Inexpensive Multi-Touch Pressure Acquisition Devices (IMPAD)

Ilya Rosenberg, Ken Perlin, Nadim Awad, Merve Keles, Alexander Grau, Charles Hendee and Lixin Xin

Recently, there has been great interest in multi-touch interfaces. These have taken the form of optical systems such as Microsoft Surface and Perceptive Pixel's FTIR display as well as hand-held devices using capacitive sensors such as the Apple iPhone. However, optical systems are inherently bulky while capacitive systems are only practical in small form factors and are limited in their application because they only respond to human touch.

We have created a technology that enables the creation of Inexpensive Multi-Touch Pressure Acquisition Devices (IMPAD) which are paper-thin, flexible and can easily scale down to fit on a portable device or scale up to cover an entire table. These devices can sense varying levels of pressure at a resolution high enough to sense and distinguish multiple fingertips, the tip of a pen or pencil and other objects.

Other potential applications include writing pads, floor mats and entry indicators, biopressure sensors, musical instruments, baby monitoring, drafting tables, reconfigurable control panels, inventory tracking, portable electronic devices, hospital beds, construction materials, wheelchairs, sports equipment, sports clothing and tire pressure sensing.

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