# ON THE MOVE

Identification News
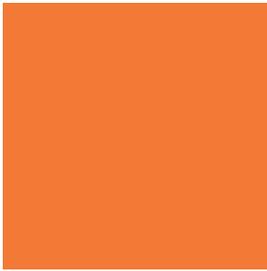
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- **Nokia, Philips and Sony establish NFC Forum**

- **Philips and IBM join forces in the RFID and smart card market place**

- **Clockless technology enables new applications**

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# In this issue

# I•CODE supports innovative solution for data tracking in hospitals

**New trends are being set in healthcare with the introduction of identification technology (ID) into medical environments. Using identification technology in complex clinical processes offers a number of advantages from process transparency, improved data and service quality, to the protection of patient records – and is set to drive significant changes in the daily clinical life for both doctors and patients.**

In any hospital the most complex and demanding working environment can be found in the intensive care unit (ICU). Providing care to patients in the most serious conditions involves many complex medical systems, and provides the most challenging environment for new ID solutions. Systems proven here will work anywhere else in the hospital. So, when the Johannes Gutenberg University children's hospital in Mainz, Germany, introduced a new system using ID technology, it started with its pediatric ICU.

The solution was developed and tested by ACG Identification GmbH – a leading component and technology supplier in the smart card and RFID markets – and n-Tier construct GmbH – a software vendor specializing in distributed information systems. It integrates ID technology into various workflow procedures within the ICU. The project was started in mid 2002, with the first reader modules from ACG implemented in November 2002 and the software integrated by n-Tier in December 2002. Providing

better data quality and improved patient confidentiality, the system is now delivering a much higher quality of service.

n-Tier is specialized in constructing this kind of wireless distribution system to solve even the most complex IT-problems. They have developed a complete software-architecture for the children's hospital, which gathers and processes information by means of the mobile devices as well as desktop PCs and terminals. This innovative solution uses combination of WLAN and RFID communications to input and extract data from the system. To ensure a high level of security for important data, the WLAN system uses both hardware and software encryption. The single software environment covers everything from patient data to medicine tracking, removing the need for several separate systems. Hewlett-Packard iPAQs are used as mobile clients, acting as mobile memo takers and providing doctors with context sensitive data about patients. ACG has developed a special reader module that can be plugged into the iPAQ's CF slot or connected via serial link to a desktop PC. The reader module enables medical staff to access information rapidly by reading tags on patients' wristbands or on medicine bottles – whenever and wherever needed.

Many different types of RFID labels are being used in this system to perform a multitude of separate tasks. RFID labels are used where fast identification is needed or where high value items, such as medicines, must be efficiently tracked. Barcodes are used for lower cost items, but the system can track both, allowing for easy migration from barcode to smart label identification.

The system uses RFID transponder wristbands based on Philips' I•CODE technology for patient identification and tracking. Worn by each patient, they can be easily read and the appropriate information displayed on mobile client devices (PDAs, Tablet-PCs, etc) directly at the bedside. Enabling doctors to view patient files on demand, i.e. at every location and at every time as the medical staff move around the ICU.

RFID labels are also used to authenticate the ICU staff to the software systems and to provide controlled access to special rooms of the ICU. The doctors and nurses also need to authenticate themselves on the PCs before they are allowed to access patient data. This authentication allows the system to build the user environment dynamically, according to the role(s) and privileges of the respective users, e.g. doctors will have more wide-ranging access than nurses – able to amend treatment regimes as well as to rapidly access the data needed to implement them. Depending on the individual task, data on these labels can be either a simple ID number or encrypted data on the patient's treatment regime.

Although all different, the labels in this implementation all use the 13.56 MHz RFID frequency for their wireless communications. This frequency is perfect for the medical environment, helping avoid any electromagnetic noise that may interfere with sensitive medical equipment.

The system also ensures the accurate tracking of patient documentation and the authentication of such material. Smart cards using Philips' MIFARE® PROX ICs provide a mechanism to authenticate documents going outside of the ICU ward, medical department and/or the hospital. Using digital signatures, documents can be signed electronically providing non-repudiation and legal protection under Germany's digital signature law. Finally, by using standardized technology to build an independent architecture free from proprietary components or specialized operating systems, all the new hardware and software components at the pediatric ICU have been combined seamlessly into the Johannes Gutenberg hospitals' existing IT environment.

# Meet us at the following events

- **Date:** 1 - 3 June 2004
  **Event:** The 7th International Fair of Smart Cards
  **Location:** Beijing, China
  **Website:** www.smartcards-china.com

- **Date:** 8 - 10 June 2004
  **Event:** Wireless Connectivity World
  **Location:** Amsterdam, Netherlands
  **Website:** www.wiconworld.com

- **Date:** 13 - 15 September 2004
  **Event:** Frontline Solutions
  **Location:** Chicago, USA
  **Website:** http://show.supplychainweek.com

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