

The luxury car retailer is using EPC Gen 2 RFID technology to track the keys to all of its vehicles, reducing the risk of lost keys and stolen vehicles.

By Claire Swedberg

May 7, 2008—A car dealership in Toronto is employing a security system that prevents theft of its luxury, high-priced cars by alerting office management when a key has not been returned following its removal from a secure case at the dealership. The system, provided by AVS Key and Inventory Solutions Inc., utilizes an RFID system from [Ship2Save](#) that incorporates [Impinj](#) RFID interrogators, antennas and tags, and is built on the [Microsoft](#) BizTalk platform. For security purposes, the car dealership has asked to remain unnamed.

AVS' president, Anoop Sharma, says he developed a relationship with Toronto auto dealers while working as a police officer investigating car theft, and also as a customer. According to Sharma, one dealership owner indicated he was experiencing theft of his vehicles—both at night, when the business was closed, and during the day while it was still open. Three years ago, Sharma established AVS Surveillance as a company that brings in its own guards to provide nighttime security services to dealerships. However, he says, although AVS provided nighttime services to the Toronto dealer, car thefts continued to occur during the day.



Amninder Singh

Typically, Sharma says, members of organized crime target a specific type of vehicle, such as a Lexus or BMW. When returning a vehicle's key after a test drive, a potential thief takes that key and replaces it with a counterfeit one. Then, using the authentic key, the criminal can steal the car—often in the middle of the day—and drive it onto a truck, thereby quickly removing the vehicle from view. "This is a problem across North America," Sharma says.

In other cases, employees would put keys in their pockets and forget to return them, then take the keys home, or lose them, requiring that the dealership order replacement keys. Car theft costs the dealership about \$420,000 per year, says Amninder Singh, Ship2Save's director of product development, and lost keys cost \$2,000 annually.

AVS can eliminate both costs, Sharma claims. AVS' Ship2save system, installed one month ago, includes a custom-built key cabinet with an automatic lock. Each of the approximately 200 keys within the cabinet has a tamper-proof passive ultrahigh-frequency (UHF) tag affixed to it with an Impinj EPC Gen 2 chip storing an encrypted unique ID number. The tag becomes inoperable if anyone attempts to remove it from the key, breaking an antenna in the process. Built into the cabinet is an Impinj Speedway RFID reader that constantly captures the ID numbers of those tags.

To take a key, an employee presents the locked cabinet with an ID card containing a near-field EPC

Gen 2 tag that is read by the same Impinj interrogator. The reader verifies that individual's authorization to remove keys, then unlocks the cabinet door. Data is transmitted to the back-end system via a LAN cabled connection, notifying the system who has taken which keys. Ship2save's operation management system (OMS) software uses the Microsoft BizTalk infrastructure on the dealership's back-end system. Each employee is authorized to take no more than a specified quantity of keys, and only for a limited period of time.

When a key is removed from the cabinet, the Web-based server, hosted by the dealership, is updated to show the key removed by a specific individual at the time and date it occurred. If the key is not returned to the cabinet at the appropriate time, or if more keys are removed than the number permitted, the Ship2save software instructs the system to send an alert to designated parties within the company.



Anoop Sharma

The dealership is currently utilizing the system only in one of its Toronto locations, but expects to expand it to eight more stores in the metropolitan area. In the future, Singh says, Ship2Save plans to provide a biometrics option with the key cabinet so employees would need to provide a thumbprint in addition to an ID card to unlock the cabinet, thereby providing an additional layer of security.

"It's a good fit—it's got a great business value," Singh says, adding, "The beauty of it is that because it is built on the Microsoft BizTalk infrastructure, it is fully scalable." Thus, one dealership with multiple locations could expand a single back-end system to operate each lot's key cabinet, or a single back-end system could be expanded for use by different dealerships. "We don't have to keep reinventing the system," Singh says.

Sharma says he intends to market the system across North America and elsewhere. Dealerships, he notes, as well as insurance companies, have shown an interest in the system installed at the Toronto dealership.

Another company that markets an RFID system for tracking car keys is [Performance Analytics](#), based in Palo Alto, Calif. Bob Lewis Automotive Family, a car retailer in the San Francisco Bay area, uses Performance Analytics' KeyWhere system to automatically track test-drives, improve security and simplify key access for salespeople at its Volkswagen showroom in San Jose (see [Car Dealership Finds RFID the Key to Increased Sales](#)).