windows embedded
health customer case study





German Hospital Enhances Patient Care and Medical Training with Intelligent System

Customer: Siloah St. Trudpert Klinikum
Website: www.siloah.de
Customer Size: 750 employees
Country or Region: Germany
Industry: Healthcare—Hospitals
Partners: Richard Wolf
Partner Website: www.richard-wolf.com/en

Customer Profile
Located in Pforzheim, Germany, Siloah St. Trudpert Klinikum is a leading regional provider of healthcare services including specialized urology procedures.

Solution Spotlight
- Enables connectivity to multiple devices and data sources
- Enhances medical training with real-time integration of multiple video feeds
- Provides better access to patient information
- Streamlines data management, including transmitting images via DICOM for storage in PACS

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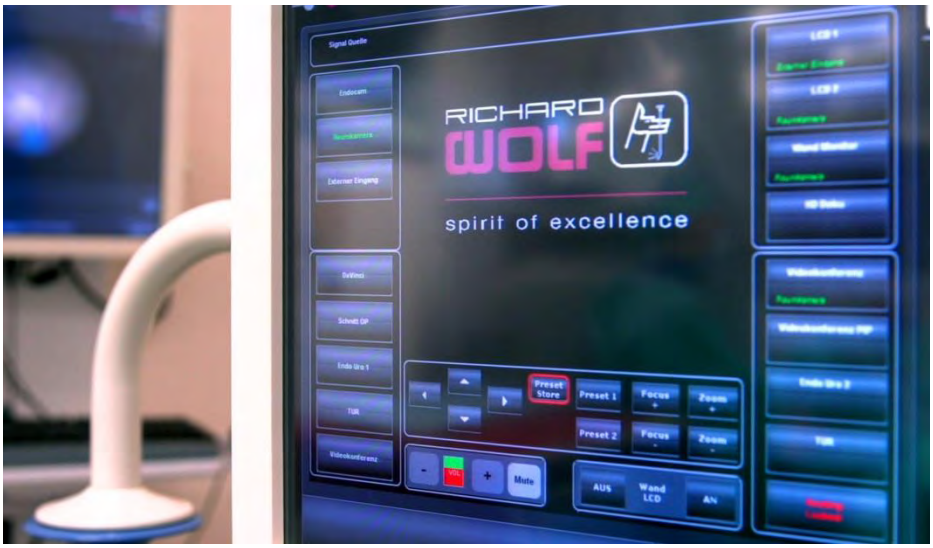
"With a solution from Richard Wolf based on Windows Embedded, we can easily manage multiple devices through a central interface.... As a result, treatment is more precise now than it was in the past."

Professor Sven Lahme, Medical Doctor, Head of Department of Urology, Siloah St. Trudpert Klinikum

Siloah St. Trudpert Klinikum, a leading hospital in Germany, wanted to optimize healthcare and demonstrate its pioneering endoscopic surgery to visiting physicians. The hospital decided to implement a digital operating room from medical-instrument maker Richard Wolf based on Microsoft technology that connects multiple endoscopic devices and data sources to a central control with a touchscreen interface. The solution also integrates with a video-conferencing system so that visitors can observe surgeries in real time. As a result, the hospital is optimizing patient care, enhancing medical training, and improving efficiency and workflow.

spirit of excellence

Windows Embedded



Touchscreen manages multiple devices through a central interface

Business Needs

Located in Pforzheim, Germany, Siloah St. Trudpert Klinikum is internationally recognized for its advances in urology. Its pioneering surgery, called minimally invasive percutaneous nephrolithotomy, was invented by Professor Sven Lahme, Medical Doctor and Head of the Department of Urology at Siloah St. Trudpert Klinikum. The hospital not only sees an increasing number of patients seeking specialized urology treatment, but also welcomes surgeons interested in learning more about Dr. Lahme's innovative techniques.

As a result, St. Trudpert Klinikum needed a state-of-the art operating theater that would support remote, real-time observation of surgery. So in 2004, the hospital built a training center that could transmit live video to visiting physicians via satellite connection. Six years later, the hospital saw a chance to upgrade when it began building a new urology department.

To provide optimal healthcare while demonstrating surgical procedures, Dr. Lahme and his team wanted an intelligent system they could use to centrally control endoscopic equipment as well as video feeds during surgery. In addition, the urologists wanted to obtain a more comprehensive overview of the patient's condition by combining diagnostic images such as X-ray and ultrasound scans with surgical images captured in real time. "We want to provide a good presentation of the surgical technique without facing any difficulties in transmitting pictures and videos," says Dr. Lahme. "Our goal is to focus on the procedure, not on managing software."

Solution

In September 2011, St. Trudpert Klinikum teamed with Richard Wolf, a leading provider of medical instruments and endoscopic equipment, to implement a digital operating room with video-conferencing capability. Based on the Windows Embedded operating system, the solution includes a control center called the core system that connects with multiple endoscopic devices, lasers, a specialized pump, and lights. Richard Wolf, which has a lengthy history of designing medical equipment in close collaboration with Dr. Lahme and other surgeons, chose the Windows Embedded platform because it can easily integrate new devices and data sources as needed while making minimal changes to the core system.

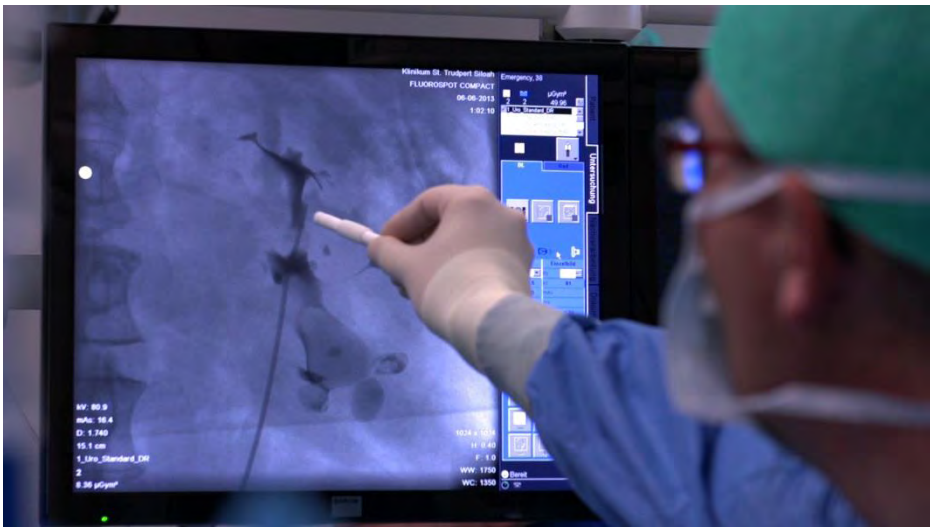
The system includes a touchscreen interface that can be used to control all endoscopic instruments, as well as lights, medical images, and other functions. At St. Trudpert Klinikum, the core system also connects with an X-ray machine and a Windows-based documentation solution that is used to convert images and video to a standard medical format. The data is transmitted using the Digital Imaging and Communications in Medicine (DICOM) protocol and stored in the hospital's picture archiving and communications (PACS) system. The hospital looks forward to future enhancements, including using the core system to control the movement of the operating table. The system is capable of controlling other features in the operating room as well, such as window blinds.

The streamlined solution provides better control and insight into surgical procedures in multiple ways. For example, connectivity between the endoscopic camera and light source ensures that the light intensity adjusts automatically if the camera image is too dark or too bright.

In preparation for the day's surgeries, a planning tool sends patient data to the core system that includes information such as name, identification number, and birthdate. Next, the documentation system collects images and video taken during surgery, combines them with the patient information, and then stores all the data in the PACS system. Subsequent searches by patient name or ID will then pull up the linked images and video. Enabled by the connected platform, the automation eliminates manual processes and greatly reduces the risk of error.

Videos of surgeries are streamed live over the Internet to a viewing site at the hospital and to a training facility at Richard Wolf. During surgery, physicians and nurses can use the touchscreen to control

Simultaneous views of endoscopic and diagnostic images during surgery



multiple endoscopic devices and access video feeds and images, including diagnostic scans from the PACS system and videos streamed from multiple workstations in the operating room. In addition, the core system connects with an audio system and a 42-inch, wall-mounted monitor that is used for video conferences with observing physicians.

Benefits

Siloah St. Trudpert Klinikum is optimizing patient care, enhancing training, and improving workflow with an intelligent system anchored by Windows Embedded.

Optimizes Patient Care with Better Connectivity

For Dr. Lahme and his team, the main benefit of the solution is not that it saves time, but that physicians can do more with the time they have available. "Our aim is always to provide really good patient care," he says. "We might spend the same amount of time that we did 10 years ago, but the treatment is better. With a digital operating room based on technology from Richard Wolf and Microsoft, we have capabilities that we didn't have before."

Dr. Lahme believes that better connectivity, as well as enhanced visibility, improves outcome. "With a solution from Richard Wolf based on Windows Embedded, we can easily manage multiple devices through a central interface," says Dr. Lahme. "And integration with different data sources lets us see multiple aspects of the same procedure simultaneously. For example, we can see the X-ray examination and the ultrasound alongside the endoscopic view. As a result, treatment is more precise now than it was in the past."

Enhances Medical Training

In the past, Dr. Lahme would have had to travel to demonstrate his procedures in person in a venue that lacked his specialized equipment and support staff. Now, he can share his expertise more easily and effectively. He says, "With a solution from Richard Wolf and Microsoft, we can give a detailed presentation of a procedure in our own department, assisted by nurses who are very familiar with the techniques. As a result, participants learn a lot more."

By connecting remotely to the operating theater, physicians can observe procedures and communicate directly with Dr. Lahme and his team. As he says: "There are a lot of publications and conferences to present new techniques, but everyone knows that it's necessary to actually see the surgery performed. With an operating room system from Richard Wolf and Microsoft, it's very easy to display all the data and participate in real-time discussions."

Improves Usability and Efficiency

By streamlining management of the operating room, the surgical team can work more efficiently and stay focused on the patient. "Our daily routine is easier with a solution based on Windows Embedded, because we can manage all of the parameters of the endoscopes, the lights, laser, and so on with a touchscreen," says Dr. Lahme. "It's a very effective and comfortable way to change the settings of all the instruments."

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Software and Services

- Windows XP Embedded
- Windows 7 Professional

Partners

- Richard Wolf

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