

The guardian of sleep.

Axis network cameras support cancer diagnosis at Linz General Hospital (AKH).



Customer/end user:
Linz General Hospital
(AKH Linz)

Location:
Linz, Austria

Industry segment:
Healthcare

Application:
Security and safety for
hospital patients

Axis Partner:
Linz IT & NetWorking
Solutions

Mission

Resting or even sleeping on demand is difficult for most people, in particular if they are still under observation. However, in the case of diagnostic imaging procedures for cancer detection, such as the combined method of positron emission tomography (PET) and computer tomography (CT), patients must be strictly rested and motionless during the examination. To solve this problem, Linz General Hospital uses network cameras which firstly keep an unobtrusive eye on patients and secondly provide medical personnel with immediate notification if patients move excessively, which could affect the accuracy of the diagnosis.

Solution

AKH Linz has already been using network cameras for monitoring its cash dispensers and access areas in the vicinity of its EDP system rooms since 2005. Werner Lenz, CEO of IT service provider Lenz IT & NetWorking Solutions, has been responsible in recent years for the implementation of these camera systems at AKH Linz

and is now also in charge of installing network cameras in the relaxation rooms. After his positive experiences with Axis, he again decided in favor of the Axis network video products. Four AXIS 221 Network Cameras, extremely fast day-and-night network cameras, transmit images of resting or sleeping patients to the nurses and doctors in the central control room. They feature a Pentax lens and a CCD image sensor, as well as an automatic, removable infrared-cut filter which permits color images in relatively good lighting conditions, and black-and-white infrared images in darkness. The cameras must not be swiveled; any blind spots are simply bridged with a new camera. The power supply is fed in via the network cables and is secured using UPS (Uninterruptible Power Supply).

"Diagnosis saves lives – to achieve the best results in this respect, our hospital relies on modern and efficient technologies. The network cameras help to ensure that undesired movements by patients before measurements do not distort examination results."

Andreas Stiglbauer, head of the Medical Informatics Department at AKH Linz.

Result

The cameras ensure the precise but very unobtrusive monitoring of the resting or sleeping patients and thus guarantee an extremely reliable diagnosis. Only if the patients rest for at least 50 to 70 minutes in preparation for the procedure can the previously injected or inhaled radio-labelled substance become concentrated in the relevant parts of the body. Via a monitoring screen with various views, the doctors and nurses can keep all patients in view simultaneously and do not need to be physically present in the relaxation room. This is advantageous not only to the hospital personnel, but also, in particular, to the patients themselves, who should feel completely unaware that they are being monitored. If patients become restless, because they feel nauseated for example, the alerted doctors can intervene immediately.

AKH Linz has an around-the-clock staff of over 2,200. With around 1,000 beds, more than 53,000 inpatients and 5.5 million outpatient treatments, as well as around 30,000 operations per year, AKH Linz plays a central role in healthcare services in Upper Austria. To fulfill this role, the hospital, which was spun off from the municipal government at the start of 2006 and has since become a 100% subsidiary of the municipal government, continuously invests in modern examination and security methods.

The commissioning of the first PET/CT at the AKH is scheduled for May 2008. PET/CT is a combination of two imaging examination procedures which have proven highly successful in the diagnosis of specific types of cancer. As a nuclear medicine diagnosis procedure, PET detects increased glucose metabolism in specific cells and can thus indicate the presence of a tumor. The CT image acts as an X-ray diagnosis method similar to a precise underlying map. The fusion image of both procedures clearly indicates the tissue area where the increased metabolism is located.

Seeing in the dark

Andreas Stiglbauer, head of the Medical Informatics Department at AKH Linz, was responsible for the EDP aspect of upgrading the new rooms for nuclear medicine. Between 8 and 10 patients can wait for their examination in the various rooms. First of all, 4 AXIS 221 Network Cameras film 3 to 4 beds. "Because one of the rooms is darkened to help patients sleep more easily, we wanted an extremely fast camera. That's why we chose the AXIS 221, a day-and-night network camera," said Lenz.

The cameras are connected to each other via the LAN (local area network), and the images are transmitted to the observation wards for the medical personnel, whose access is controlled by specific authorization structures. The fine-tuning of every individual camera ensures the precise coverage of the field of view, as well as a sharp image due to the adjustment of the focal lengths.

