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Belgium Hospital Combines RFID, Sensors to Monitor Heart Patients

University Hospital of Ghent is implementing a system that detects when a patient is having cardiac distress and sends caregivers an alert indicating the patient's location.

By Beth Bacheldor

March 6, 2007—University Hospital of Ghent in Belgium, is implementing an RFID-based real-time locating system (RTLS) to provide nurses and other caregivers with a patient's location in the event of an emergency.

"We wanted to install a location/tracking system to be able to quickly localize machines and patients," says Bart Sijnave, CIO at the University Hospital of Ghent. "The new system saves a lot of time for both doctors and nurses so they can spend precious time effectively caring for patients instead of having to track down equipment and/or patients."

The 1,000-bed hospital is using AeroScout T2 active Wi-Fi tags, which transmit 2.4 GHz signals carrying the tags' unique ID numbers to the hospital's Wi-Fi network, which consists of Cisco Aironet access points, and a Cisco 2710 Wireless Location Appliance that computes the tags' location. AeroScout Exciters, deployed in rooms, hallways, nurse stations and other areas throughout the hospital, trigger the tags to emit their signal. In addition, the hospital is installing AeroScout's MobileView software, which associates a tag's ID with a patient, and Emergin's Enterprise Bus Service (EBS) application, which packages information from MobileView into messages that can be delivered to nurses carrying Cisco IP phones.

Bart Sijnave

The AeroScout T2 tags are joined to Wi-Fi-enabled heart monitors worn by at-risk cardiology patients. The heart monitor is linked to a specific patient in the EBS software. The T2 tag is linked to a specific patient in the MobileView. Correlation is done in the EBS software. If a monitor detects a patient is in distress, it sends an alert to the Cisco Access Points. The Enterprise Bus Service then polls the AeroScout MobileView for the tagged monitor's and associated patient's location. According to Sijnave, all cardiology patients who need to be monitored constantly will eventually use the tags.

"Then the Emergin system sends all that information together to the Cisco phones, which are carried by nurses who have responsibility for those patients," says Josh Slobin, AeroScout's director of marketing.

The RTLS is currently in pilot phase, largely to ensure that none of the alarms are missed, says Sijnave. If the pilot is successful, the University Hospital of Ghent expects to expand the RTLS capabilities, but Sijnave says it is still too early to say when or how expansion will occur.

The University Hospital of Ghent isn't the first health-care organization to deploy RFID and RTLS to track patients. But typically those that are tracking patients are doing so to manage patient flow. Saint Luke's East-Lee's Summit, located in Lee's Summit, Mo., and part of Saint Luke's Health System of 11 hospitals and many physician practices, tested an RF tracking system to determine whether the

technology could improve the processes involved in admitting and treating patients at the hospital's emergency department (see Hospital Tries ZigBee to Track Patients).

What makes the University Hospital of Ghent's RF tracking system unique is that it is designed to respond to a medical event, Slobin says. "Hospitals are certainly looking for a wider variety of integration points with real-time locating systems. They want these systems to go beyond just getting locations. They want process enablers and ways to improve processes. That has been one of our main messages for the medical community," he says.

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Though the University Hospital of Ghent is using the T2 tag, AeroScout has begun shipping a beta version of its next-generation model, the T3, to interested parties. The T3 is available in a new, smaller and flatter size, similar to a credit card, making it ideal for clipping onto badges or mounting onto equipment, Slobin says. The T3 has a longer battery life, providing more than four years' battery life. It also includes two call buttons and a tamper-proofing mechanism that triggers an immediate alert if the tag is removed or tampered with in any way.

The call buttons can be assigned different meanings; for example in an asset tracking application for monitoring hospital inventory, one call button could indicate the asset needs replenishing while the other could call for assistance. Optional features include an on-board temperature sensor. The new T3 tag will be generally available early in the second quarter.

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