

Korean Hospital Simplifies Exams Wirelessly

Korean Hospital aims for service excellence with Active Radio Frequency Identification (RFID) based on Cisco WLAN.

EXECUTIVE SUMMARY

KANGNAM ST. MARY'S HOSPITAL

- Korea

BUSINESS CHALLENGE

- Efficient management of patient data.
- Improve medical services.

SOLUTION

- Deploy optimized WLAN solution, incorporating AeroScout's Active RFID solution and Cisco's high-performance WLAN infrastructure.
- Effectively interfaced RFID system with existing operation control system (OCS) for smooth data sharing.
- Intel architecture technical support.

Business Challenge

Kangnam St. Mary's Hospital, one of eight hospitals run by the nation's largest medical institution, The Catholic University of Korea, has lofty aspirations of being the premier medical hub in Northeast Asia.

Constantly seeking to improve its services, the hospital took a grand step toward its goal when it set up a General Medical Examination Center (GMEC) for the first time in the country, setting a precedence within the Korean peninsula for preventive medicine through health examinations.

And recently, noting new advances in technology, the hospital took the opportunity to upgrade its services further with the deployment of Active RFID within a wireless networking environment, enabling the tracking of patients in real time.

Since the establishment of the GMEC in the early 1980s, Kangnam St. Mary's Hospital has offered a variety of health examinations to Koreans. Taking the lead in preventing diseases within the Korean peninsula, the hospital currently screens up to 80 patients per day.

As their medical services evolved, Kangnam St. Mary's Hospital realized a need to improve their public image by providing fast and accurate general medical examination services, which can be achieved through reforming the existing medical screening processes, thereby improving business efficiency.

Their biggest challenge lies in the existing organizational structure of the GMEC. With 16 different medical examination rooms for various patient screenings, the staff was required to follow a laborious process to ascertain the status in each examination room.

As the majority of work conducted by medical staff involved finding and checking patient documents and relevant medical details, huge challenges arose in directing patients to their examination rooms and then subsequently informing them of the results of their medical examination.

In addition, the large volume of patient traffic meant that it was impossible to cross-reference the availability of every examination room with patient traffic in real time.

Due to inherent difficulties in managing patient traffic, the waiting time of patients became uncertain, resulting in limitations on the quality of services offered by the GMEC.

"In a specific examination room such as a blood test room, a bar code of the examinee's details needs to be printed out to be attached to the inspection sample, and to print out each bar code

takes about 30 seconds to 1 minute. The required time appears to be very short, but it is not when there is a large number of examinees,” says Soon-Young Kim, the team leader of GMEC, Kangnam St. Mary’s Hospital.

“By deploying an Active RFID system based within a wireless networking environment, we are able to update the status of each medical inspection room in real time.”

– Sung-Soon Cha, Team Leader, Information Support Team, Kangnam St. Mary’s Hospital

This resulted in an increased burden on medical staff to look for patients who had left the waiting room due to the long wait. Patient complaints were on the rise due to the operational inefficiency, with a corresponding impact on the overall image and subsequent patient volume of the hospital. The GMEC at Kangnam St. Mary’s Hospital needed to improve with the times. And to do so, it needed to become a state-of-the-art medical check-up center, providing patient-oriented medical screening services, allowing patients to choose medical examinations that best fit their specific needs according to their individual profile.

In addition, plans for lifetime health management based on analyzed accumulated patient data were also being considered for future deployment, and with them, upgraded technologies to support the new workflow.

“To increase the efficiency of the medical check-up process at GMEC, by which we could provide faster and more accurate medical check-up for the clients, which could ultimately enhance the image of the hospital, we decided to install Active RFID based on Cisco® WLAN,” says Kim.

Network Solution

To solve the problems that they faced with the GMEC, Kangnam St. Mary’s Hospital consulted Choongwae Information Technology (CIT) Inc., a specialist in medical IT solutions, and decided to deploy Radio Frequency Identification (RFID) technology. RFID tags with an embedded microchip and antenna can be attached to objects for identification and tracking purposes. Such a technology can be used to manage a process in real time because the technology communicates between the objects and the reader using the radiating frequency.

Initially though, there were potential issues to be overcome. First, the frequency used by Active RFID on WLAN could potentially affect medical equipment at the center and cause malfunction. That was readily solved when CIT set their RFID solution on different frequencies from the center’s medical equipments.

The second challenge was the potential disclosure of patient information, because the CIT solution initially displayed the name, age, and the screenings that patients underwent on the information LCD screen at the center. This, too, was resolved speedily when CIT and GMEC provided patients with their own registration number so that personal information would not be released unnecessarily.

Business Results

Once the Active RFID system was installed at GMEC, the initial challenges that GMEC faced were resolved.

Patients can now readily determine the status and waiting time of each examination room in real time, cutting down on delays with the overall screening process. Both the required time for each

examination and the waiting time for the patients are readily identified. Patients no longer have to endure uncertain waiting hours and can even take a rest in other places or do something else because they know exactly what time they are supposed to be in the examination room.

Staff workload is also reduced because the staff no longer have to look for the patients who have left the waiting room.

In addition, the total time taken for medical screening is also simplified because paperwork is reduced, with all the relevant patient information being input on the RFID tag. The examinees are informed of their status in the queue in advance, and the screening process can be carried out faster and more accurately.

“The total required time for a medical check-up is now only 2.5 hours, reduced from 3 hours, and the time taken for each examination is also reduced by 15–20% from that of the previous process system,” says Kim.

With the upgrade, Kangnam St. Mary’s Hospital now expects GMEC patients to increase from 80 to 100 per day.



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