

Grocery Retailers Test RFID-enabled Shopping Carts

The system can locate carts up to 1 mile from a store, stop them from straying too far and track shopping behavior

By Claire Swedberg

Oct. 11, 2006—Systems integrator Intelligentz is testing an RFID-based tracking system that would allow stores and shopping cart management companies to trace the movement of grocery shopping carts both inside the store, as well as in the parking lot and beyond.

The loss of shopping carts has been an ongoing problem that can cost stores thousands of dollars a year. Typically, the carts cost between \$150 and \$200 each. When a customer takes a cart off the premises and walks home with it, for example, most stores pay a management company to round up missing carts and return them to the store. One of these management companies, California Shopping Cart Retrieval Corp. (CSCRC), is working with Intelligentz in piloting the RFID system to provide CSCRC's customers with a cart that can't be as easily lost. CSCRC, which manages carts for 2,500 stores in Southern California and the Las Vegas area, collects and returns about 8.5 million carts per year, says Neal Smith, CSCRC president and CEO.

To address this issue, a growing number of stores use wheel-locking technology that causes a pin to drop and freezes the wheels of cart pushed beyond the parking area. The problem with this solution, however, is that there is a loss of pedestrian shopping traffic. Smith points out that many stores have a large percentage of pedestrian shoppers who want to take the cart all the way to their home, which may be in the neighborhood of the store. With the Intelligentz system, shoppers could remove the carts from the store, but the store would still be able to track just how far from the store they go and more easily retrieve them.

The Intelligentz system, known as the RFPro Series, includes an active RFID tag attached to the lower front axle between a cart's wheels. Intelligentz is testing 433 MHz and 915 MHz battery-powered tags that transmit a unique ID number specific to that cart. The store installs RFID antennas to pick up signals from tags up to 100 feet away. To track carts that leave the premises, the store could also install antennas with a longer read-range—up to 1 mile—attached to light poles in the store parking lot. Tag data specific to those carts is then transmitted wirelessly to the store database as well as to the cart retrieval company's database, using Pangaea RF Pro software, according to Jerry Flores, vice president of business development for Intelligentz. That software provides a mobile mapping interface, allowing authorized users to locate and retrieve the asset.

"Our software is Web-centric and therefore does not require hosting locally at the store level," he says. "We have developed and deployed successfully a Web application that is designed to reduce the cost of implementation and provide real-time data through our data centers." With this software, he says, any authorized party is permitted to access the data.

The system can be configured to allow the retrieval company to locate missing carts and trigger a wheel lock when it gets a specified distance from the store, such as 1 mile. In addition, the system can be used by a store

to track shopping behavior and determine how long the wait is at a deli counter or other specific service areas, how long a shopper looks through items on a specific aisle, and when the number of shoppers in a store has reached a point where more checkout stands must be opened.

For in-store tracking, Flores says, RFID antennas are mounted every 6 feet on both sides of the aisles, with the positions staggered so that no antennas directly face each other. This way, he says, as the shopping cart tag transmits a signal, the antennas can pinpoint exactly where the cart is within a matter of inches.

"This system can provide business intelligence and improve customer service," says Intelligentz' CEO and president, Michael Lucas.

He says the system is being piloted at several grocery stores within the United States, in conjunction with CSCRC. There has also been interest in Latin America and Europe, Flores says. The grocery pilot, which involves tracking carts both inside and outside the stores, will be completed Jan. 15, according to Lucas, who would not state a specific price for the product until testing was complete.

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