

The U.S. Transportation Security Administration has provided a \$1.6 million grant to develop an RFID system to track ground vehicles and cargo at Jacksonville, Fla., port.

By Claire Swedberg

Apr. 20, 2005—The U.S. Transportation Security Administration (TSA), which oversees security of the nation's transportation systems, has provided a \$1.6 million grant to [I.D. Systems](#) for research and development of an RFID system to track ground vehicles and cargo in order to increase security at seaports and airports. To date, a handful of seaports and airports use RFID technology to either track vehicles or track baggage or cargo. This new system would be the first to trace both cargo and ground vehicles, and could be used to track the movement of cargo "all the way into the belly of the plane," says Ken Ehrman, the president and chief operations officer at I.D. Systems, based in Hackensack, N.J.

I.D. Systems is designing the initial integrated system for use on cargo at JAXPORT, the Jacksonville, Fla., seaport operated by the Jacksonville Port Authority, according to TSA spokesperson Deirdre O'Sullivan. Eventually, the same system could also be used to track baggage at airports, Ehrman says.



Ken Ehrman

By attaching RFID tags to cargo or baggage, seaport and airline employees will be able to trace the movement of each item and know not only where it is but also who is handling it by monitoring the movement of the individual operating the ground vehicle used to transport those items at the airport or seaport. The system will also be able to tell cargo or baggage handlers whether an item is being loaded onto the correct vehicle, ship or airplane, as well as whether a bag is missing or an untagged bag is being loaded (since the untagged bag would not register with the tag reader).

The grant is part of a larger project in which the TSA provided \$4.1 million for research into vehicle-tracking systems for the Jacksonville seaport and Newark Liberty International Airport. The Newark deployment uses I.D. Systems' Wireless Asset Net vehicle security and tracking system for about 100 baggage-loading and maintenance vehicles. With this system, each vehicle is equipped with an RFID reader known as a Vehicle Asset Communicator, or VAC, and each vehicle operator is issued an ID badge with an embedded RFID tag. To preventing an unauthorized person from operating the vehicle, the engine will start only if the driver is wearing an RFID-enabled badge.

Using a GPS unit attached to the vehicle, the system can track where an employee drives. The location of the vehicle is transmitted to an RF gateway, a network node on the wireless LAN deployed around the airport, whenever a vehicle comes within 1,000 feet of a gateway.

For JAXPORT, the company will develop technology to integrate its vehicle-tracking system with a

cargo-tracking system similar to the baggage-tracking systems that already exist at airports in Las Vegas and Hong Kong (see [Las Vegas Airport Bets on RFID](#) and [Airport Says Payback Is in the Bag](#)). At these airports, baggage handlers attach an RFID tag to a bag as it is checked in, and employees can then trace the movement of the bag and make sure it goes on the correct flight. The existing RFID systems, however, are unable to trace baggage all the way to the airplane since they rely on stationary readers deployed throughout the airport facility, but not necessarily where a plane is being loaded.

With the proposed I.D. Systems cargo-tracking program, the 900 MHz active RFID tags would be affixed on each item of cargo. JAXPORT employees would probably do this at time of entry into the port, Smith said, although the exact application has not yet been decided. The tags would be read by Tag Aggregators, RFID readers that I.D. Systems is developing that will operate similarly to the company's Vehicle Asset Communicator, according to Greg Smith, I.D. Systems vice president of marketing. Port employees could attach Tag Aggregators to shipping containers, which would allow the tracking of cargo all the way to a vehicle or ship on which the cargo would be loaded. The Tag Aggregators can store information such as a manifest for each voyage and can communicate directly with the port's wireless network infrastructure.

"If the Tag Aggregator hears an I.D. Systems gateway, it can send data to that gateway via RF," Smith says. Cargo handlers would compare container manifests with the cargo they load on the vessel or vehicle.

The system would also include a new version of I.D. Systems' vehicle-mounted VAC, which will continue to offer tracking information about the vehicle, such as a cargo loading truck or crane, and its driver. In JAXPORT deployment, however, the vehicle's VACs and the cargo container's Tag Aggregator would communicate with each other as well as with the system's wireless gateways.

Because Tag Aggregators remain attached to the cargo all the way to their loading point, JAXPORT employees will know where the cargo is at any point in the loading process.

I.D. Systems is collaborating with [Symbol Technologies](#), which will provide the RFID tags and readers as adjunct hardware for both the VACs and Tag Aggregators. The rest of the system, including software, GPS units and gateways, will be provided by I.D. Systems.

Although the date of the system's deployment at JAXPORT is still undetermined, Smith indicated that I.D. Systems hopes to have a commercializable product within a year, if not sooner.

"This is a technology that TSA is very much interested in," says O'Sullivan. "TSA hopes to use this technology to improve security." She could not determine, however, how soon the system would be deployed at other seaports or passenger airports.