any given time is the state of all of the 32 switches formed by the intersection of the 4 rows and 8 columns. Unlike some "touch switches", the QT60320 sensor does not require passing electrical "leakage" currents through the object being detected. Thus, the conductive wire or foil matrix can be completely enclosed behind glass, plastic, or other material that is not electrically conductive. A true "touch", meaning direct contact to the conductive components, is not required. The switch is known as a touch switch because close proximity is required, and for practical purposes this may be indistinguishable from a touch, though electrically this non-contact technique has safety (e.g. freedom from electrical leakage currents) and reliability advantages (e.g. immunity to electrostatic discharge).

[0046] Referring to **FIG. 9, a** sensor **200** includes a conductive matrix **202** arranged around the periphery of a 32 cm diameter core, illustrated as a plastic ring **204**. The 4 "rows" correspond to 4 circular segments, each covering a nominally 90° arc and denoted by "X", as shown in **FIG. 10**, which illustrates an "X" segment (covers 90°). Example dimensions are: E=27.52 cm, F=5 mm, G=8 cm, H=2 mm, I=3.3 cm, J=5 mm, and K=0.5 mm.

[0047] Referring to **FIG. 11**, within each 90° arc, there are eight smaller segments each covering a nominally 11.25° arc and labeled as "Y". Example dimensions are: L=3.3 cm, M=2 mm, N=3 mm, O=1.5 mm, P=1 mm, Q=5 mm, R=1 mm, S=2.5 mm, T=2.5 mm, U=1 mm, V=5 mm, and W=1.5 mm.

[0048] Each Y segment has a serpentine shape that is intertwined among "fingers" from the X segment. When an object such as a hand or finger (labeled FINGER in **FIG. 11**) comes into close proximity with the sensor surface, the object typically covers several of the X "fingers", and thus couples the electromagnetic fields of the corresponding X and Y segments. This coupling of electromagnetic fields closes, or turns ON, the switch associated with the intersection of the corresponding X and Y segments.

[0049] **FIG. 12** is a schematic illustration of a sensing circuit arrangement for 32-segment sensor **200**. Sensor **200** is coupled to a matrix switch **206**, which in the example embodiment is the QT 60320 switch commercially available from Quantum Research Group, United Kingdom. Switch **206** is coupled to a processor illustrated as a personal computer (PC) **208** via a serial (RS232) interface board **210**. Of course, other communication links can be used. The processor need not be a PC, however, and can be any device capable of performing the processing function described herein in connection with the PC. Personal computer **208** configures and calibrates switches **206**. Nominally, each switch is identically configured to provide uniform sensitivity. However, different switches may be configured differently depending on the particulars of the application, or to account for variability in different "switches" if the geometry of the "switches" is different. The output of sensor **200** is the discrete status (i.e. ON or OFF) of each of the 32 switches. This information is read approximately every 50 ms and processed by personal computer **208**. The ON/OFF information from each switch is processed on the personal computer using the vector addition algorithm described above. Switch status is displayed on a display **212** of computer **208**.

[0050] Unlike the 8-segment prototype, the 32 segment arrangement does not provide distance information about surrounding objects. Thus the vector addition algorithm involves adding the angles of those "switches" which are on, and computing the direction of the move based on this angular information. The speed of the move is some nominal value appropriately chosen for the equipment being controlled.

[0051] In **FIG. 12, a** display **212** of the move direction as computed by the vector addition algorithm is shown. Such display **212**, of course need not be present. The direction of the motion would be in the direction as indicated by the arrow.

[0052] While the invention has been described in terms of various specific embodiments, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the claims.

What is claimed is:

1. A system for controlling a position of medical equipment, said system comprising:

at least one sensor configured to be coupled to the medical equipment and responsive to an operator input representative of a desired movement of the equipment; and

a processor coupled to said sensor for determining at least one of a direction and speed in which the operator desires the equipment to move based on a sensor output.

2. A system according to claim 1 wherein said sensor comprises at least one of a capacitance sensor, an infrared sensor, and an ultrasonic sensor.

3. A system according to claim 1 wherein a plurality of sensors are coupled to the equipment and outputs from said sensors are processed by said processor to determine a speed and a direction in which the equipment is to be moved.

4. A system according to claim 3 wherein said processor is programmed to generate composite move vector values by vectorially adding said sensor outputs.

5. A system according to claim 1 wherein said sensor comprises a capacitance sensor, said sensor being one of a proximity sensor and a touch based sensor.

6. A system according to claim 1 wherein the medical equipment comprises at least one of an X-ray machine, computed tomography machine, a positron emission tomography machine, a magnetic resonance machine, and an ultrasound machine.

7. A sensor comprising a core having an outer surface, a plurality of sensing areas on said outer surface, each said sensing area responsive to operator input for generating a signal representative of the operator input.

8. A sensor according to claim 7 wherein said core comprises plastic, and wherein each of said sensing areas comprises a conductive foil bonded to said plastic.

9. A sensor according to claim 7 wherein said core has one of a circular and rectangular cross sectional shape.

10. A sensor according to claim 7 wherein a ground plane is at a periphery of each sensing area.

11. A sensor according to claim 7 wherein the operator input is based on a position of an operator's hand.

12. A sensor according to claim 7 further comprising eight sensing areas, each of said sensing areas comprising a conductive foil, and ground planes at a periphery of each said sensing area.