Invincible Touch

What's coming next for the ultimate self-service interface?

by **KAREN SCHWARTZ,** Contributing Correspondent

When it comes to touch screens, today's kiosk buyers want thin, unbreakable, calibration-free, scratch-resistant displays, impervious to weather and chemicals, with 100% accuracy, reliability, and light transmission.

Touch has become the expected means of customer input.

Strength vs. Clarity

Ruggedness and optical clarity are the sometimes opposing goals of the new touch screen technology. The three main types-resistive, capacitive, and surface acoustic wave (SAW)-each have valid uses for kiosk projects, depending on the demands of the environment (indoor, outdoor, supervised, or unsupervised). Other considerations include viewing angles, types of brightness within the display itself, and the distance between touch screen and display.

Resistive touch screens offer enhanced transparency in the 85% range, reduced reflected light, and improved anti-glare treatments. Polarization filters provide sunlight readability when used with backlit LCDs, and thicker glass and chemical strengthening provide increased resistance to damage. Virtually anything can activate the screen by applying pressure to it-a finger, credit card, fingernail, or stylus.

Capacitive touch screens offer a tough glass surface coated with a thin metal layer for electrical conductivity, but require a finger touch to activate the screen. Capacitive provides better optics and a more durable interface than resistive, but one limitation is that the overlay can chip or shift, causing miscalibration with the display or non- functioning virtual keys.

Surface Acoustic Wave technology is the third major touch screen technology for kiosks. Patented by Elo TouchSystems, SAW technology involves a special transducer emitting ultrasound waves, which travel across the surface of the glass. Advantages include strength, speed, less shift (meaning fewer false touches), and activation by finger, gloved hand, stylus, or pen.

"Many kiosks are moving outside the lobby to rougher environments, so you have to have something that can take damage if vandalism occurs," notes Gary Barrett, CTO of Touch International. Barrett says sunlight readability is the second most important driver in touch screens today, causing vendors to spend considerable time changing the types of materials used in panels so they can be easily read in bright sunlight or brightly lit indoor environments.

Bulletproof Screens

Touch screen developers poll customers, attend trade shows, and consult market research to determine the features most needed by the kiosk marketplace. Customer feedback in particular often leads to new product lines and features. Requests for unbreakable, scratch-resistant glass led Elo TouchSystems to rework its IntelliTouch product line to include SecureTouch, which offers a thicker, tempered glass to withstand breakage, says Mark Littlefield, worldwide director of product management.

Durability Testing:

Taber Abrasion Test: involves putting surface materials on something that looks like a record player and then dragging a pen or stylus over them a certain number of times, looking for signs of degradation and wear on all surfaces.

Susceptibility to Static Discharge: shocks can occur, especially on dry days. This test reduces the chance that such shocks will occur.

UL Ball Drop Test: involves dropping a one kilo steel ball one inch in diameter from a height of 51.5 inches

onto the touch panel.

Environmental Testing: this category includes determining how well the product stands up to extreme temperatures, humidity, and chemicals.

For Touch International, requests for bulletproof touch screens for use in unsupervised outdoor environments led to the company's ExtremeTouch product, which is invulnerable to most environmental issues. And for its customers in the medical and food service industries-where people often need to access kiosks with gloved hands-Synaptics reworked its products to suit. "Our technology can work with everything from a surgical glove to a fur-lined glove, as if you were touching it with a bare hand," says Rick McCaskill, Synaptics VP of marketing and business development.

Once the specifications are set, touch screens go through a variety of tests to ensure usability before release into the marketplace. 3M Touch Systems puts its products through lifecycle testing in its design verification test lab prior to release, and Synaptics' human factors engineering department uses internal and external testers to check for accuracy, response time, and readability under extreme light. Other types of testing include integration tests to ensure that the product works with its companion CPU, and basic mechanical tests. Touch International brings its products to a test site at a local Marriott Renaissance Hotel, which houses public access Internet terminals. The company then sends employees to monitor how the products are used, witness any abuse or vandalism, and analyze which type of touch screen technology-resistive, capacitive, SAW or other-works best in a particular environment.

Flat panel touch screens light up the library of the U.S. State Department.

Biometrics & Beyond

These basic types of touch screens will remain the standard for many years to come, but advances in the three most important areas for kiosk vendors-durability, stylus independence, and optics-will result in improved products in the near future. The recent emphasis on security is bringing new features to touch screens. Synaptics, for example, recently announced a fingerprint biometric control sensor for its touch screens. But the biggest change, some believe, will be falling prices due to increased competition. "Competition may help costs drop by 20 to 30% in the next three to five years," predicts Caltron Industries president Jim Wang. Once prices drop that far, the touch screen takeover of kiosks will be complete.

BOOKMARKS

- 3M Touch Systems
- Belview
- Bergquist Company
- Caltron
- Elo TouchSystems
- Fujitsu Components America
- G-Vision
- Hitachi
- Synaptics
- Tatung
- Touch International

[Articles] [Editorial Calendar] [Industry Events] [Media Kit] [Contact Us] [Subscribe] [Edgell Communications] [Press Releases]