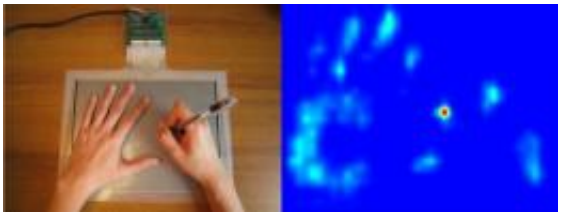
New multi-touch screen technology developed (w/ Video)

January 12 2010, by Lin Edwards



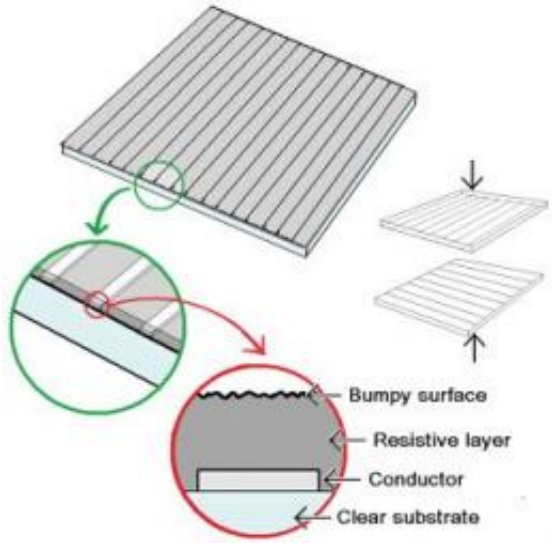
(PhysOrg.com) -- Scientists from New York University have formed a company to bring flexible multi-touch screens using a new technology to a range of devices, from e-readers to musical instruments. The new touch screens respond to all kinds of objects, as well as fingers and hands.

The team, led by Ken Perlin and Ilya Rosenberg from the Media Research Laboratory, formed their company Touchco to develop IFSR (interpolating force-sensitive resistance) technology, which uses resistors sensitive to the force or pressure applied to touch points. This, along with scanning technology and positional interpolation, allows for (theoretically) unlimited simultaneous touch inputs (in contrast to other touch technologies such as the capacitive touch screen used by iPhone, which can track limited touch points). It has low power requirements and is inexpensive, since Touchco expects to sell the screen material at $10 per square foot. The technology is easily scalable for use in small or

large devices.

Perlin said that the IFSR technology is likely to appear in a new range of e-readers later this year, and will also be used in laptops or notebooks, and new types of musical instruments. In computer applications the touch pads allow the user to control the cursor with a light touch, but to select and manipulate objects when more pressure is applied.

The company has also been collaborating with Disney to develop a digital sketchbook that will use sensitive pressure sensors capable of differentiating between the touch of a hand, a pencil, brush or eraser. Drawing pictures is just one of many possible applications of the technology.



The touch pads consist of layers of FSR ink sandwiched between opaque or transparent sheets of plastic onto which conductive wires are printed. The total thickness is only 0.25 mm. When pressure is applied to an FSR

sensor a current flows from the wires in one layer to the wires in the other layer, and the pressure applied is determined by the amount of electric current flowing from layer to layer. Arranging sensors in a grid would have been expensive and impractical, so Touchco developed scanners to measure the touches and determine their positions. Resolution is 254 µm (100 dpi), but this can be increased by decreasing the wire spacing.

Touchco has already begun selling developer kits to device manufacturers and expects to see IFSR technology finding many applications during 2010.

More information: Touchco: touchco.com/