RAJANT

CASE STUDY

Rajant & SRSI: Continuous Autonomous Connectivity for Warehouse Robotic Storage System

Within modern warehouse environments, many factors limit effective communication and unfaltering connectivity. Today's warehousing trends include developing fully automated systems, often for robotic operations, overcoming any limiting factors and obstructions within the indoor environment is critical.
Metal racks, heavy equipment, signal interference, and restrained capacity challenge the integrity of many wireless networking options. For a warehouse looking to deploy a robotic storage system solution, SRSI found the right-fit network to overcome the shortfalls of traditional fault-tolerant wireless and significantly improve the customer's operational efficiency and reliability.

The Challenge

SRSI discovered its warehouse customer had the primary issue of the project's immensity. The significant footprint of racking and a very dense environment of RF reflection and blocking surfaces were making consistent communications impossible. Atop the challenging RF environment, the required robots demanded continuous, high-quality connections to receive their missions and carry products throughout the environment effectively. Upon attempting to utilize the customer's current wireless system, SRSI realized the network they had in place was not well suited for the high-mobility, rapid-handoff connections and created issues with the number of stoppages encountered. SRSI contacted Rajant via the robotics company to explain the adverse operational conditions.

Customer

- Provider of technologies spanning Power Tools, Outdoor Power Equipment, Floor Care Appliances and Accessories for the industrial professional and consumer users in the home, constructions, maintenance, industrial and infrastructure industry.

Partners

- **SRSI –** Transforming the terrain of the logistics and supply chain management industry through innovative material handling systems integration, with a dedicated focus on automation and cutting-edge warehouse information systems.
- **Rajant –** Pioneers of peer-to-peer radio communications enabling real-time voice, video, and data to connect machines, robots, and people everywhere as part of a secure, private, fully mobile network.

Kinetic Mesh® Components

- Peregrine BreadCrumb®
- ES1 BreadCrumb

Outcome

- As the solution is built in phases, using Rajant allows for communication between each BreadCrumb, no matter which model Breadcrumb is selected. All BreadCrumbs are backwards compatible with no change in methodology.

The Solution

SRSI chose Rajant Kinetic Mesh to alleviate the issues the current wireless infrastructure could not solve. To be acceptable and deemed a success, results had to produce the constant communication and connections required by the customer.

Specifically, SRSI's RAFT storage solution system required continuous connectivity. Its customer, like many warehouses, needed reliability and scalability with the capability to overcome interference to ensure safer, more efficient operations. To achieve the customer's requirements, wireless solutions that could handle the high metal rack, dense floor plan, and many moving parts of their operation were sought after.

Upon the implementation of Rajant, SRSI has successfully enabled the customer to conduct its shipping and receiving via a total autonomous installation process. Rajant Peregrine BreadCrumbs® were mounted within the structure to communicate with the Rajant ES1s installed on the robots effectively. This meshed combination of Rajant wireless radio nodes allowed the robots to receive commands on the move and not wait until done with one command before moving on to the next via docking.

Further, the Rajant Kinetic Mesh supports the movement of the RAFTs to move from one floor to another within this multi-level environment. To help with redundancy, the Rajant Peregrines within the rack structure are connected to many locations throughout, leading back to the core network. This allows for continued communication should there ever be an issue with the wireless network.

The customer learned that a robust wireless network is necessary to keep IIoT devices interconnected. Network connectivity can be considered the fuel for advanced robotic platforms, such as RAFT.

> "Rajant has allowed us to build a robust and scalable network to support our customers' success running our advanced RAFT storage system. No other wireless can do what they did."
>
> **— Gary Wroblewski**
> Software/Network Specialist

The Results

The implementation of Rajant Kinetic Mesh has resulted in positive operational feedback The first phases of the SRSI project for its customer have gleaned consistent and reliable connectivity. As the addition of the following phases come into play, installation will be simple because Rajant's out-of-the-box technology easily scales without infrastructure or heavy labor. Adding more Rajant BreadCrumbs will be simple. The additional Rajant wireless radio nodes will seamlessly program to communicate with the already installed Peregrines and ES1s. Also, once Rajant's smallest and lightest Cardinal BreadCrumbs are tested in the new RAFT robots, the Cardinals will be installed with no issue. They will enhance the RAFT by saving space within the robot and increasing performance.

ASTORS AMERICAN SECURITY TODAY 2020 PLATINUM AWARD WINNER HOMELAND SECURITY AWARDS

SECURITY today GOVIES 2021 Government Security Awards

Tel: 484.595.0233 | **www.rajant.com**

20+ Years OF GAME-CHANGING WIRELESS

RAJANT
If it's ***moving,*** *it's Rajant.*
Industrial Wireless Networks ***Unleashed.***