

# RFID Gets More Out of Mines

Software developer Emergent Technology teams with RFID supplier Axxess to increase productivity by tracking trucks and transactions in quarries and yards.

By Jennifer Maselli

March 30, 2004—Emergent Technology, a developer of custom software applications for manufacturing, supply chain and service-oriented companies, is offering a new RFID-enabled yard management system that will let operators of shipping yards and quarries automatically track vehicles as they enter, travel through, and exit facilities.

The system uses sentry posts, middleware and applications from Emergent combined with RFID tags, readers, and TCP/IP networking connections from Axxess, an RFID and video solutions provider based in Carrollton, Texas. Each sentry post houses a tag reader (the ActiveTag AT-132-NR-IP Receiver), a tag activator (the ActiveTag AT-132 Activator) that wakes the tag up so that it can communicate to the reader, a power supply and a TCP/IP connection that integrates with an Emergent database or Integra database from Systech.

Called YardTrack, the system works with Axxess's AT-132V ActiveTag for Vehicle ID—a battery-powered RFID tag, approximately the size of a 3-inch stack of business cards, that can be attached to the windshield of a truck or other vehicle using a Velcro strip. The tag is activated whenever a vehicle to which it is attached enters what Emergent refers to as a "hot zone," which is an area within operational range of an Emergent sentry post. After being activated by a 126 KHz signal, the tag transmits a 315 MHz signal that contains the truck's ID number. Once read by the sentry post, the tag information is relayed to a database that contains the manifest information on that truck, including the carrier information and data on where within the yard the truck needs to go. That information is then relayed back to the driver of the truck via a large 2- by 4-foot digital display board mounted in the yard. So, if the truck needed to go to a loading area, for example, the driver would be informed of that and could then proceed to that area of the yard.

Using the system's 2.4 GHz wireless local area network, which is based on the 80211.b standard, an employee working in the loading area can be alerted via mounted computers, supplied by Emergent, to vehicle's arrival and the cargo that needs to be loaded. The loader can view all pending orders. Using the mounted computer, the loader can pick orders and indicate to the system when he's completed loading a specific truck.

If the truck needs to "weigh in" empty, meaning without cargo, the driver would be directed to do so via the display board. Once the truck arrives at the weigh-in area, a sentry post installed there would activate the truck's tag again to identify the truck. The truck's ID information would sync up with the weight of the truck, as determined by the scale, and recorded in the database as well. Weigh-in scales are generally integrated directly with the database and do not interface with the tags themselves, says Jim Mohan, CEO of Emergent Technology, which is based in Springfield, Mo.

The system also comes with YardMaster, a fully integrated handheld computer that allows the yard administrator to see everything that's happening in the yard. Using the handheld, the yard administrator can start and stop orders, as well as queue, cancel, and reprioritize them. Instructions are communicated back to the database and mounted computers via the 80211.b wireless network.

Mohan says the company chose Axxess because of its system's ability to easily integrate with existing databases. "They've got a TCP/IP network capability, and combining that with their tags allows us to deploy the system very quickly and easily," says Mohan.

A basic system costs \$15,000. The tags cost between \$30 and \$50 a piece, and the sentry posts are priced between \$5,000 and \$7,000 a piece. For an additional cost, the system has options to integrate with a Wiegand connection, for gate access control, and can also be fitted with serial outputs. Emergent has one customer for its YardTrack system to date.

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