

RFID Applications to Secure the Flow of People

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Radio Frequency Identification (RFID)

on Palettes and Cases ↔ on Items / Persons

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RFID Tags in Japanese Elementary School

Aims:

- Security of pupils
- Better control for teachers

Methods:

- Active RFID tags on books or schoolbags
- No information about student on chip, only ID number
- Intelligent middleware and RFID sensors at entrance doors
 - Automatic eMail to teachers or parents at arrival of student
 - Web interface for observation
- Detection of unauthorized people entering campus (infrared sensors in combination with RFID sensors)

➔ Launch in April 2005

Source: Fujitsu Press Release, September 27, 2004 © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

RFID Tags in Birth Clinic (Wuesthoff Medial Center in Rockledge, Florida)

- > 850 births per year
- High-tech institution
 - Risk of baby hijacking
 - Thefts of equipment

- RFID-based security system
- Tracking of babies via RFID chips in wristlets
- Tracking of equipment via RFID chip on each item
- Sensors throughout department and on every door
- Movement of babies or items registered
- Alarms launched by system

Source: www.exi.com, May 2005 © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

RFID in Japanese Prison (Future!)

Prison without iron griddles in Yamaguchi

Prisoners with RFID chip on jackets

Displays in security guard rooms

Security staff with possibility to track prisoners

- Better observation of prisoners
- Decrease of danger of escape

Opening April 2007

Source: www.we-make-money-not-art.com/archives/00516.php May 2005 © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

RFID Against Crime in Japan

City of Osaka will introduce high-tech systems for preventing/dealing with crimes.

Special vending machines, 'Unmanned Police Station Robots', with embedded surveillance cameras

+ Kids carrying RFID tags with push button to press in case of emergency

➔ Nearby vending machine will transmit pictures of the area to police

Source: ubiks.net/local/blog/jmt/technews3/003489.html © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

mm **RFID on New Passports in Germany**

- Certified (ISO 14443) security RFID chip with cryptographic co-processor

Source: www.icao.int, www.theregister.co.uk, www.heise.de © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

mm **RFID on New Passports in Germany**

Chip in der Passdecke
Symbol für elektronisches Passbuch

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mm **RFID on New Passports in Germany**

- Certified (ISO 14443) security RFID chip with cryptographic co-processor
- Facial identification on RFID chip (starting Fall 2005)
- Fingerprint identification on RFID chip (starting 2007)
- Digital signature for integrity and authentication (access control to avoid unauthorized reading of data)
- Reading distance: 10 cm, max. 15 cm (they say now ...☺)
- Higher price for passports to be paid by citizens

Source: www.icao.int, www.theregister.co.uk, www.heise.de © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

mm **RFID on Passports (2)**

EU

RFID chips on passports, facial identification until mid 2006, fingerprint identifiers until beginning of 2008

US

Machine-readable biometric data on passport (from 2005-10-26)

Technical framework for biometric passports by ICAO (International Civil Aviation Organization)

- Biometric data on RFID chip
- Strong encryption of data

↻ Standards not yet final

Source: www.icao.int, www.theregister.co.uk, www.heise.de © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

mm **RFID-Based Documents at US Borders**

US Department of Homeland Security

Testing RFID along nation's borders (airports, ports, and land borders in Arizona, Washington, and New York) to better monitor foreign visitors entering and leaving

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At land borders, distribution of I-94 forms with RFID tags

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Scanning of tags upon departure from US to ensure compliance with visa

Pilot project starting July 2005

Source: www.rfidgazette.org/security © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne

mm **RFID on ALL Tickets for 2006 FIFA World Championship**

- RFID technology embedded in chip in ticket
- Electronically controlled barriers for access control with proximity readers to detect ticket validity
- Middleware system connected with entrance control
- At entrance:
 - Necessary encrypted data (incl. personal data) transferred from ticketing system to stadium access control system
 - ↻ Aligning ticket / personal data with access control data
- Entrance registration on RFID chip when passing barrier

Reducing blackmarket ?!

Preventing double entrance

Source: fifaworldcup.com/06 © Prof. Dr. Claudia Loebbecke, M.B.A. – Dept. of Media Management – University of Cologne