

The company will use active tags to help it track auto parts, manufacturing processes and finished vehicles.

By Beth Bacheldor

December 4, 2006—[Nissan North America](#) is implementing an active RFID-based Real-Time Locating System (RTLS) to help it track inbound auto parts, as well as new vehicles rolling off the assembly line at its Canton, Miss., factory. The RFID technology, provided by [WhereNet](#), is designed to assist the automaker in expediting vehicle production and improve processes at the 4-million-square-foot assembly plant. The facility has the capacity to produce 400,000 vehicles per year, including the Altima sedan, Armada full-size sport-utility vehicle, Infiniti QX56 full-size sport-utility vehicle, Quest minivan and Titan full-size pickup truck.

The RFID system will include 1,500 active RFID WhereTag transmitter tags, temporarily attached to new vehicles as they roll off the assembly line, and 700 WhereTag transmitters, affixed to the tops of Nissan's supplier trailers. Each 2.4 GHz transmitter will periodically emit the unique ID numbers encoded on it.



WhereNet's Gary Latham

The WhereNet tags are based on the [ISO 24730](#) RTLS standard. The implementation will also include 120 WherePort exciter, positioned between gates and at key choke points throughout the complex, which will activate the tags in the event that one passes through a gate or choke point between the periodic ID-number transmissions. A network of 80 wireless WhereLAN locating access points, integrated with Wi-Fi technology from [Cisco Systems](#), will be deployed to receive the signals transmitted by the tags.

Nissan will use WhereNet's Vehicle Tracking and Management System (VTMS), an application companies can leverage to track the locations of vehicles. According to Gary Latham, WhereNet's director of industry solutions, the automaker will utilize the VTMS application to track and manage pre-assembly, assembly and post-assembly operations—including test and inspection processes, any repairs done to the cars to ensure quality, and storage and shipping processes. Nissan declined to be interviewed for this article.

Nissan employees will use handheld scanners to read the active tags hanging on the automobiles' rear-view mirrors. Each tag's unique ID number will be associated with the car's Vehicle Identification Number (VIN), and that association will be stored in the VTMS application. Employees will scan the tag and input those process that have been completed—such as inspections—and the system will upload that information to the VTMS app via the factory's Wi-Fi network. As the autos move along the chain of post-assembly processes, workers will be able to determine which tasks have already been performed, and which still need to be done.

Nissan North America Installs RFID-based Real-Time Locating System

Topics/Verticals: [Operations](#), [Asset Tracking](#), [Manufacturing](#), [Automotive](#)

Business rules created in the VTMS application can direct employees to process any vehicles that must get shipped out first. That functionality is particularly noteworthy, says Chantal Polsonetti, vice president of manufacturing advisory services for [ARC Advisory Group](#), a consulting and research firm focused on supply chains and manufacturing. "What we really liked is the fact that this whole implementation, as it has been laid out by WhereNet, isn't a standalone system," Polsonetti says. "They are going to be building business logic into the WhereNet system. Now you can use the tag to tell workers what has been done, what hasn't been done and what needs to be done."

To manage trailers filled with inbound parts and supplies, Nissan will access WhereNet's WhereSoft Yard Management System (YMS), which helps track, schedule and coordinate trailer traffic in the yard. The automaker will deploy WherePort exciters at the entrance gate, and WhereLAN locating access points will read the active RFID tags' unique ID numbers on top of the tractor-trailers. Each tag's number will be associated with information stored in the YMS app, including the supplier's name and any advance shipping notice (ASN) data. Moreover, a time and date stamp will be recorded and associated with a tag number as each trailer arrives at the entrance gate. The so-called Fast Gate system then cross-references the tag number with the associated data in the YMS system; if everything checks out fine, the tractor-trailer is granted entrance.

The automated system expedites the time required to move trailers into the yard, says Latham. "This facility makes lots of different models of vehicles, and Nissan wants to increase the output and capacity of the facility. In order to do that, they have to be better at [managing] the inbound supply chain, and they can't have a yard that gets backed up because trailers are waiting to be let into the front gate."

Once inside, drivers park the tractor-trailers in lots, while the WhereNet RLTS tracks each trailer's location. When it's time to move a trailer to an unloading dock, workers on small tractors, or switchers, can access a vehicle-mounted, touch-screen terminal, communicating via the Wi-Fi network to the YMS application, to find out which trailer to pull and where it's located. The software can tell the switcher driver the best path to a specific trailer, as well as provide instructions as to the appropriate dock door. This allows Nissan to run its just-in-time sequencing of parts, based on its assembly-line plan for each shift.

Nissan's WhereNet RLTS implementation will be implemented within 90 days. Latham says the company expects the system to be up and running sometime in the first quarter of 2007.

Nissan is not the first manufacturer to implement WhereNet's RLTS. According to Latham, the technology has already been installed in more than 100 automotive manufacturing facilities worldwide. [Ford Motor Co. of Canada](#), for example, is using it to streamline assembly processes and electronically manage the flow of parts for the production of several vehicle models at its Oakville, Ontario, assembly complex (see [Ford Canada Adopts RFID System to Keep Parts Flowing](#)).