



TouchSense® System for Mobile Devices

By embedding touch sensations into content, applications, touchscreen interactions, and alerts, the TouchSense System dramatically increases the quality of the mobile communications experience. This advantage helps everyone in the mobile ecosystem benefit from higher value, enhanced differentiation, and increased customer loyalty.

The TouchSense® System revolutionizes device usability, as well as both new and existing content and services to improve the user experience. Adding haptics with the TouchSense System, you can give subscribers more personalization, more realistic entertainment, and more freedom from the daily deluge of communication.

Highlights

- Consumers – Handsets with the best experience, impressive user interface, and cutting edge features need haptics
- OEMs – Improve the user experience and differentiate products with touch feedback response
- Developers – Tailor unique content by market segment and give applications and content a smart new feel
- Operators – Differentiate services, increase ARPU, cement customer loyalty, and strengthen the carrier brand

The TouchSense System is a natural remedy for feature fatigue, supplying an experience that adds new depth and dimension.

Consumers—Experience an Exceptional Handset

Mobile communications today means that we're always on—always reachable by phone, e-mail, IM, or text message.

That means mobile users are being subjected to an increasingly unmanageable quantity of communications leading to interruption and confusion.

Mobile users need a way to sort through the communications clutter. A way to discriminate among messages, handle the quantity of communications, and compensate for the quality gap caused by trying to handle too much with limited time and information. Independent research shows that tactile feedback provides an essential component in human-device interaction and has a quantifiable effect on efficiency, error rates, and user satisfaction.

With the TouchSense System, mobile subscribers can gain a greater sensory balance that can help:

- Type faster and more accurately on a touchscreen – with the certainty of tactile feedback
- Sort through the clutter – with a personalized vibration in a loved one's ringtone or message
- Know more – about who's calling even with the sound off, about message arrival and phone status
- Stay in contact – by adding a vibration alert to an instant message
- Have more fun – with more realistic games and ringtones that let them feel the music



With the TouchSense System, you can give subscribers more personalization, more realistic entertainment, and more freedom from the daily deluge of communication.

A better mobile phone user experience — the powerful sense of touch allows greater ability and ease for mobile phone use.

TouchSense-enabled phones can make an essential difference:

Touchscreen presses

Touch feedback supplies unmistakable input confirmation for button presses, typing, scrolling, full-track music controls, GPS interactions, and a host of other applications.

Games

Haptics can give mobile gamers an experience similar to the rumble action expected in video console games.

Ringtones

Haptic ringtones provide a new twist, supplying “the subwoofer effect” for more fun and more practicality when sound is turned off or the environment is too noisy for the ringer to be heard.

Keypad presses

Mobile device buttons are usually small and many have shallow travel. Programmable haptic feedback not only supplies key press confirmation, it can make “Send” feel differently than “Back.”

Status, event, and message alerts

Unique and memorable haptic alerts de-clutter the user’s sound channel and let them know immediately—and privately—when the flight to Spain drops below \$400, for example, or that a message has arrived—and whether it is a text, e-mail, photo, or instant message. The arrival vibration could also convey sender identification and/or message priority.

Scrolling

With touch feedback, users can quickly and with little or no looking scroll through a list and identify unread messages or distinguish between those from friends, family, or business associates. High-priority and low-priority messages could also feel differently.

Dialing cues

Call waiting, forwarding, connecting, and dropped can all be better understood through intuitive tactile vibrations.

A branded haptic signature

A network’s unique branded vibration that plays when the phone is opened or closed, or powered up or down, could emphasize the network’s services and value.

Haptic intensity control

Providing the user with control over haptic intensity personalizes a very personal feature, touch interaction.

IM presence

A subtle haptic bump can signal when a favorite IM buddy logs on.

Application prompts

An e-mail client could provide haptic alerts when an e-mail has bounced, when a message remains in the outbox, or when the address field is not filled in.

Sales force automation

Haptic alerts, dispatches, and workflow notifications can help sales personnel and mobile workers multitask.

Navigation and mapping

Intuitive tactile cues provide directions without glance time, promoting safety.

E-commerce

Unmistakable confirmations support a more satisfying experience with fewer errors, leading to more completed transactions.

Social networking

Users can literally be “tapped” the moment someone in their online social community posts new content or when a picture, blog post, or buddy match is delivered to their phone.

Location-based services

A haptic buddy finder could supply a subtle vibration when buddies are in the area. More intense vibrations could indicate the distance is closing.

Mobile advertising

Ads that arrive with arresting or amusing vibrations could provide a unique appeal to compel viewing.

Movie trailers, videos, mobisodes

Unlike other types of entertainment, users are holding the device (the screen) in their hand. Haptic feedback used to underscore the action of a volcano, motorcycle, or door slam could help make the small screen more engaging, fun, and exciting.

Handset Manufacturers—Differentiate Your Product

Handset manufacturers can use the TouchSense System to provide a better quality user experience, tailor products for specific market segments, and maximize return on current and future features.

Improve the user experience

Now touchscreen interactions are easier and faster with tactile response. Photos and text messages can arrive with a distinctive feel. Ringtones signaling a friend's call can resonate with all the instruments, not just a single beat. The TouchSense System is a natural remedy for feature fatigue, supplying an experience that adds new depth and dimension. By providing this kind of innovation, you extend the life and value of existing features and further enhance future offerings.

Build your brand

The very personal quality provided by the TouchSense System can help distinguish your brand. The personalization and usability features in a TouchSense phone has led to excellent analyst and user reviews, which can stimulate increased demand, drive replacement handset sales, and increase consumer preference for your brand. You now have another tool to tailor your product to consumer segments from youth to business user—with features specifically valued by them.

Increase ROI

The TouchSense Player, software embedded in the phone, provides a better content platform with minimal investment. By engaging users more fully, the TouchSense System helps you maximize ROI from current and future technology features. So many standard features today can be moved further up the quality spectrum using clearly recognizable touch effects—including call waiting, call dropped, games, menu navigation, messaging, and ringers.



With the TouchSense System, ringtones signaling a friend's call can resonate with all the instruments, not just a single beat.

Developers—Create Killer Apps

Developers and content providers can offer unique TouchSense-enabled content tailored to specific market segments and inject new realism and smart new touch features into applications.

Differentiate your products

The TouchSense System can help increase the capabilities of mobile phones, setting the stage for unique and targeted content. By connecting with consumers' powerful sense of touch, you can produce compelling and highly differentiated content.

Create compelling content

Universally programmable and adaptable to any application or mobile device, the TouchSense System and its intuitive development environment let you tap into a new creative medium. Adding TouchSense effects can extend interest in existing titles and maximize impact to minimize content fatigue.

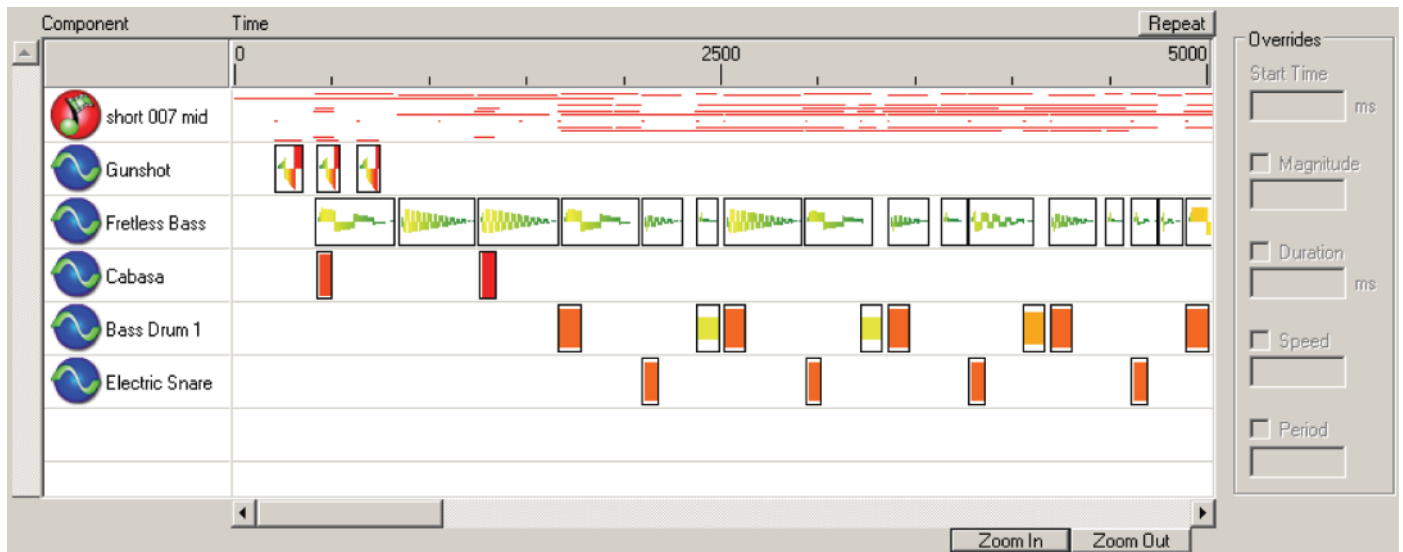
Repurpose content and build your business

With its intuitive composition tool, TouchSense Studio, the TouchSense Software Toolkit delivers cross-platform portability and a library of standard editable effects to let you quickly and easily repurpose content for maximum impact. The System makes it easier to increase the perceived value of your content and the contribution it makes to the overall buying decision. That advantage can help you demand a higher price for your work, grow your margins, and pursue more lucrative content.

Supported platforms

The TouchSense Software Toolkit offers support for the leading mobile development platforms including:

- Android
- BREW
- Java
- LiMo
- Symbian
- Windows Mobile
- WIPI



This TouchSense Studio timeline was created automatically by importing a MIDI file. The application lets you easily and quickly build simple to very complex TouchSense effects.

Operators—Increase Revenue

With the TouchSense System, operators can differentiate existing services, increase average revenue per user (ARPU), cement customer loyalty, and strengthen the network brand.

Increase ARPU (average revenue per user)

The TouchSense System fuels renewed interest in the mobile phone as a personal communications device, letting you maximize the value of current services while transitioning to more interactive ones.

Content with TouchSense effects is more fun, engaging, and easier to navigate and understand. TouchSense content and services can be targeted to enhance ARPU.

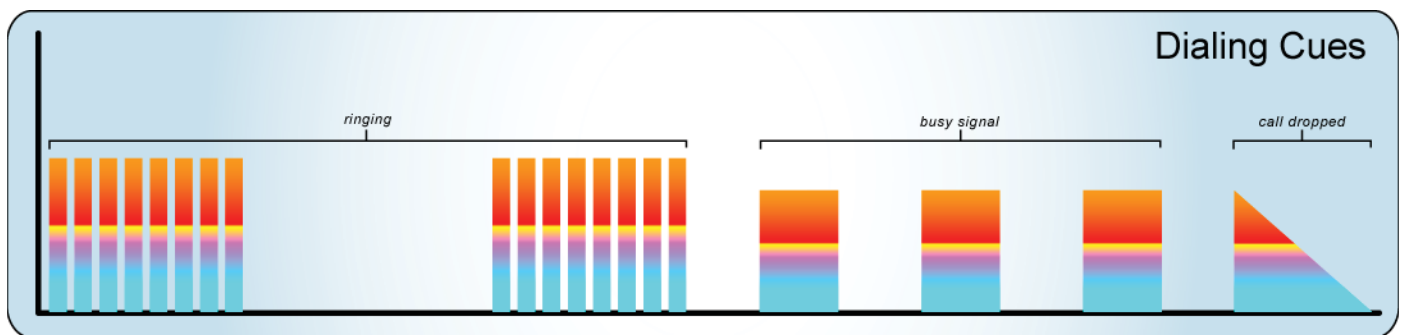
Reduce churn

You want to be the customer's first choice and win the emotional purchase. Part of what's needed is to find the next "must have," and new, fun, touch effects fit that need. But the TouchSense System also improves usability, which logically increases a user's preference for your services. With TouchSense tactile feedback, you appeal to both the emotional and the intellectual buyer. Services enhanced with TouchSense tactile feedback can keep interest high. Use touch to provide more choice and interest, and you can reduce customer churn and increase profits.

Strengthen your brand

The TouchSense System can help you mark your brand, style, and services as distinctive, fun, and intuitive. Tactile feedback lets you supply a more personal, meaningful, and unique communications experience for the user—an experience that helps you stand out as a preferred provider:

- Let subscribers feel the virtual keypad on touchscreen phones, which has been shown to increase typing speed, reduce error rates, and improve user satisfaction
- Reduce the need for sight control by providing tactile cues for busy, ringing, and call dropped
- Use a TouchSense effect along with power up and power down to describe your brand in a unique way
- Minimize the problem of screen glare and small icons by supplying confirming tactile cues for navigational selections
- Extend these same usability cues to m-commerce and information service offerings
- Deploy a premium messaging service that helps subscribers distinguish sender identification, message arrival, buddy presence, message priority, and even notifications
- Be the best platform for mobile gaming with the same TouchSense API used by game developers



TouchSense effects for dialing cues such as ringing, busy signal, and call dropped enhance the usability of mobile phones.

TouchSense System Products

The TouchSense System includes two products: TouchSense Software Toolkit, a complete software development kit for creating tactile effects, and a TouchSense Player, which is embedded in the mobile handset.

TouchSense Software Toolkit

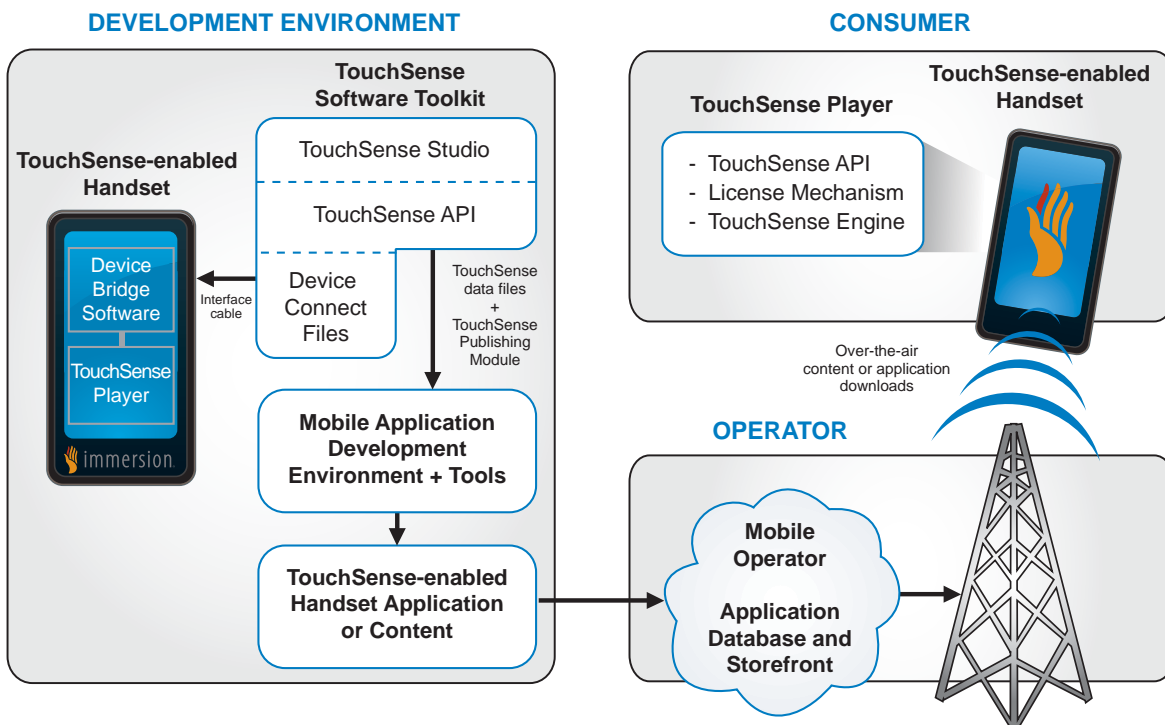
The TouchSense Software Toolkit includes all the tools developers need to implement a touch-enabled user interface and create TouchSense-enabled media and applications:

- TouchSense Studio, a Windows-based composition tool and file import utility
- TouchSense API, an application programming interface that empowers applications to play and manage TouchSense effects on TouchSense-enabled handsets
- Device connect files, software bridges to mobile handset families
- Effects sample pack with example touch effects created with TouchSense Studio
- A Flash-based demo for the PC and TouchSense-enabled handset, including usability scenarios and example TouchSense effects
- TouchSense Converter, a tool for automatically associating vibration content with selected audio file formats
- Documentation, a full complement of resources to aid in development

TouchSense Player

TouchSense Player controls an actuator in producing touch sensations on any mobile phone and includes:

- APIs, control algorithms, and drivers that manage and produce full fidelity TouchSense effects
- Bridge software that connects a TouchSense-enabled handset with the TouchSense Studio development tool
- License management function that provides secure access to the TouchSense Player
- Actuator drive circuit specification, a reference specification that describes the minor electronic changes required
- Documentation and a full complement of resources to aid in implementing the TouchSense Player on the handset



TouchSense Player, in combination with TouchSense Software Toolkit, lets OEMs and developers design and deploy rich vibration-enhanced embedded and downloadable applications and content. The TouchSense System also provides the dynamic APIs and commerce capabilities needed for operator deployment of aftermarket applications.



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

Learn more

Adding Immersion TouchSense tactile feedback to mobile devices can increase the quality of the communications experience. For more information about adding tactile feedback to your touch application, visit us at www.immersion.com/products/touchsense-tactile-feedback/index.html or e-mail us touch@immersion.com.

immersion.com | +1 408.467.1900 | 801 Fox Lane | San Jose, California 95131

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