

Tomorrow's tablets? Look, no hands

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Engineers in a suburban Chicago office complex have designed a new microphone that they say will be key to the future of smartphone and tablet technology because it gives consumers the ability to operate hand-held devices without touching them.

Knowles' tiny microphone, about the size of the tip of a pen, can "hear" sound waves inaudible to the human ear that are emitted from special speakers in a smartphone or tablet. The microphone then uses those signals to triangulate hand locations and track movement, similar to radar.

Knowles said its new product, which it calls ultrasonic, would allow a consumer to, say, flip a slide on a presentation or share information between a smartphone and another device with a simple hand gesture from 4 to 12 inches from the screen. Officials hope the new device will entice companies like Apple and Samsung, Knowles' largest clients, to add a fourth microphone to their devices, generating more sales for Knowles.

To develop ultrasonic, Knowles worked with California-based Elliptic Labs, which developed the software that works with the microphone.

"We see this as a story that goes into 2016, when people start adopting ultrasonic," said Jeff Niew, chief executive of the company.

Many of the high-end smartphone models, like the iPhone 5S, have three microphones, but smartphone-makers are reluctant to add a fourth unless

it offers extra features - hence, the focus on ultrasonic.

Knowles' technology faces competition from smartphone camera manufacturers, which have added sensors to their products to track movement.

To date, current optical technology has not been a huge hit in the market, mainly because it works from a distance of only about 2 inches from a screen, said Marwan Boustany, a senior analyst with research firm IHS Technology. At that distance, he said, it's easier just to touch the small screen.

Knowles said its technology is superior because, in addition to allowing greater distance between the user and screen, it uses less power than smartphone cameras and, because it uses [sound waves](#), the technology can be used in the dark.

Niew said a few of his smaller customers have bought the technology to test it.

"We are in the early adoption phase," he said.

Knowles, founded in 1946, has a history of innovation. Neil Armstrong's first words from the moon, "That's one small step for man; one giant leap for mankind," were transmitted via a Knowles microphone, the company said.

Knowles grew by developing microphones for hearing aids, but today, parts for mobile consumer electronics, such as smartphones and tablets, account for nearly two-thirds of its revenues.

Knowles, spun off from Dover this year, said 2014 will be a year of modest growth. Year-end revenues are expected to increase slightly, to

\$1.22 billion, from \$1.21 billion in 2013, according to Bloomberg.

The now publicly traded company is in the midst of a plan to cut annual costs by \$40 million to \$50 million, which includes consolidating factories to 11 from 18 by 2016. It also is moving production lines that involve manual assembly from China to the Philippines to save about \$10 million a year. Knowles' year-end 2014 profit is expected to decline by 96 percent, to \$4.7 million, mostly because of those restructuring charges.

Niew said labor costs in China have increased by 17 percent annually. By comparison, he expects labor costs in the Philippines to increase by 6 to 8 percent a year. The new facility will employ about 3,500 people by the end of the year, mostly assembling hearing aid parts. Worldwide, Knowles employs more than 10,000, including about 300 in Itasca.

Though Knowles moved factories from China, it has no plans to back away from Chinese consumers. With wages in China expected to increase by 10 to 12 percent per year, Niew said smartphone demand will continue to grow.

In the second quarter, Xiaomi became the leading smartphone vendor in China, overtaking Samsung, according to research firm Canalys. Eight of the top 10 smartphone vendors in China are local companies.

Niew said many of those companies are Knowles customers, and as they grow, Knowles is positioning itself to grow with them.

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