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DecaWave claims accuracy within centimeters for indoor-positioning chip

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DecaWave, a startup from Dublin, Ireland, today unveiled ScenSor, an integrated circuit that uses impulse radio ultra wideband (IR-UWB) for accurate indoor positioning to within 10 centimeters

Like Qualcomm (NASDAQ:QCOM), DecaWave is a fabless semiconductor company. "We will be the next Qualcomm. We are a chip company selling chips. We provide the necessary software as far up the stack is people need. But we are primarily a chip company," Ciaran Connell, DecaWave's CEO, told *FierceWirelessTech.*

IR-UWB is another name for technology based upon the IEEE 802.15.4a standard, also known as 802.15.4-2011. The technology operates on two sets of frequencies, 4.5 GHz and 6 GHz, Connell said.

DecaWave principals were involved in developing the IEEE standard. The company has submitted 18 patent applications, of which five have been issued.

Features of 802.15.4 include extended range--300 meters line of sight and 40 meters non-line of sight--while the ultra-wideband functionality provides immunity to multipath interference while delivering high data rates and low power consumption, Connell said.

"The attributes of DecaWave are that we can implement those technologies in a tiny chip that measures 3.1 millimeters x 3.1 millimeters," Connell said.

The CMOS chip will initially sell for 2 euros, or about $2.70. It can run off a single watch battery for seven years, consuming five times less power in transmit than Zigbee and seven times less in receive, according to Connell.

He said the ScenSor chip can provide 7 centimeters precision with 99.99 percent reliability. That compares favorably against Wi-Fi, which he said delivers plus or minus seven to 10 meters of accuracy and only 70 percent reliability. Bluetooth, another popular technology for positioning, provides accuracy of about 15 meters, according to Connell.

"It's inevitable that people will get frustrated with the lack of precision and lack of reliability from Wi-Fi and Bluetooth because they weren't designed for location. They were designed for communication," Connell said.

DecaWave, which has 30 employees, has raised in excess of $27 million from 155 angel investors in Texas, Ireland, France and the UK. It will open a U.S. office in early 2014.

Connell claims more than 1,800 firms and institutes have expressed interest in implementing DecaWave's technology. The company expects to reach cash breakeven in the third quarter of 2015

based on chip sales into healthcare, factory automation, industrial control, manufacturing and automotive markets.

However, the company has its eye on the broader consumer market for its technology. "Ultimately the natural home is on the mobile phone and you will be locating things from that mobile phone," Connell said.

DecaWave's chip is already shipping, and the company also has a relationship with LG Intertec, which is slated to launch a collection of modules using the chip by year's end.

IR-UWB has also drawn the attention of other entities. Earlier this year, two French entities--BeSpoon, a fabless semiconductor company, and research-and-technology organization CEA-Leti--claimed to have demonstrated an IR-UWB chip capable of measuring distances to within a few centimeters' accuracy.

The indoor location arena is currently dominated by major companies such as Google (NASDAQ:GOOG) and Qualcomm (NASDAQ:QCOM), according to ABI Research. Wi-Fi access point vendors Aruba Networks, Ruckus Wireless and Cisco Systems have also joined the market. Startups to watch include NextNav, Movea, ByteLight, Insiteo, InvisiTrack, iPosi, Senionlab, Indoo.rs, and ShopperTrak, ABI said.