



Greenville Hospital Deploys Integrated RFID Solution for Operating Room Asset Tracking

The Greenville Hospital System University Medical Center spans five hospital facilities, with 1,110 beds and 32 surgical suites across 90,000 square feet of physical facilities, serving the citizens of upstate South Carolina. Of the hospital's 7,500 employees, approximately 1,000 are physicians. Each year, these physicians perform over 33,000 inpatient and outpatient procedures, incurring about \$52 million in expenses, or about half the total for the entire system.

At this size, it was not uncommon for expensive surgical instruments (probes) and other equipment to be misplaced or lost, so Greenville Hospital's materials services group sought to minimize asset loss and reduce the time spent locating OR materials. Though a wireless network was in place, John Mateka, executive director, materials services, determined it was insufficient to meet all of the hospital's asset tracking needs, so he and his staff began investigating an integrated Wi-Fi, UHF RFID, bar coding and mobile computing based solution.

Mateka and his team consulted with several IT integration vendors and ultimately selected and began working with Integrated Business Systems and Services, Inc (IBSS) of Columbia, South Carolina. To deliver the UHF RFID component of the solution, IBSS turned to the Industrial Portals Division of Jamison Door, a company very familiar with RFID asset tracking and loss prevention solutions through its work with leading RFID technology and solutions company ThingMagic.

"Time saved and increased productivity are significant advantages of this system. Since we implemented SynTrack for Healthcare and the RFID portals, no tagged devices have been lost..."

- **John Mateka**, executive director, materials services, Greenville Hospital System University Medical Center

The Solution

Working with Jamison Door, IBSS designed a heavy-duty RFID portal for the OR linen cart exit to the laundry and decontamination rooms. The exit portals include ThingMagic Mercury5 RFID readers and antennas used to read tagged devices, such as \$35,000 to \$50,000 surgical instruments (probes) that, because of their compact size, have the potential to be lost within bulky

bed linens and scrubs sent to the laundry or the trash. Now when a tagged item – such as a probe or other surgical tool – is read by the portal, an audible alarm is sounded and a flashing red light alerts an OR attendant who locates and retrieves the device before it is mistakenly discarded. Data gathered from this automated process helps hospital management continuously improve the activities associated with asset preparation and use.

In addition, Greenville Hospital is in the process of deploying ThingMagic Astra UHF RFID

Solution Components

ThingMagic Mercury5 RFID readers

ThingMagic Astra RFID readers

Jamison Door RFID portal

IBSS SynTrack for Healthcare application

Benefits

Decreased costs related to asset loss

Greater availability of critical systems and equipment

Improved staff efficiency

Equipment and system optimization

Accreditation and Risk Mitigation

readers throughout its main facility to track nearly 5,000 pieces of mobile medical equipment (e.g. infusion pumps) by utilizing the combined RTLS and UHF RFID capabilities of the IBSS SynTrack for Healthcare solution. The RFID portals, Astra readers, and RTLS tracking technology are integrated via the SynTrack application, allowing Greenville's staff to not only know the location of the tagged equipment, but of equal importance, its status, utilization efficiency, and history of use.

The SynTrack system provides Greenville staff with handheld computers and application software that can locate and map any type of tagged asset, which is then tracked via the RTLS technology and the ThingMagic Astra Readers. Through this combination of location and utilization information, the system produces customized reports detailing asset usage and history. The Greenville system also provides hospital management with efficiency reporting related to the processes and resources utilized to deliver health services associated with the tagged assets.

“We had a limited budget, an existing Cisco wireless network we wanted to utilize, and we didn't want to get locked in to anything that might become outdated,” said Mateka. “Now that the system is in place, authorized hospital staff can access the SynTrack application through a web browser or mobile computing device, and locate any type of tagged equipment. Everything in the OR is tracked constantly by the RTLS technology and/or the Jamison Door exit portal, with the information relayed via our 802.11b wireless network. Users can select some or all of the items found, then view those on a display map that includes location, a description of the object, and a photo.”

“It's essential that OR case carts be sterile and ready to use, and SynTrack provides staff with visibility of all carts, including status, location and case assignment,” said Dr. George Mendenhall,

CEO of IBSS. “Authorized hospital personnel can also monitor each stage of equipment flow through contaminated cart storage, decontamination and sterilization, perioperative staging and the case staging area. This automatic visibility to the flow of case carts and other types of support process flows, frees valuable staff time by reducing time spent searching for equipment and manually documenting processes. This visibility can also increase procedure throughput and automate the documenting process for analysis and continuous improvement.”

Patient Safety

In addition to ensuring that Greenville Hospital could track tagged assets within the OR and throughout their facilities, a critical consideration was making sure the RFID technologies chosen did not interfere with any medical devices or existing IT infrastructure.

“In compliance with JCAHO procedures, the hospital undertook its own independent testing to make sure the system did not interfere with any other hospital equipment, including all of the electronic medical equipment utilized in the operating room. We also conducted a study to make sure the UHF RFID portals did not cause any issue with pacemakers, or otherwise jeopardize patient safety. Our formalized testing gave us the confidence to safely deploy active and passive tags and readers through all areas of the hospital for everyday use,” said Mateka.

The Results

Given the hospital's labor savings, loss prevention, physician satisfaction and improved productivity, Mateka expects a return on investment within one year. “Time saved and increased productivity are significant advantages of this system. Since we implemented SynTrack for Healthcare and the RFID portals, no tagged devices have been lost in the trash. Eventually, we also expect to be able to reduce our equipment purchases through a combination of reduced loss and our utilization history reporting,” he said.

With the success of the system evident, IBSS and The Greenville Hospital System are now working together on expanding the solution to other areas of the campus to track additional critical care devices.

© 2009 ThingMagic Inc. ThingMagic, Mercury, and The Engine in RFID are registered trademarks of ThingMagic, Inc. Other marks may be protected by their respective owners. More information about ThingMagic products can be seen at www.thingmagic.com.

To purchase ThingMagic products or to inquire about how ThingMagic can help you with your Advanced Development Project, simply email salesteam@thingmagic.com or call 1-866-833-4069 (International Callers dial +1 617-499-4090).