



TouchSense® Solution for Kiosks and Point-of-Sale Terminals

Without effective and immediate feedback, systems can be perceived as unresponsive. This perception can lead to user dissatisfaction, walk-aways, lost revenue, harsh treatment, damage, repair needs, and equipment downtime. But with controls that “touch back,” users immediately understand their input was accepted.

Immersion TouchSense® tactile feedback improves the user experience with digital devices. In kiosks and POS equipment, it can increase user satisfaction, which leads to fewer walk-aways, more completed transactions, reduced equipment abuse, and improved industrial designs. Whether your equipment includes membrane switches or touchscreens, you can restore the tactile qualities people like about mechanical buttons and switches.

Highlights

- Gives users a greater experience when using your product
- Provides immediate and unmistakable confirmation to help increase user confidence and satisfaction
- Overcomes limitations of audio/visual feedback in noisy and distracting environments
- Helps reduce user frustration that can lead to equipment abuse, repair costs, and downtime
- Improves on the next-generation touch interface including LCD touchscreens

The heightened interactivity provided by tactile feedback also can provide a more enjoyable kiosk or POS experience, improving customer perception, brand reputation, employee efficiency, and sales.

Improves touch controls

Mechanical switches, and membrane switches with tactile domes, have been commonly used in kiosks and point-of-sale (POS) equipment. Though effective in many ways, including for for unmistakable tactile feedback, moving parts make them susceptible to wear.

Many manufacturers have replaced them with no-travel digital touch controls to provide improved aesthetics, greater durability due to no moving parts, and sealable, easily cleanable enclosures. But in these touch control surfaces, tactile feedback is lost completely, and with it, certainty of response and a satisfying connection for the user.

As the demand for more versatile and durable POS systems increases, reconfigurable LCD touchscreens are emerging as a popular solution. Whether you choose touch surfaces, touchscreens, or a combination of the two, the TouchSense® system lets you add tactile feedback to increase interactivity. TouchSense tactile feedback helps you meet demand for intuitive access to a growing number of features and supply a better user experience.

Clearer confirmation, less wear

In restaurants, stores, airports, and other public places, noise and distractions often render sound and visual cues ineffective. Latency, or lag time, between when a user presses a control and when the system responds can also be confusing to users. Without effective and immediate feedback, systems can be perceived as unresponsive. This perception can lead to user dissatisfaction, walk-aways, lost revenue, harsh treatment, damage, repair needs, and equipment downtime. But with controls that “touch back,” users immediately understand that their input was accepted. The system seems more responsive. Fewer and less forceful presses are needed, which increases user satisfaction and reduces abuse, repair needs, and equipment downtime.

Users prefer it

Because users know instinctively that their input was received, they can be more efficient and confident. Confidence usually inspires acceptance, which promotes repeat use, more completed transactions, increased revenue, and greater efficiency. Further, independent research* shows that tactile feedback can:

- Increase speed and accuracy of data input
- Reduce cognitive loading, making operation easier
- Increase user satisfaction

A competitive advantage

You want to avoid control clutter, provide intuitive access to the features users need, and maintain ease-of-use. This is a tall order, but the TouchSense system can be used in creative ways to guide the user according to the context of operation. The heightened interactivity provided by tactile feedback also can provide a more enjoyable kiosk or POS experience, improving customer perception, brand reputation, employee efficiency, and sales.

*For a summary of recent published findings on the value of tactile feedback in human-computer interaction, see the Immersion white paper *The Value of Haptics*, available at www.immersion.com/docs/Value-of-Haptics_Jun10-v2.pdf.

How it works

In response to presses on a touch surface or touchscreen, the TouchSense system uses software and firmware to control an actuator in producing a wide variety of vibrations or “effects.”

TouchSense system components include:

- TouchSense player
- TouchSense actuator(s)
- Tactile effects library

When the user touches the screen, a position signal is sent to the host application. The host application interprets this signal and commands the TouchSense player to control actuator(s) in playing a specified tactile effect. Actuator vibrations transfer to the touch surface or screen, which gives the user the perception of pressing a button or sliding a scrollbar.

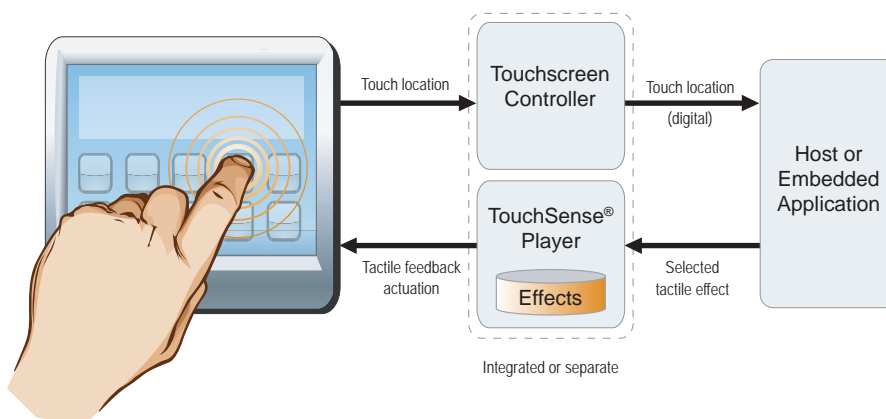
Stored in system memory, the tactile effects library supplies a rich tactile vocabulary. Fifty predefined vibrations vary in frequency, magnitude, wave shape, and duration, providing a wide range of effects—from those that reproduce the press and push-away characteristics of various mechanical switches to complex nonlinear vibrations. The feedback creates a tactile communications link between the user and the system that is limited only by the designer’s imagination.

Customized effects can be added to achieve unique tactile sensations to clearly differentiate selections and provide context-appropriate confirmation. For example, continuing to press a button or move a slider to increase a parameter (for example, size or quantity) can be accompanied by the feeling of increased intensity.

Reliable TouchSense actuators and electronic components are automotive rated. Full electromechanical design and integration guidelines and the TouchSense toolkit help ensure an optimal implementation of the TouchSense system in your equipment.



Immersion’s haptic feedback technology makes touchscreen interactions simpler and more intuitive.





About Immersion

Haptic technologies are transforming digital devices everywhere. Electronics manufacturers are providing digital controls with authentic tactile confirmation. Industrial and commercial manufacturers are increasing the accuracy, efficiency, and safety of the user experience. Content developers are creating a more engaging experience for mobile handset users. Game developers are captivating users with more intense and enjoyable entertainment. Medical schools and hospitals create a more realistic and engaging multisensory experience for surgical simulation training. Immersion technology puts the sensation of touch in the hands of visionary manufacturers worldwide.

Founded in 1993, Immersion Corporation is the recognized leader in digital touch technology and products. Immersion's technology is deployed across automotive, consumer electronics, entertainment, industrial, medical training, and mobile products. Immersion holds more than 900 issued or pending patents in the U.S. and other countries.

For more information about adding tactile feedback to your kiosks or point-of-sale terminals, visit www.immersion.com/products/touchsense-tactile-feedback/2000-series/ or e-mail: touch@immersion.com.

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