherein the light emitting means further comprises a plurality of electroluminescent panels.

15. The portable electronic appliance as defined in claim 14 wherein the light emitting means further comprises a single electroluminescent panel having a plurality of apertures therethrough, one for each of the plurality of mechanical switches.

16. The portable electronic appliance as defined in claim 15 wherein the impedance sensing means is transparent.

17. The portable electronic appliance as defined in claim 16 wherein the impedance sensing means is translucent.

18. The portable electronic appliance as defined in claim 17 wherein the first electrode grid and the second electrode grid are comprised of conductive ink.

19. The portable electronic appliance as defined in claim 18 wherein the conductive ink is further comprised of indium-tin-oxide.

20. The portable electronic appliance as defined in claim 19 wherein the impedance sensing means further comprises:

a first electrode grid disposed on a touchpad substrate;

a first dielectric insulating layer disposed thereover;

a second electrode grid disposed on the first dielectric insulating layer;

a second dielectric insulating layer disposed thereover; and

a touchpad circuit coupled to the first electrode grid and the second electrode grid, wherein the touchpad circuit utilizes a disturbance in mutual capacitance between the first electrode and the second electrode grid to detect an object in proximity to the impedance sensing means.

21. The portable electronic appliance as defined in claim 20 wherein the touchpad substrate further comprises a transparent material.

22. The portable electronic appliance as defined in claim 21 wherein the touchpad substrate further comprises a translucent material.

23. The portable electronic appliance as defined in claim 22 wherein the touchpad substrate is comprised of a material

that has a temperature coefficient that is higher than solder, to thereby enable the disposing of electronic circuits directly to the touchpad substrate.

24. The portable electronic appliance as defined in claim 23 wherein the touchpad substrate is comprised of a material that has a temperature coefficient that is higher than solder, to thereby enable etching of metallic traces to the touchpad substrate.

25. The portable electronic appliance as defined in claim 24 wherein the touchpad substrate is selected from the group of materials comprised of polyethylene naphthalate (PEN), polyester film, and polyethylene terephthalate (PET).

26. The portable electronic appliance as defined in claim 25 wherein the impedance sensing means further comprises:

the first electrode grid with electrodes arranged so as to be linear, but forming an arc along a portion thereof when needed to move around an aperture in the touchpad substrate; and

the second electrode grid with electrodes arranged so as to be linear, but forming an arc along a portion thereof when needed to move around an aperture in the touchpad substrate.

27. The portable electronic appliance as defined in claim 26 wherein the electronic circuits of the impedance sensing means further comprise utilizing offset values in order to compensate for arcs in the first electrodes or the second electrodes, to thereby accurately determine a location of a finger in proximity of the impedance sensing means.

28. The portable electronic appliance as defined in claim 27 wherein the electronic circuits of the impedance sensing means further comprise utilizing offset values in order to compensate for non-uniform spacing between the first electrodes, and to compensate for non-uniform spacing between the second electrodes.

29. The portable electronic appliance as defined in claim 28 wherein the second type of user input from impedance sensing means further comprises touchpad functionality including scrolling, tapping, double-tapping, and cursor control.

30. The portable electronic appliance as defined in claim 29 wherein the portable electronic appliance further comprises a second impedance sensing means disposed therein, the second impedance sensing means having limited touchpad functionality.

31. The portable electronic appliance as defined in claim 30 wherein the second impedance sensing means is capable of providing scrolling functionality.

32. The portable electronic appliance as defined in claim 31 wherein the portable electronic appliance is selected from the group of portable electronic appliances including mobile telephones, personal digital assistants (PDAs), laptop computers, and tablet personal computers (PCs).

33. A method for providing a portable electronic appliance that combines touchpad functionality with discrete keys, said method comprising:

(1) providing a keypad having a plurality of keys, wherein each of the plurality of keys is arranged so as to actuate a respective mechanical switch so as to provide a first type of user input; and

(2) providing an impedance sensing means disposed integrally with the keypad so as to provide a second type of user input.