

AUTOMOTIVE Cockpit Applications

Whaptics + Touchless Touch®

Whaptics is a unique infrared-based technology for creating mechanics-free touchless interfaces, gesture-writing recognition, and proximity sensing applications. Designed, developed, and patented by H2i, Whaptics offers automakers and automobile equipment manufacturers a cost-effective, hi-tech interface solution for today's demanding vehicle cockpit control systems.

Human interfaces in automobile cockpits are subject to numerous constraints, yet they are a design element that can make people love their car. Whaptics offers an effective next-generation solution to leverage cockpit control design to the brand's advantage.

Giving users subliminal sensations, cockpit interface ease-of-use takes on new meaning with intensive, ongoing, daily operation of in-car controls. Any initial "wow" effect can only last if people find the interface intuitive, pleasing, and above all non-distracting while they are driving. This means that:

- The interface does not need to be learned. Zero-learning is essential and expected in vehicles.
- Actions are predictable, and the action of any particular control is foreseen just by looking at it.

Whaptics gives your design team the freedom to implement unprecedented interfaces.

■ Desirability of harmonious design

Design issues extend well beyond the physical appearance of infotainment, navigation, and comfort controls. The very core of the design must be harmonious and at the user's service. Designs based on Whaptics can be leveraged to give people both a strong initial impression of the vehicle and effortless functionality. Brand identification benefits from the innovative touchless human-machine interface: instinctive appeal enables drivers to feel "as one" with both standard and innovative features in their vehicle.

Equipment manufacturers leverage Whaptics to focus on several main points when developing interfaces for automobile cockpit use :

- Cost-effectiveness for mass production
- 100% positive driver experience
- Flexible and standardized options to implement design ideas on multiple vehicle platforms

At the same time, Whaptics enables automobile manufacturers to benefit from:

- Innovative cockpit design to differentiate their brands and confirm their personalities
- Increased perceived value for users to match brand image, market, and commercial goals
- Respect for safety concerns and legal requirements for driver-related actions



Whaptics is the only interface technology that resolves cockpit interface issues with a cost-effective, value-added, easy-to-use and esthetic solution that is flexible, standardizable, and designed entirely to enable brand differentiation and driver satisfaction.

In-vehicle ergonomics

Whaptics enables the cockpit interface to provide drivers with “no brainer” ease-of-use with the lowest possible level of distraction. The driver’s eyes must stay on the road and not wander needlessly to the central stack. By reducing visual and manual distractions, a button-free design based on hand gestures can help minimize distraction for many optional actions while driving and thus contribute to increasing vehicle safety.

Whaptics infrared technology is designed to help automobile and equipment manufacturers overcome part of the paradox they are facing with increasingly connected vehicles that are expected to offer to new communication, navigation, and entertainment services, which tends to subject them to more complex control systems. With uncompromising concern for safety, Whaptics offers interface features that provide:

- Hand approach/proximity and movement detection so that drivers have less visual distraction as they manipulate controls
- Touchless contact detection to replace traditional mechanical buttons, sliders, and dials at a low cost of integration and production
- Touch displays, haptic controls, touchpad replacements

Winning designs together

At H2i, we work closely with customers from design to production to ensure an original and optimized solution that meets branding, marketing, and commercial goals. This includes support for:

- Elaborating detailed design specifications
- Developing proof-of-concept platforms for demonstrations, user-testing, and approvals
- Providing engineering assistance from prototyping to start of production and ramp-up
- Ongoing license agreements with long-term support, guarantees, and technology upgrades

About H2i

H2i designs and develops touchless user interface solutions for automotive, home appliance, and lighting applications. The company’s infrared-based Whaptics Touchless Touch technology enables OEMs to provide an exciting, ultra-modern user experience with their innovative products. All Whaptics solutions use readily available off-the-shelf electronic components to ensure low cost and reliable supply options for manufacturing partners.



Whaptics® advantages

- ASIC-free solution that uses readily available off-the-shelf and multi-source electronic components
- Mechanics-free interfaces in any configuration on nearly any type of surface for Touchless Touch® displays, touchpads, head-up gesture-based menus, and infotainment controls
- Robust infrared implementation that can be used even in direct sunlight
- Enables brand differentiation with unique and intuitive user experience

Key features

Touchless Touch® displays

- High resolution
- Usable in direct sunlight
- No fingerprints
- Cost-effective
- Easy to use, zero learning phase
- Extremely flexible
- EMC compliance
- Many options for mechanical integration

Specifications

- Modular detection area: from 80 x 80 mm
- Resolution: 100 points/cm (254 dpi)
- Absolute precision: ± 2 mm on 90% of the surface (± 5 mm worst-case)
- Reaction time = 20 ms
- Tracking period = 10 ms
- High light level tolerance: up to 1400 W/m² under a DIN 75220-compliant spectrum
- For use with 8-bit microcontrollers

