

 Add the Touchless Touch®



 **H2i** technologies



H2i designs and develops cutting-edge touchless user interface solutions for automotive, home appliance, lighting applications, and more. H2i has developed its infrared-based Whaptics Touchless Touch® technology as a solution for OEMs to provide an exciting, ultra-modern user experience with innovative products.

Whaptics applications range from a simple on-off button replacement to complete interface panels for applications in humid and sunlit conditions. All Whaptics solutions use readily available off-the-shelf electronic components to ensure low cost and reliable supply options for manufacturing partners.

Typical uses for Whaptics Touchless Touch include:

- Automobile radios, comfort control systems
- Home appliances
- Light switches and dimmers
- Remote controls and equipment interfaces in wet, harsh, and industrial environments
- Indoor call-buttons
- Tamper-proof, temperature and light resistant outdoor applications

If you are seeking to create new and innovative products in these or similar markets, contact H2i to see how we can add the Touchless Touch to help differentiate your company from the competition.





“With vision and precision, H2i joins the grand movement of dematerialization, deincarnation, and disappearance. H2i makes it possible to forget the necessarily vulgar relationship with matter in favor of the elegance of an esoteric gesture”

Philippe Starck

+ > Add the Touchless Touch

Whaptics® infrared technology creates compelling user experiences for automotive applications, home appliances, and lighting systems.

Touchless electronic interfaces offer a cost-effective solution for enhancing many kinds of hi-tech products.

H2i provides turn-key design services based on its Whaptics infrared detection technology, from blueprints to production.

■ Reflected beam, a reflected dream

Now there's a way for you to integrate a cutting-edge user interface system in your hi-tech product designs. Whaptics detects your finger's position on an x-y plane or in three-dimensional space, enabling you to add intelligent functionality on nearly any surface material.

■ Keep several steps ahead of the competition



Whaptics supports harsh and humid conditions, even direct sunlight

From simple on-off switches on an all-steel chassis, to abuse-proof kitchen appliances, to ultra-modern car controls etched in rich walnut... Whaptics lets you add intelligent human interfaces on nearly any surface in your unprecedented new designs, without having resort to mechanical buttons, dials, and capacitive or resistive touch screens. You can accomplish most of the same tasks at a fraction of the cost with Whaptics:

- Mechanism-free interfaces on nearly any surface
- Replaces physical buttons, switches, and dials, as well as capacitive and resistive touch-screens
- Designed for control panels, home appliances, lighting, automotive applications and much more

■ A single supplier for next-generation solutions

H2i works closely with you to design your product's touchless interface from scratch, or integrate sophisticated new solutions to meet your specific marketing and engineering requirements. Our team of experts integrates robust the Whaptics technology foundation to create custom electronic boards, customized infrared detector systems, and firmware applications, and hands off a completely functional solution ready for your production cycle. Extensive testing and fine-tuning are carried out by H2i in tight collaboration with your engineers and developers.

■ Multi-sourcing is no problem now... and never will be.



From home appliances to automotive applications, everything's got an interface!

One major advantage for your company is that H2i only uses readily available and low-cost components in its solutions. Our expertise resides in how we apply our know-how to get the most out of off-the-shelf electronics. This means that you'll never be locked into a risky single-supplier situation, and that you will always benefit from the lowest production costs.

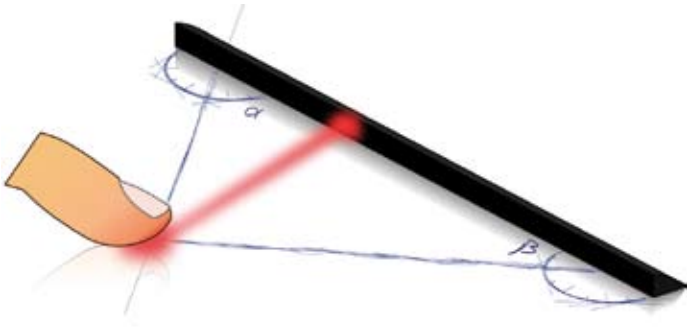
■ H2i development and integration at your service

This is the perfect time to call attention to your own innovation by working with H2i, the industry's only provider of ASIC-free touchless interface solutions. With H2i integration services, our engineers become an expert extension of your own team, ready to listen to your needs, respect your schedules, and deliver unique products with you. As an H2i customer you will benefit from the absolute advantages of Whaptics Touchless Touch technology, with close personal attention from our engineering, integration, and support teams. With an ongoing relationship based on trust, you can rest assured with our long-term dedication to your success.

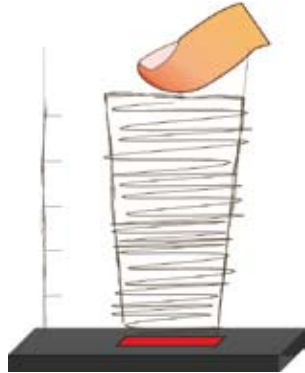
■ Proximity sensing and x-y positioning powered by Whaptics

Unlike other solutions, Whaptics Touchless Touch by H2i offers a truly low-cost interface solution that can be used on nearly any surface or even in mid-air.

- Whaptics technology provides x-y detection precision of 2 mm on flat planes, offering a replacement for buttons, switches, sliders, and dials, without having to use an expensive capacitive or resistive touch screen.



- Whaptics proximity sensing solutions detect the approach of a person's hand or finger, either closeby to simulate contact detection, or at distances of up to one meter for gesture recognition.



■ Absolute Whaptics Touchless Touch advantages

Whaptics patented solutions overcome traditional environmental constraints and enable the use of infrared under challenging and widely-varying climatic conditions.

- Resistant against interference from light - up to 1400 W/m^2 under a DIN 75220-compliant spectrum
- Precise position detection on nearly any surface (absolute x-y accuracy to $\pm 2 \text{ mm}$)
- Ultra-low power consumption - proximity sensing eco-solutions ($125 \mu\text{A}$), battery-powered controls, photovoltaic applications
- Robust enough to use in the presence of water, steam, and high humidity - IP67, underwater applications

■ Development, proof-of-concept, and prototyping

H2i leverages custom in-house tools to elaborate and demonstrate your interface solution, allowing you to focus on your own field of expertise. First integrated into a simple light-switch in 2006, Whaptics is now being delivered in retail products by major worldwide manufacturers in key industries, including automotive, home appliance, and lighting control systems. A truly integrated solution, Whaptics is a small-footprint technology that runs on low-cost microcontrollers. H2i integrates Whaptics in an industrial quality cooperative product development cycle:

- Clarifying precise needs and elaborating specifications
- Designing or co-designing hardware, optical, and firmware components
- Prototyping, testing, production-ready hand-off to your engineering team

Long-term support, production assistance, future product upgrades

■ Ongoing R&D ensures continuous innovation

Whaptics technology from H2i is the result of many years of diligent engineering and intellectual property development. H2i has filed several key patents to protect Whaptics technology and to be able to provide unique and robust solutions to its clients over the long-term. Our continued R&D efforts encounter new successes that will keep Whaptics ahead of the game and help differentiate your products from the competition, positioning your company as an innovator in your field.



You don't have to be an electronics expert to benefit from the Touchless Touch!



Create new user interfaces with hi-tech appeal based on Whaptics Touchless Touch® today.

H2i is a leading creator of innovative technologies that add touchless electronic interfaces to household appliances, automotive equipment, lighting systems, and more.

By working with H2i, you will benefit from natural usage with:

- Class-leading infrared position detection for surface or mid-air applications
- Faster time to market with compelling hi-tech products
- Readily-available electronic components that reduce your investment and risk
- A low bill-of-materials suitable for high-volume production
- A huge “wow-factor” when people use your products

Our proven interface solutions with Whaptics Touchless Touch give you an opportunity to delight your customers while maintaining full control over engineering requirements and production logistics.



■ Key technical features

- Resolution: 100 points/cm (254 dpi)
- Absolute precision: ± 2 mm on 90% of the surface (± 5 mm worst-case)
- Minimal key press duration: 20 ms
- Position update rate: 100 points per second
- High light level tolerance: up to 1400 W/m^2 under a DIN 75220-compliant spectrum
- Compatible with automotive EMC standards
- Immunity to electromagnetic fields up to 200 V/m, 100 kHz to 2 GHz, AM modulation 80%, 1 kHz sine wavelengths (ISO 11452-3/2004)
- Immunity to 25 kV against electrostatic discharges, powered equipment (ISO 10605-7/2001)
- Temperature: -40° to $+95^\circ$
- Proximity detection distance up to 1 meter (39 in.)





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H2i technologies
Immeuble Nimaxis - 78 rue John Mac Adam
30900 Nîmes - France
Phone: +33 466 366 600
Fax: +33 466 361 413
contact@H2i-technologies.com
www.H2i-technologies.com