STIMTAC, a Tactile Input Device with Programmable Friction

【Summary】:

STIMTAC-Using Ultrasound to change the friction when pressed.

【STIMTAC】:

In contrast to traditional haptic methods, STIMTAC passively provides information, acting as a texture display. It will not transfer energy to the user, but will modify the way the energy is dissipated in the contact area through the friction process initiated by the user.

STIMTAC is a touchpad device that supports friction reduction through the squeeze film effect [3]. It uses a controlled vibration with an ultrasonic frequency of a few microns in amplitude to form an air cushion between the user's finger and the surface of the device.

Since the frequency is beyond the bandwidth of the skin's mechanoreceptors, people will not feel this vibration, but the effect on the tribological contact mechanism: as the amplitude increases, the touchpad feels smoother.

【Device iteration】:

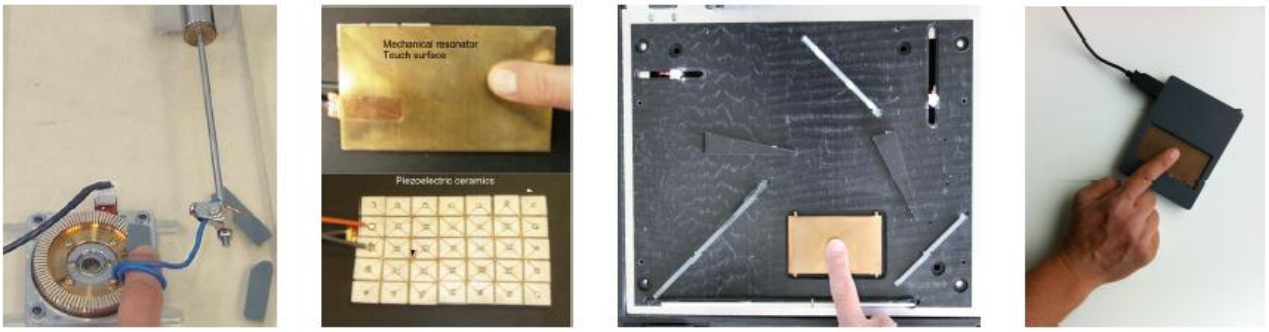

Figure 1: 1D prefiguration (2004), 2D feedback (2007), 2D input & feedback (2008) and compact USB prototype (2010)