

Cami Expands Its RFID Deployment

The automaker is not only using an active-tag system to replenish parts at assembly lines, but also to improve yard management and security.

By Mary Catherine O'Connor

Nov. 28, 2007—What started as an application for improving parts replenishment on automotive manufacturing lines at Cami Automotive, a joint venture between Suzuki Motor Corp. and General Motors of Canada, has been expanded to also improve yard management and security, according to Michael Denomme, a systems architect who works for EDS Canada, which provides IT services to Cami Automotive.

The Cami Automotive plant, located in Ingersoll, Ontario, produces the Suzuki XL7, Chevrolet Equinox and Pontiac Torrent vehicles for the Canadian and American markets. Addressing attendees at the RFID Journal LIVE! Canada 2007 conference in Toronto on Tuesday, Denomme said that prior to implementing its current RFID system for parts replenishment, the plant relied on employees who moved up and down the assembly line to determine where replenishment parts were required, and the quantity needed. In other cases, the assembly workers requested parts verbally.

Five years ago, the company implemented its RFID-based replenishment system, or electronic pull system (EPS), which employs active RFID tags and receivers made by WhereNet. An assembly worker running short on a part or subassembly can press a button on a WhereTag II active RFID tag mounted at that employee's workstation. The tag transmits a unique identification number, associated with the part number, dock location and user location, to the nearest WhereNet antenna, along with a timestamp. The WhereNet system operates at 2.4 to 2.483 GHz.

WhereNet's WhereCall Wireless Parts Replenishment System software receives and processes the WhereTag II signal. This software validates each request, thousands of which are made daily, and then applies business logic based on the history of recent parts deliveries made to that section of the manufacturing line, along with the quantity of automobiles recently completed on the line, to prioritize the requests. The software then sends a replenishment request to a forklift operator. A WhereTag III active tag mounted on each forklift truck is used to track the vehicle's location in the facility, and to determine which truck is best positioned for a particular request. Once the system identifies the appropriate forklift, it sends a message to the driver's computer, linked to the facility's wireless LAN. The computer's screen then displays the part number, quantity and destination of the requested items.

Cami has seen significant benefits from using the RFID system, Denomme told attendees. Before implementing the system, the manufacturer stored parts requiring frequent replenishment in areas near the manufacturing line. Thanks to the WhereNet system, those parts are now kept in storage off the assembly floor. As a result, the company has been able to devote 50 percent more floor space to the manufacturing line. The facility has utilized that extra space, along with efficiency improvements from the RFID EPS, to boost its production significantly. "We used to make 175,000 per year, and now we make 275,000 annually," Denomme said, "and we have done so without expanding the facility, and with a reduced workforce."

Last year, Denomme reported, Cami Automotive began using RFID to solve a growing problem at the facility: an overtaxed yard security system. Up to 500 trailer trucks bring parts and other goods to the plant each day, and a number of cars enter and leave the yard, including those undergoing road tests or belonging to visiting employees or the company pool. Before employing RFID, two security guards had to manually check each vehicle moving into and out of the yard. But with so many vehicles entering the facility, the influx often became too much for the guards to handle and, as a result, the gate was sometimes left open while the guards tried to maintain manual records of incoming vehicles.

This raised concerns regarding security, and failed to provide Cami Automotive an easy means of determining whether a specific truck or vehicle was in or out of the yard at any given time. By installing WhereNet exciters and antennas around the entrance and exit points, and by adding WhereTag III tags to the 500 truck trailers—as well as to the test, pool and employee vehicles—the car maker has managed to leverage the technology used for parts replenishment for an entirely different application.

Cami has linked the WhereNet hardware and middleware to the security gate controller, so that when an authorized vehicle approaches, the gate automatically opens. WherePort exciters and WhereLAN access points located throughout the yard are used to determine the location of tagged vehicles within the facility. Records log the movement of the tagged vehicles into and out of the yard, and can be accessed through the facility's computer network.

RELATED_ARTICLES Thanks largely to the company's history of using WhereNet's hardware and middleware on the manufacturing floor, Cami was able to install the system in its yard just 60 days. What's more, Denomme said, it achieved a return on the investment it made to outfit the yard in less than 18 months, and improved the efficiency of the entrance gate by 75 percent. In fact, he added, one of the two security guard positions has been eliminated, leading to significant savings in labor costs.

Looking forward, Denomme said, Cami Automotive is tracking advances in passive RFID technology. New tag construction and design have made passive tags more resistant to RF interference from metallic surfaces, making them possible contenders for a number of asset-tracking and product-tracking applications the company has in mind.

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