

Technology enables mobile-friendly 3D gesture interfaces



Microchip Technology Inc.

announced its patented GestIC technology, which enables the next dimension in intuitive, gesture-based, non-contact user interfaces for a broad range of end products. The MGC3130 is presented as the world's first electrical-field (E-field)-based, configurable 3D gesture controller, offering low-power, precise, fast and robust hand position tracking with free-space gesture recognition. With power consumption as low as 150 μ W in its active sensing state, the controller enables always-on 3D gesture recognition—even for battery-powered products where power budgets are extremely tight. The company asserts the MGC3130's low-power design and variety of configurable power modes provide the lowest power consumption of any 3D sensing technology—up to 90 percent lower than camera-based gesture systems. GestIC technology achieves the exceptionally high gesture-recognition rates required by today's consumer products through its on-chip library—called the Colibri Suite—of intuitive and natural human gestures.

The Colibri Suite combines a stochastic Hidden Markov model and x/y/z hand-position vectors to provide designers with a reliable set of recognized 3D hand and finger gestures that can be easily employed in their products. Examples include Wake-Up on Approach, Position Tracking, Flick Gestures, Circle Gestures and Symbol Gestures to perform functions such as on/off, open application, point, click, zoom, scroll, free-space mouseover and many others. Designers can use this library to get to market quickly and reduce development risks by simply matching their system commands to Microchip's extensive set of predetermined and proven gestures. Additionally, the chip provides developers the flexibility to utilize pre-filtered electrode signals for additional functionality in their applications.

GestIC technology uses thin sensing electrodes made of any conductive material, such as Printed Circuit Board (PCB) traces or a touch sensor's Indium Tin Oxide (ITO) coating, to enable invisible integration behind the device's housing. This

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allows for visually appealing industrial designs at very low total system costs. Additionally, the technology provides 100% surface coverage, eliminating “angle of view” blind spots found in other technologies. With a detection range of up to 15 cm, the MGC3130 is the ideal technology for products designed to be used in close proximity for direct user-to-device interaction. With its range of configurable, smart features, the MGC3130 uniquely enables the next breakthrough in human-machine-interface design across various industries. Microchip is already working with input-device and other product manufacturers to implement exciting and efficient user-input controls. Example applications include keyboards that take advantage of the advanced interface capabilities in the new Windows 8 operating system, using hovering motions and free-space gesture controls, instead of reaching over to touch a screen.

The MGC3130 provides a sophisticated, precise and robust 3D gesture-interface and hand-position tracking solution, with features such as:

- 150 DPI, mouse-like resolution, and a 200 Hz sampling rate to sense even the fastest hand and finger motions
- Super-low-noise analog front end for high-accuracy interpretation of electrode sensor inputs
- Configurable Auto Wake-Up on Approach at 150 microwatts current consumption, enabling always-on gesture sensing in power-constrained mobile applications
- Automated self calibration, for continued high accuracy over a product’s lifetime
- 32-bit digital signal processing, for real-time processing of x/y/z positional data and the Colibri Suite gesture library
- Integrated Flash memory for the easy upgrading of deployed products, in the field
- 70-130 kHz E-field with frequency hopping to eliminate RF interference, and resistant to ambient light and sound interference.

Microchip Technology Inc.

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