Powercast Unveils Maintenance-Free, Matter-Compliant, Wireless Smart Home Sensor Technology Powered Perpetually Over Air

Enables Matter & Thread-compatible wireless sensors that can both recharge and communicate over the air to provide 24/7 intelligence with zero downtime

Matter and Thread-compatible wireless sensors recharge and communicate over the air to provide 24/7 intelligence. One RF transmitter can power sensors installed up to 25 feet away, so placing one transmitter/room can power all RF-enabled sensors in a home

PITTSBURGH, PA, UNITED STATES, June 19, 2024 /EINPresswire.com/ -- Powercast Corporation, the one-stop-shop for wireless power, will unveil next week at Sensors Converge (booth 915) a new technology solution, named a finalist in the Best of Sensors Awards program, for creating, deploying and perpetually powering sustainable, untethered, Matter-compliant wireless smart home automation sensors. These sensors: 1) integrate into smart home ecosystems (Google Home, Amazon Alexa, Samsung SmartThings) using Matter, 2) easily install anywhere, 3) eliminate the need for expensive home wiring, 4) won't require inconvenient, expensive battery maintenance, and 5) keep toxic disposable batteries out of landfills.

Powercast's Wireless Smart Home Automation Sensor solution is perpetually powered by the company's RF (Radio Frequency) over-the-air (OTA) wireless charging technology. To enable either battery-free or rechargeable-battery-based sensors to power themselves over the air from nearby RF transmitters, manufacturers will embed Powercast's tiny Powerharvester® PCC110 wireless RF receiver chip and a small antenna into their sensors for around $1 at volume, then use a rechargeable battery or no battery at all.

One RF transmitter in a room can power sensors installed up to 25 feet away, so placing one

transmitter in each room will create a wireless power network able to perpetually power all the RF-enabled sensors throughout the home. There are also options for RF transmitters, including a licensable reference design that lets manufacturers integrate the electronics needed to convert their household products into Ubiquity™ RF transmitters (https://www.powercastco.com/transmitters/) for only $5 bill-of-material (BOM) cost.

The solution uses Powercast's RF wireless charging tech. Manufacturers embed a Powerharvester wireless RF receiver chip and an antenna into sensors, then can use a rechargeable battery or no battery. RF transmitters recharge sensors up to 25' away.

"Smart home automation sensors exist, but are limited by wires and disposable batteries," said Charles Greene, Ph.D., COO and CTO of Powercast. "Powercast's solution for creating sustainable, untethered wireless sensors eliminates ever having to charge, replace or dispose of batteries because the sensors will be wirelessly charged, perpetually powered, and providing 24/7 intelligence with zero downtime."

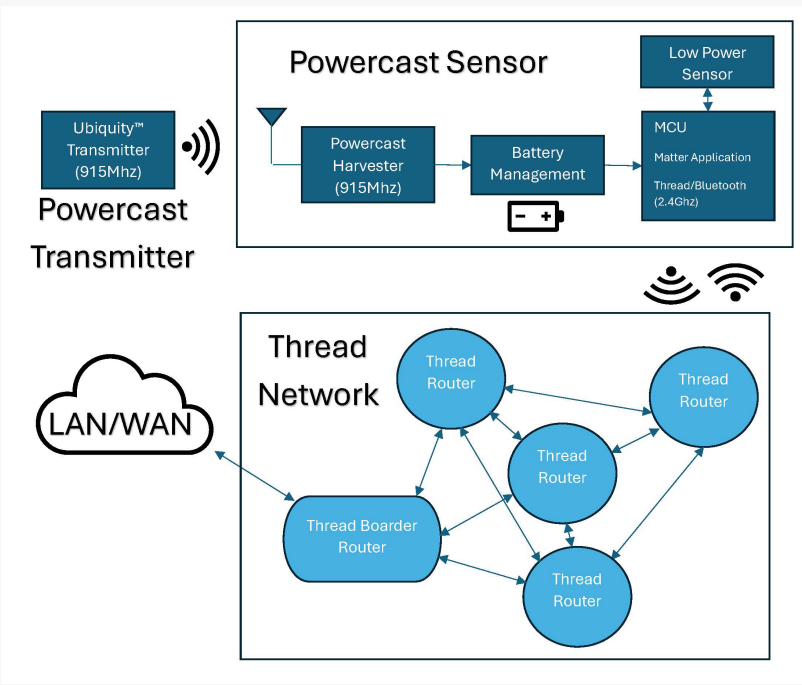
Range for OTA RF charging depends on how much power a device consumes; power-hungry devices must be closer to a transmitter while ultra-low-power devices like IoT sensors can work up to 120 feet away. Home automation sensors are low-power devices and hence good candidates for OTA charging. Sensor examples include contact (window, door), door lock, temperature, light, humidity, water, motion and many more.

> Our solution for sustainable wireless sensors eliminates having to charge, replace or dispose of batteries as the sensors will be wirelessly charged, perpetually powered, providing 24/7 intelligence."
>
> *Charles Greene, Ph.D., COO and CTO of Powercast*

Powercast's technology works with the Matter smart home connectivity standard and Thread wireless communication protocol, which ensures interoperability between devices and allows easy integration into industry-standard ecosystems like Google Home, Amazon Alexa, and Samsung SmartThings. Because Thread uses the IEEE 802.15.4 mesh network which enables

robust, efficient, low-power communication between devices, Thread-compliant devices inherently use less power, making them great candidates for OTA charging.

To showcase its Best of Sensors finalist technology, Powercast developed a window sensor it will demonstrate at Sensors Converge. Internal testing on this Powercast-designed, Matter-compliant low-power window sensor showed it can charge up to 25 feet away from the transmitter using the Nordic nRF52840 Thread-complaint microcontroller. At this distance, the battery will never have to be replaced.



The technology enables sustainable, Matter and Thread-compatible wireless smart home sensors that integrate into smart home ecosystems like Amazon Alexa/Google Home, easily install anywhere, eliminate battery maintenance and keep batteries out of landfill

“Nordic Semiconductor is pleased to collaborate with Powercast on its Matter and Thread-compatible Wireless Smart Home Automation Sensor Technology and Best of Sensors finalist demonstration platform,” said Vince Hagen P.E., Global Business Development Manager, Nordic Semiconductor. “The Nordic nRF52840 System-on-Chip, in conjunction with the Nordic nRF Connect Software Development Kit uniquely supports concurrent wireless connectivity of multiple protocols. The SoC combines a 64MHz, 32-bit Arm® Cortex® M4 processor with floating point unit (FPU) and 1MB Flash memory and 256kB RAM, plus a 2.4GHz multiprotocol radio that supports Bluetooth 5, ANT™, Thread, Matter, Zigbee, IEEE 802.15.4, and proprietary 2.4GHz RF protocol software.”

The Powerharvester PCC110 receiver chip (in a SC-70 package) operates across a wide RF power (-17 to +20dBm) and frequency (10MHz to 6GHz) range to convert RF to DC with up to 75 percent efficiency.

About Powercast

Powercast Corporation is the one-stop-shop for all things wireless power, short to long range and microwatts to kilowatts, with the industry's broadest technology offering covered by over 300 patents worldwide. Our mission is to revolutionize the way the world accesses and uses power by delivering innovative wireless solutions - from power-over-distance RF charging to powerful contact-based inductive charging to Lifetime Power® 25-year battery life sensors - that change communities and contribute to a brighter sustainable future for generations to come.

Powercast is leading the way in transforming the power landscape, creating a world where wireless power solutions are seamlessly integrated into our daily lives. We are at the forefront of sustainability, productivity, and convenience, envisioning a future where every device is charged wirelessly, every task is simplified, and every action leaves a smaller ecological footprint.
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