

# USPS Uses RFID to Manage Vehicles, Drivers

The system provides a range of functions, including driver authentication, real-time vehicle location and speed, weight and impact sensing.

By Beth Bacheldor

July 10, 2006—At a dozen sites across the United States, the U.S. Postal Service (USPS) is in the process of adding RFID-based tracking systems to improve efficiencies and cut costs associated with the operation and maintenance of forklifts and other industrial vehicles used in its processing facilities. The USPS has already installed the system at about 40 sites since the three-year contract started in 2005.

At the heart of the implementation is the Powered Industrial Vehicle Management System, or PIVMS, based on I.D. Systems's Wireless Asset Net tracking system. "This system allows for driver authentication; real-time location of vehicles; two-way messaging; maintenance and productivity tracking; speed, weight and impact sensing; and impact accountability; and facilitates OSHA [the U.S. Department of Labor's Occupational Safety and Health Administration] compliance and tracking, just to name a few of its capabilities," says Victoria K. Stephen, manager of material-handling deployment with the USPS' engineering department.

PIVMS includes RFID-enabled devices called Vehicle Asset Communicators (VACs), installed on a variety of USPS vehicles (classified as Powered Industrial Vehicles, or PIVs). These include forklifts towing trucks and powered pallet lift devices known as walkies. Such vehicles are used to move pallets, USPS mail transport equipment and other large mail containers off and onto trailers, at docks and between operations within a processing facility.

Much like an active RFID tag, each VAC holds a unique ID number associated with information on a particular vehicle, recorded in the PIVMS database. But Greg Smith, I.D. Systems' vice president of marketing, says VACs are more than just RFID tags, because they can facilitate two-way communication. "This is really a mini-computer," says Smith. "It has a lot of memory and functionality." The VACs communicate over a single channel in the 900 MHz band to gateways that can also process data and transmit it to client/server software for systems management, analytics, reporting, real-time location tracking and other functions.

Each VAC is wired to various sensors on the vehicles and contains built-in intelligence to process some of that data. A VAC also includes an LCD display screen, a keypad with 20 numeric and function keys and a proximity-card interrogator that reads the RFID tags embedded in USPS employees' ID badges. The maximum communication distance between a gateway and a VAC is 1,000 feet.

"The quantity of gateways installed varies widely with the size of the facility; some facilities may need only one; some may have dozens," Smith says. "Each VAC determines its own location based on the way it communicates with RF beacons located throughout the facility. The VAC generates special location data records periodically and transmits them to gateways. From there, the data is translated via database to a graphical software map of the facility."

After a vehicle's VAC reads a postal employee's employee ID badge, the PIVMS authenticates that person as the authorized driver, confirming that his or her training certification is valid and current. PIVMS will also provide the driver with the required OSHA checklist at the start of each operating day, ensuring that the vehicle is in safe operating condition before being put into service.

Supervisors can use the PIVMS system to locate the nearest driver to pick up or move mail containers to the next operation, or to ensure that the mail makes it onto a specific truck for a critical dispatch. This facilitates USPS' ability to meet its delivery service goals. They can also send information to a specific driver or vehicle. PIVMS helps the USPS manage driver training and vehicle maintenance, while reporting features can analyze operations, identify potential problems and create operational plans.

Stephen says PIVMS provides the USPS with a wealth of new data, largely because much of the information it is designed to collect has not been available before. "In one of our early installations, we saw that in a facility with a fleet of approximately 50 powered industrial vehicles, there were two PIVs that were not even turned on for over two months during the fall and holiday mailing season," she says. "This type of information allows us to appropriately size the PIV fleet and reduce associated equipment/lease/maintenance costs, without compromise to mail delivery service."

Stephen stresses that one of the most important benefits of PIVMS is safety. The system ensures that only trained, authorized operators have access to PIVs, and monitors PIV speeds and impacts to maintain operator accountability. "This system also facilitates the USPS' compliance with meeting its statutory PIT [powered industrial truck] obligations under 29 CFR OSHA 1910.178, and makes it much simpler to create and maintain required records relative to PIV operations," she says. The USPS has been manually gathering and maintaining all OSHA-required data, so PIVMS will partially replace and augment local systems for tracking and maintaining this required information.

The USPS has been working with I.D. Systems since the late 1990s, but the current PIVMS contract and installations began in the Chicago Bulk Mail Center in early 2005. Since then, the agency has installed the system in 40 sites, starting with the largest processing and distribution centers. Typically, those located in major cities, including Los Angeles, San Francisco, New York City and Denver. By 2007, there will be more than 100 sites using the system, and the USPS, Stephen says, is also looking at how to extend the technology to processing facilities with smaller powered industrial vehicle fleets.

The USPS is putting RFID technology to work in a number of different mail operations. According to Stephen, in fact, the agency has been deeply involved with RFID since 1998, participating on various ANSI, EPCglobal, CEN, and ISO standards-setting committees, as well as an intergovernmental group.

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