

Vertexcom Application Highlights: Wi-SUN Mesh Realizes Wireless Transmission Between Hundreds of Charging Piles

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[/EINPresswire.com/](https://www.einpresswire.com/) -- As the world embraces the transition to electric vehicles (EVs), the need for efficient and reliable charging infrastructure has become paramount. Sizeable multi-story parking lots present unique challenges when it comes to charging communication. This is where Wi-SUN (Wireless Smart Ubiquitous Network) emerges as a game-changing technology, offering numerous advantages over other solutions in the segment, such as 5G and LoRa.

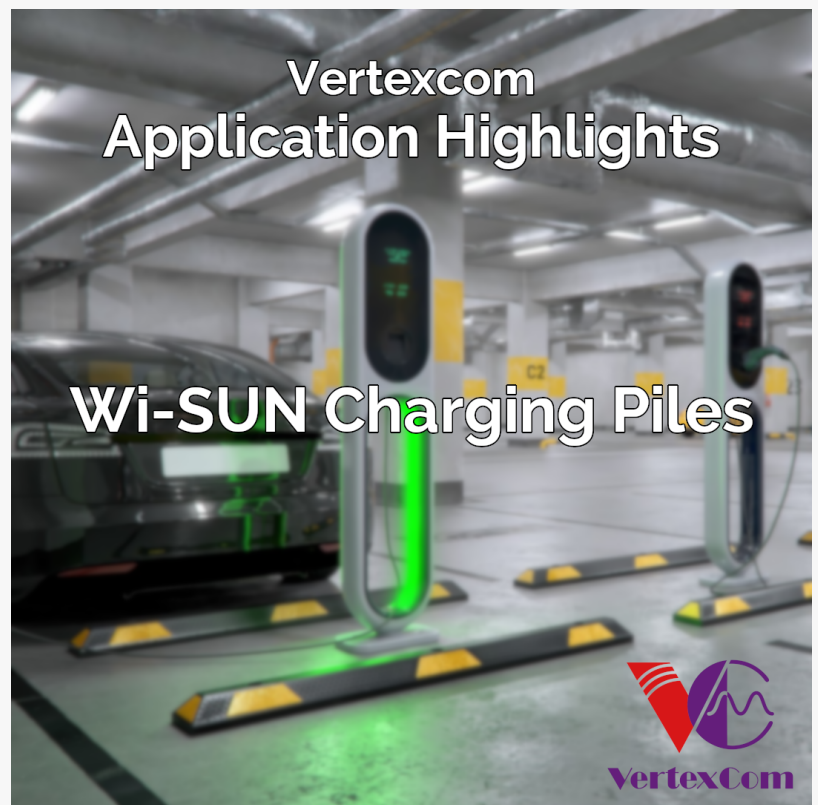
Application Scenario

In the scenario we are sharing today, our client sought a wireless communication technology for EV charging information transmission in a large underground, multi-story parking lot with hundreds of charging piles distributed across multiple floors. The client opted for Wi-SUN so as to minimize communication costs and maximize signal penetration in comparison with rival technologies.

Challenges

To ensure reliable information transmission between the EV chargers and the back-end system while keeping the costs down, the client looked to two performance indicators:

1. Whether or not a single gateway could connect and successfully communicate with hundreds of charging piles installed on different underground floors.
2. Whether or not the communication system could complete the data transmission within five



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seconds, avoiding information congestion.

Solution

The client opted for charging piles using our Wi-SUN SoC VC7351. Using just one gateway we were able to support a network of over three hundred charging piles distributed across multiple floors below the ground. Thanks to the adoption of OFDM transmission, the network delivered low communication latency and high bandwidth.

Outcome

The adoption of mesh topology-based Wi-SUN FAN (Field Area Network) made it possible not only to meet all of the client's requirements, but also to ensure that as the parking space expands or new charging stations are added, the network easily scales to accommodate the growing communication demands.

Wi-SUN Features

Under Wi-SUN mesh network architecture, each charging pile acts as a node, forming a self-configuring network. This design ensures reliable connectivity even in the challenging underground environment, where obstacles such as concrete structures and metal interference are common. Such conditions make it difficult, if not impossible, for other technologies in the segment to achieve comparable performance.

Wi-SUN is based on the IEEE 802.15.4g standard, which offers high data rates and low latency. This capability is crucial for transmitting real-time charging information, such as load balance, power demands, charging status, and diagnostics, between the charging piles and the central gateway. Fast and reliable data exchange ensures trouble-free load balancing and orderly charging, minimizing downtime and maximizing the overall charging capacity. This makes the charging experience trouble-free for drivers and charging point operators alike.

About Vertexcom Technologies

Vertexcom Technologies develops communication chips and networking software for long-range, large-scale IoT, smart grids, and automotive applications. The company offers a complete communication solution including Wi-SUN, HomePlug AV & GreenPHY, HPLC, G3-PLC, and hybrid dual-mode communication solutions. As a contributor to international communication specifications, Vertexcom participates in the development of Wi-SUN FAN 1.1 as well as G3-PLC & RF hybrid dual-mode specification.

For additional information, please visit: www.vertexcom.com

About [Wi-SUN Alliance](#)

Wi-SUN Alliance is a global non-profit member-based association made up of industry leading companies. Its mission is to drive the global proliferation of interoperable wireless solutions for use in smart cities, smart grids and other Internet of Things (IoT) applications using open global standards from organizations, such as IEEE802, IETF, TIA, TTC and ETSI.

For additional information, please visit: wi-sun.org

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