NXP Combines Ultra-Wideband Secure Ranging and Short-Range Radar to Enable Autonomous Industrial and IoT Applications

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- Trimension SR250 is the industry's first single-chip solution combining on-chip processing with short-range ultra-wideband (UWB) radar and secure UWB ranging, enabling new user experiences in autonomous homes and for Industrial IoT
- Integrated radar processing capabilities enable reduced power consumption for improved efficiency
- NXP's radar capabilities are supported with firmware, middleware, and sample applications to save effort and simplify deployment for faster design-in

EINDHOVEN, the Netherlands, Sept. 10, 2024 (GLOBE NEWSWIRE) -- NXP Semiconductors N.V. (NASDAQ: NXPI) today announced the Trimension® SR250, the industry's first single-chip solution that integrates on-chip processing capabilities with both short-range UWB radar and secure ranging. This is the next leap forward in NXP's work to enable a world that anticipates and automates, enabling a wide variety of new user experiences based on location, presence or motion detection across consumer or industrial IoT applications.

The Trimension SR250 combines low-power short-range UWB radar operating at 6-8.5 GHz, secure ranging and angle-of-arrival (AoA) calculations to enable new use cases based on UWB mapping, human or object detection and secure positioning. This allows it to deliver convenience, efficiency, safety and privacy features in a smart home, such as turning lights or TVs on or off based on presence, enabling secure home access capabilities, or even monitoring the safety of an elderly person living alone without intrusive cameras. It also supports safety, security and productivity applications in industrial environments, being capable of tracking location for workers, goods or assets, access control, collision avoidance, danger zone detection and more.

"The Trimension SR250 represents the next generation of NXP's advanced UWB solutions, delivering a giant leap towards a world that anticipates and automates," said Philippe Dubois, Senior Vice President and General Manager, Secure Transactions and Identification, NXP. "The precise, secure and energy-efficient detection of presence, motion or location enables an almost unlimited number of new user experiences. Our customers across the consumer and industrial IoT will benefit from the reduced power consumption and the streamlined design process enabled by this industry-first solution."

The Trimension SR250 is part of one of the industry's broadest UWB portfolios, spanning devices across automotive, mobile and IoT applications. It supports 3D AoA, time difference of arrival (TDOA), and takes time of flight (ToF) readings accurate to within ±5 cm. For use cases that require added security, it can be combined with the EdgeLock SE051W secure element. To simplify certification and ensure interoperability, the Trimension SR250 is developed based on the FiRa Consortium 3.0 technical specifications.

Expanding UWB Capabilities with UWB Radar and Integrated Radar Processing
While UWB secure ranging requires communication between two UWB-enabled devices to detect location or presence, UWB radar is a passive solution requiring only the single-chip IC. Leveraging low-power radar operating at 6-8.5 GHz, the Trimension SR250 can detect presence, location or even motion, such as breathing or gestures. It can also detect and track one or more people or objects when interfaced to a host processor running AI/ML algorithms, such as the i.MX family of applications processors, RW61x family of wireless MCUs or the MCX family of MCUs.

The Trimension SR250 integrates on-chip radar processing, allowing it to perform radar processing autonomously and reducing the overall energy consumption of the system. For example, the host processor can be in a deep sleep mode, while the Trimension SR250 can use the on-chip presence detection to sense a moving person or object. This on-chip processing is crucial to the autonomous home and Industrial IoT capabilities, allowing the system to take actions, such activating or deactivating an HVAC or autonomous robot as a user enters or leaves a defined zone, such as a room in a smart home or a danger zone in a smart factory.

Developer Enablement with Radar Processing
The Trimension SR250 is supported by firmware, middleware, and sample applications to simplify development and deployment. This includes firmware with support for updates, APIs for the UWB Command Interface, updateable middleware, including C programming language APIs for radar operation, and example radar applications and algorithms.

With a broad ecosystem of partners, modules and development kits, NXP makes it easy to start developing quickly.

Product Availability
The Trimension SR250 is currently sampling and is expected to be generally available in Q4 2024, including through NXP's broad ecosystem of module partners. For more information, please see NXP.com/Trimension

About NXP Semiconductors
NXP Semiconductors N.V. (NASDAQ: NXPI) is the trusted partner for innovative solutions in the automotive, industrial & IoT, mobile, and communications infrastructure markets. NXP's "Brighter Together" approach combines leading-edge technology with pioneering people to develop system solutions that make the connected world better, safer, and more secure. The company has operations in more than 30 countries and posted revenue of $13.28 billion in 2023. Find out more at www.nxp.com.

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A photo accompanying this announcement is available at https://www.globenewswire.com/NewsRoom/AttachmentNg/60ab7b24-7cc6-49c9-af72-4ff777f4d7b7

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Source: NXP USA, Inc.