

Using UHF RFID in Auto Factories

Advanced Research Co. has launched an application to let automakers better track spare parts used to maintain their manufacturing systems.

By Jonathan Collins

Oct. 20, 2004—The automotive industry has long used RFID in closed-loop systems with low-frequency (125 kHz) tags and readers. Because of the growing interest in deploying passive UHF (866 MHz to 960 MHz) RFID in the supply chain driving adoption and lower equipment prices for that technology, however, RFID systems developer Advanced Research Co. believes there is also a role for UHF RFID in automotive and manufacturing environments.

Advanced Research, which has worked on custom automotive and manufacturing RFID deployments for 20 years, has launched OpenCrib, a middleware application to enable manufacturing companies to employ UHF RFID tags to better track spare parts used to maintain their manufacturing systems.

At each manufacturing plant, hundreds of parts such as PC components and hydraulic pumps are stored in caged areas on the factory floor in areas know as cribs. Ensuring that those parts are there when they are needed is essential to maintaining the operation the plant.

“If a part is needed to keep a manufacturing line working but can’t be found, it can mean the loss of an entire shift to find a replacement. That can cost hundreds of thousands of dollars,” says Bill Sharp, president of Advanced Research, which is based in Orion, Mich.

Such problems can arise when parts are removed from a crib without being properly logged out, as can happen when a crib attendant is not available when a spare part is needed.

The OpenCrib application supports a check-in/check-out station comprised of either a PC or a handheld computer deployed at the crib and connected to an UHF RFID reader. Reader antennas deployed on shelves can detect when tagged items are placed in the crib’s storage area, and an antenna at the doorway to the crib can detect when items leave the crib.

Tags on each item would carry a unique ID number, and information associated with an asset could include assets description, repair status and storage location.

When a part moves out of the crib, OpenCrib logs the item’s number as well as the time and date it passes through the doorway. In addition, if the asset has not been properly checked out, the system can be configured to activate a warning horn and/or a light indicator to remind the user that the item needs to be checked out properly.

The deployment of UHF RFID technology is a viable option because, compared with traditional low-frequency RFID tags, UHF tags have lower price and a greater read range that enables the ability to track parts viable across doorway that can be wide enough for a forklift, says Sharp. However, the company says its

application will support RFID tags and readers using any other frequency. The automotive industries history of using RFID means that they are open to deploying the technology elsewhere in their operations, says Advanced Research.

“When you go to automotive companies, you don’t have to sell them on the technology of RFID. They just focus on the potential ROI, and the savings they can get,” says Sharp.

According to Advanced Research, its OpenCrib system is likely to be deployed by the manufacturing companies themselves to manage the crib inventory but also by the companies that make the replacement parts because parts makers often manage the cribs and bill the manufacturer as parts leave the crib to be deployed. By installing RFID readers in a crib and adding a tag to each part in the crib, manufacturers can be sure that they can not only track inventory levels of replacement parts accurately but also can create service histories for parts being used by knowing when they go into service.

Customers can integrate the OpenCrib application with existing parts inventory tracking systems through an ODBC (Open Database Connectivity) interface, a standardized API that can be used to access data stored in various applications. Advanced Research says its application connects to databases and applications from a range of vendors, including Oracle and Microsoft.

OpenCrib is Advanced Research’s first software product, and although it can be sold separately, the company also offers it as part of entire RFID system, including RFID hardware such as readers, antenna and tags. The company will design and install the system, as well as integrate the OpenCrib application with existing parts inventory tracking systems through OpenCrib’s ODBC.

Advanced Research says it has developed its system using Alien Technology’s UHF tags and readers, but that it is also planning to work with SAMSys, AWID and other reader manufacturers.

OpenCrib is priced at \$695 per crib. Advanced Research’s design, installation and integration services are priced on a contract basis.

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