Emergency Medical Services Providers Try New Equipment-Managing RFID Solution

The system, offered by a nationwide equipment servicer, will enable ambulance crews to verify that the correct equipment is loaded into their vehicles, and to view an alert if anything is being left behind in the field.

By Claire Swedberg

Tags: Health Care, Inventory / Warehouse Management

Dec 04, 2012—Equipment Management Service and Repair (EMSAR), a company that services and repairs health-care and medical-services equipment for clients nationwide, is providing an RFID-based solution developed by Silent Partner Technologies (SPT) for its clients to track its assets' locations. The solution—for which EMSAR is the exclusive reseller, and which is expected to be made available next month—is focused on solving several problems. It helps an emergency medical service (EMS) provider's staff to quickly locate items requiring maintenance or inspection, and also helps crews, such as ambulance drivers or other emergency responders, to ensure that they do not leave their often-expensive equipment behind when going out on a call.

The RFID Asset Management system includes 433 MHz, 915 MHz or 2.4 GHz active RFID tags mounted on equipment, as well as RFID readers installed within emergency vehicles, and computers running software that tracks read data, both remotely and in the cab of the vehicle itself. The tags and readers are supplied by a variety of vendors, depending on a customer's particular needs.

SPT's Ted Kostis

EMSAR, located in Wilmington, Ohio, was founded 15 years ago to service medical capital equipment, such as stretchers and other patient-lifting equipment and beds for the health-care and EMS markets. The firm is among the largest such service companies in the United States.

SPT has been developing RFID-based solutions for approximately a decade, initially for the purpose of tracking assets for the U.S. military, and later also for monitoring EMS assets, including those of the Lake County Fire Rescue service.

EMSAR saw value in this solution to help its own employees when they reported to their clients' sites to provide equipment service. At hospitals or EMS centers, although software typically tracked equipment's maintenance and inspection history, finding assets due for service was an arduous task. EMSAR's employees have often had to walk around hospitals from floor to floor, searching for items such as specific hospital beds, says Maxwell Petersen, EMSAR's business development director. "In a hospital, there could be 400 beds that are moving from room to room," he states. "We needed a platform to know where equipment was."

In the emergency services sector, tracking equipment is even more complicated than it is at hospitals or other fixed locations, because the items travel in ambulances and other rescue vehicles, and are often unloaded in the field and then reloaded by employees. "They have what amounts to a mobile intensive care unit in their truck," Petersen explains. In this case, the concern was not just saving time by tracking the locations of equipment so that those items could be serviced—it was also a matter of ensuring that the assets did not become lost altogether. Staff members at the scene of an emergency may leave a piece of equipment in the field, and if they realize after leaving that they have done so, their priority is to transport a patient to the hospital, not to go back and retrieve it.

SPT developed a solution that initially is being provided for use by emergency vehicles. A vehicle is equipped with SPT's "Smart Detector"—a device with a built-in RFID reader and a GPRS communication unit to send tag data to SPT's cloud-based server, which can then be accessed by management, as well as displayed on an onboard computer within the vehicle's cab. Each piece of equipment loaded into the vehicle has an active RFID tag attached to it. The SPT software stores each tag's unique ID number, linking the information to a description of each item that should be loaded onto a vehicle.

In the event that an item is missing—meaning it is not being interrogated by the vehicle's reader—that object is highlighted in red on a computer screen inside the vehicle, as well as for those who may access the data on the server. If the item's tag is being read but by the wrong interrogator (for example, within an ambulance in which the equipment does not belong), it is illuminated in

yellow. Workers then know that the equipment will need to be retrieved from that vehicle and returned to its proper place. If the asset is being read where it should be located, it is displayed as green and no actions are necessary.

"We wanted to make it robust, but easy to use," says Ted Kostis, SPT's president. Therefore, the ambulance staff can easily view the colors on the screen and determine that nothing has been left behind, even while they have other matters on their minds, such as bringing an injured or ill person to the hospital. For example, if an electrocardiogram (EKG) machine is not packed into the back of the vehicle as the driver prepares to go, he or she will see the red indictor for that item on the onboard computer screen. The driver will then be able to retrieve it before leaving the scene.

Additionally, the software enables users to locate items due for inspection. For instance, the EMS provider can continue using its own maintenance and repair management system, which identifies equipment requiring servicing. The provider can then utilize the SPT solution to locate each item. The RFID Asset Management software could reside on the user's own back-end system, Petersen says, though his experience to date with clients finds that they typically prefer to employ the technology with the hosted server.

According to Kostis, the solution is presently being piloted by several EMS providers. Some of those agencies are EMSAR's customers, Petersen reports, while others are SPT's clients. The technology, Petersen says, "is working well." EMSAR will sell the solution, which will include the hardware for purchase, and the hosted server for a monthly fee to access the data. EMSAR also provides training and installation. The firm expects to use the RFID asset-management system as well.