

- a two-dimensional array of the sensing devices of claim 2 arranged on the surface with their output nodes connected together and sharing the same current-to-voltage translation device;
- control circuitry for sequentially enabling each of the sensor devices;
- voltage measurement circuitry to convert sensor data to a digital code; and
- circuitry for communicating the digital code to another electronic device.
- 9.** A multi-touch surface apparatus for detecting a spatial arrangement of multiple touch devices on or near the surface of the multi-touch apparatus comprising:
- one of a rigid or flexible surface;
 - a plurality of two-dimensional arrays of the sensing devices of claim 1 arranged on the surface in groups wherein the sensing devices within one group have their output nodes connected to corresponding sensing devices within other groups and share the same integrating capacitor, charge depletion switch, and voltage-to-voltage translation circuitry;
 - control circuitry for enabling a single sensor device from each two-dimensional array;
 - means for selecting the sensor voltage data from each two-dimensional array;
 - voltage measurement circuitry to convert sensor voltage data to a digital code; and
 - circuitry for communicating the digital code to another electronic device.
- 10.** The multi-touch surface apparatus of claim 9, wherein the sensor voltage data selecting means comprises one of a multiplexing circuitry and a plurality of voltage measurement circuits.
- 11.** A multi-touch surface apparatus for detecting a spatial arrangement of multiple touch devices on or near the surface of the multi-touch apparatus comprising:
- one of a rigid or flexible surface;
 - a plurality of the sensing devices of claim 1 arranged on the surface;
 - control circuitry for sequentially enabling each of the sensor devices;
 - voltage measurement circuitry to convert sensor data to a digital code; and
 - circuitry for communicating the digital code to another electronic device.
- 12.** A plurality of the multi-touch surface apparatuses of claim 7 arranged in the shape of one of a cube, a sphere, or any other three dimensional shape.
- 13.** The multi-touch surface apparatus of claim 7, wherein the surface comprises a micro-dimensional surface.
- 14.** The multi-touch surface apparatus of claim 7 being one of fabricated on or integrated with a display device.
- 15.** The multi-touch surface apparatus of claim 14, wherein the display device comprises one of a liquid crystal display (LCD) or a light-emitting polymer display (LPD).
- 16.** A multi-layer cover apparatus for the multi-touch surface apparatus of claim 7, comprising:
- a compliant dielectric layer;
 - a deformable conductive layer formed on the dielectric layer, the conductive layer being electrically coupled to the voltage or current measurement device; and
 - a touch layer formed on the conductive layer.
- 17.** A cover apparatus for a capacitive sensor array, comprising:
- a compressible dielectric layer having conductive fibers therein, the conductive fibers being oriented normal to the sensor array for conducting the capacitive effect of a touch device to the sensor array.
- 18.** The multi-touch surface apparatus of claim 7, wherein the apparatus is ergonomically arched.
- 19.** The multi-layer cover apparatus of claim 16, wherein the touch layer has a symbol set printed thereon that can be removed and replaced with an alternative symbol set.
- 20.** The multi-touch surface apparatus of claim 7, wherein the apparatus includes hand configuration visual indicators.
- 21.** The multi-touch surface apparatus of claim 7, wherein the apparatus includes hand configuration audio indicators.
- 22.** A multi-touch surface apparatus comprising a surface having, for each hand, a shallow depression running between the default index and pinky fingertip locations to provide tactile indication of fingertip home positions.
- 23.** The multi-touch surface apparatus of claim 22, wherein the surface includes for each hand a shallow depression in the shape of an oblique oval at the default thumb position to provide tactile indication of thumb home position.
- 24.** A multi-touch surface apparatus comprising key region positions indicated by a raised dot near the center of selected regions, the raised portion of the dot being made from a conductive material to prevent weakening of a finger proximity signal as a finger is pushed up by the dot.
- 25.** A multi-touch surface apparatus for sensing diverse configurations and activities of touch devices and generating integrated manual input to one of an electronic or electro-mechanical device, the apparatus comprising:
- an array of the proximity sensing devices of claim 1;
 - a dielectric cover having symbols printed thereon that represent action-to-be-taken when engaged by the touch devices;
 - scanning means for forming digital proximity images from the array of sensing devices;
 - calibrating means for removing background offsets from the proximity images;
 - recognition means for interpreting the configurations and activities of the touch devices that make up the proximity images;
 - processing means for generating input signals in response to particular touch device configurations and motions; and
 - communication means for sending the input signals to the electronic or electro-mechanical device.
- 26.** A multi-touch surface apparatus for sensing diverse configurations and activities of fingers and palms of one or more hands near the surface and generating integrated manual input to one of an electronic or electro-mechanical device, the apparatus comprising: