September 22, 2022

RFID in Health Care 2022

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MEETING FUTURE DEMANDS

NFC-RFID in Medical and Healthcare Environments

Presented by: Stefan Genser and Frederic Vicentini

Introduction

Stefan Genser is Sales Director for RFID/Transponder Solutions in EMEA working for Identiv. Holding degrees in innovation management and computer sciences, he is supporting new customers from all different industries in realizing their ideas for over 10 years.

Frederic Vicentini has been working at NXP Semiconductors for the past 9 years and is currently in charge of the business development activities in EMEA for the RFID and NFC product portfolios. Frederic has a strong background of 20+ years in the field of RFID, security, and smart product technologies, and has held several sales and marketing positions in high-tech companies internationally.

Identiv: Global provider of physical security and secure identification. Identiv's platform encompasses RFID and NFC, cybersecurity, and the full spectrum of physical access, video, and audio security.

NXP: Secure Connections for a Smarter World
Advancing the world through our semiconductor technology leadership and making it a safer, smarter, more connected place

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Fundamental Challenges for the Healthcare Industry

Increasing Medical Demands

- Growing patient expectation
- Greater prevalence of chronic illnesses
- Aging population

Shortage of Healthcare Professionals

- Increasing workload
- Higher pressure
- Demand for patient remote care

Large health expenditures

- 9.8% of global GDP in 2019
- Demand for cost efficiency

Counterfeit Medication

- Fake drugs
- Grey market diversion
- Robust brand protection needs

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Digital Transformation in Healthcare

- **Connectivity** > There is an increasing range of smart medical devices for both in-home and clinical environments. The growth of consumer devices, from smartphones to wearables, in tandem with the pandemic, has encouraged patients to monitor their own health and manage chronic illnesses. Growing telehealth services have helped reduce the burden on hospitals

- **Efficiency** > Patients can benefit from less stressful, more accurate, and faster treatments. Medical facilities such as hospitals and doctor offices can operate with greater efficiency through better knowledge of what is happening in real time with patients and clinical assets

- **Security** > New challenges need to be carefully managed, such as robust authentication of medication, IoT hardware and software security protection, security and privacy of patient data being transmitted, etc.

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How to Tackle the Challenges with NFC-RFID

1. INCREASED MEDICAL DEMAND

Direct 1:1 Patient Interaction

- APP(-less) tampering & authentication features
- Check if products are genuine and sealed
- Easy access to information, re-ordering, track adherence history, etc.

Smart Diagnostics

- NFC tags in smart test kits for authentication and instructions
- Access to anonymous test results
- Combination with sensors on tag (temperature, capacity, biosensor, etc.)

Patient Therapy Adherence

- Auto identification of refill consumables. Also verification of expiration, temperature, etc.
- Less painful injections when fluids at room temp.
- Fill level measurement for keeping thresholds in mind. Emptiness warning.
- Sync with mobile app for tracking and link to doctor

Secure Connection to Hospital Network and Medical Records

- E.g. Homecare: Link device in secure way to the hospital network.
- Avoid errors and unauthorized access to settings
- Privacy and security of data
- Secure firmware updates

Sustainability

- For environmentally conscious enterprises
- Low carbon footprint
- Sustainable pharma packaging

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Versatile NFC **Inlay and Label** Designs with security functions

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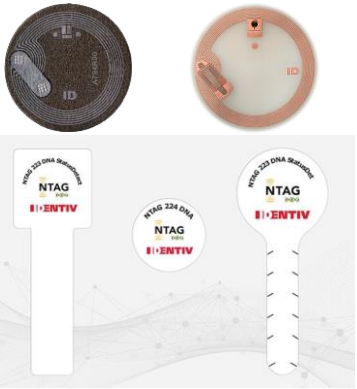
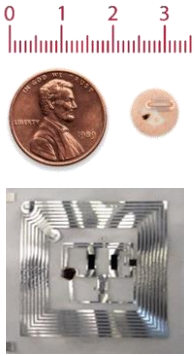


Versatile NFC **Inlay and Label** Designs with security functions

Smart Diagnostics



Tiny Tags for any device and surface (metal).
Multicomponent Designs (NFC + ext. Components and Sensors)

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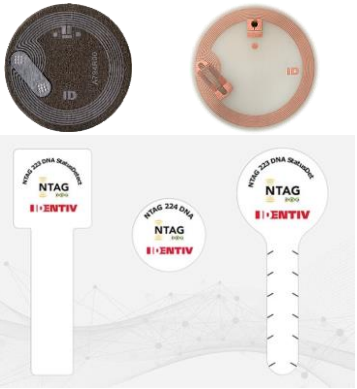

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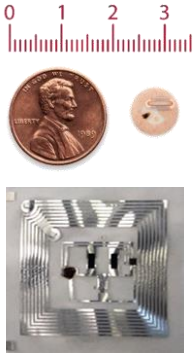

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Syringe Tags
Automatic identification by reader in Auto Injector

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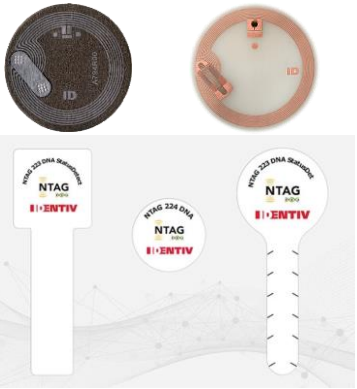

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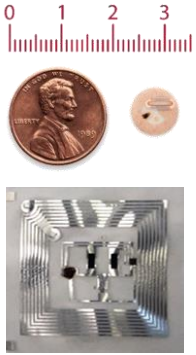

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Secure Connection to Hospital Network and Medical Records

Minicare BV Test Analyzer
Cartridge Identification and Secure Data Management

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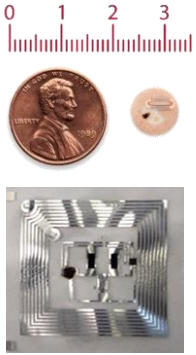

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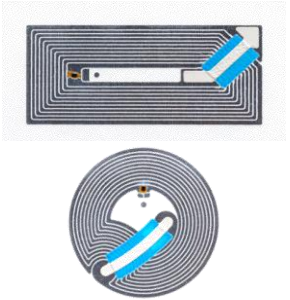

Eco friendly tags

Paper based substrate and non-etched antennas

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How to Tackle the Challenges with NFC-RFID

2. SHORTAGE OF HEALTHCARE PROFESSIONALS

Direct 1:1 Patient Interaction

- Self-managed healthcare
- APP(-less) tampering & security features
- Interact with products for individual and personal information exchange and usage instructions

Smart Diagnostics

- Smart kits for remote applications and person oriented instructions and information
- Data protection and safe direct communication to other networks
- Combination with sensors on tag (temperature, capacity, biosensor, etc.)

Automation of Tedious Tasks

- Tags on accessories and NFC reader in base units, e.g. analyzers
- Base unit can identify & authenticate type of consumable
- Base unit parametrizes depending on type of accessory
- Accessory can store events and track its wear & tear

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How to Tackle the Challenges with NFC-RFID

2. SHORTAGE OF HEALTHCARE PROFESSIONALS

Direct 1:1 Patient Interaction

CVS Spoken RX
The first in-app prescription reader to be developed by a national retail pharmacy.

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uTrust SafeTemp
Body temperature measurement patch
Skin Patch Tag
Skin Condition Monitoring

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Automation of Tedious Tasks

Passive **Fill Level Sensor**
Tiny tags for automatic identification and configuration.

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How to Tackle the Challenges with NFC-RFID

3. LARGE HEALTH EXPENDITURES

Supply Chain and Inventory Control

- Give digital identity which can be read without line of sight
- Logistics & distribution – for box and item level
- Real time inventory counts
- Automated compliance checks possible for best before dates, temperature, etc.
- Grey market control

Therapy Adherence

- Mobile-enabled or closed loop based (e.g. consumable verification, expiration dates, dosage instructions, temperature readings)
- Patient compliance including remote monitoring by general practitioners
- Support efficiency in clinical studies
- Patient compliance Monitoring
- Increase in Quality and Speed

Reduction of Manual Processes

- Automation in consumable identification and configuration of devices
- Increase of speed and productivity
- Automation in quality assurance (temp tracking)

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How to Tackle the Challenges with NFC-RFID

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Various **NFC and UHF** Inlays, labels, and on-metal tags

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Active or Passive Blister Tag
Patient compliance monitoring with conductive status detect

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Reduction of Manual Processes

uTrust Sense Temperature Tracker
Active temperature logger for medical deliveries
Tags for device identification, configuration and monitoring of status (e.g. temperature)

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How to Tackle the Challenges with NFC-RFID

4. COUNTERFEIT MEDICATION

Anti-Counterfeit Protection

- Uniquely identify drug products
- Advanced security using cryptographic techniques for robust authentication
- Check if genuine in real time
- Cover last mile to the patient
- Give assurance of a product's authenticity and provenance to patients and caregivers
- Protect patient safety

Anti-Tampering Protection

- Detect whether product packaging has been opened prior to sale or usage, anywhere within the supply chain up to retail and the patient
- Protect against dilution, refills and substitution
- Leverage tamper evident NFC tags using a conductive tamper loop or capacitive structure

Tamper Proof Labels

- Mechanical destruction of tag in case of removal
- No reading possible anymore after removal

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How to Tackle the Challenges with NFC-RFID

4. COUNTERFEIT MEDICATION

Anti-Counterfeit Protection

NFC Inlays and Labels (also on-metal) with security functions, e.g. AES cryptography, dynamic SUN message

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Anti-Tampering Protection

NFC Electronic Tamper Evidence using conductance (e.g. seals) or capacitance (e.g. caps)

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Tamper Proof Tags

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What's Next?

It starts with a phone call or email. Any inquiries can be supported by NXP or IDENTIV directly:

- Consultation to discuss your distinct project needs
- Customized inlay designs and branding for tag solutions
- Support custom encoding and trust provisioning services
- System level support - commissioning and enabling the technology
- Network of partners throughout the healthcare industry

We are eager to talk to everybody to learn about further market needs and to create new products together with you.
Contact us to receive a free sample of our products or to consult on your project.

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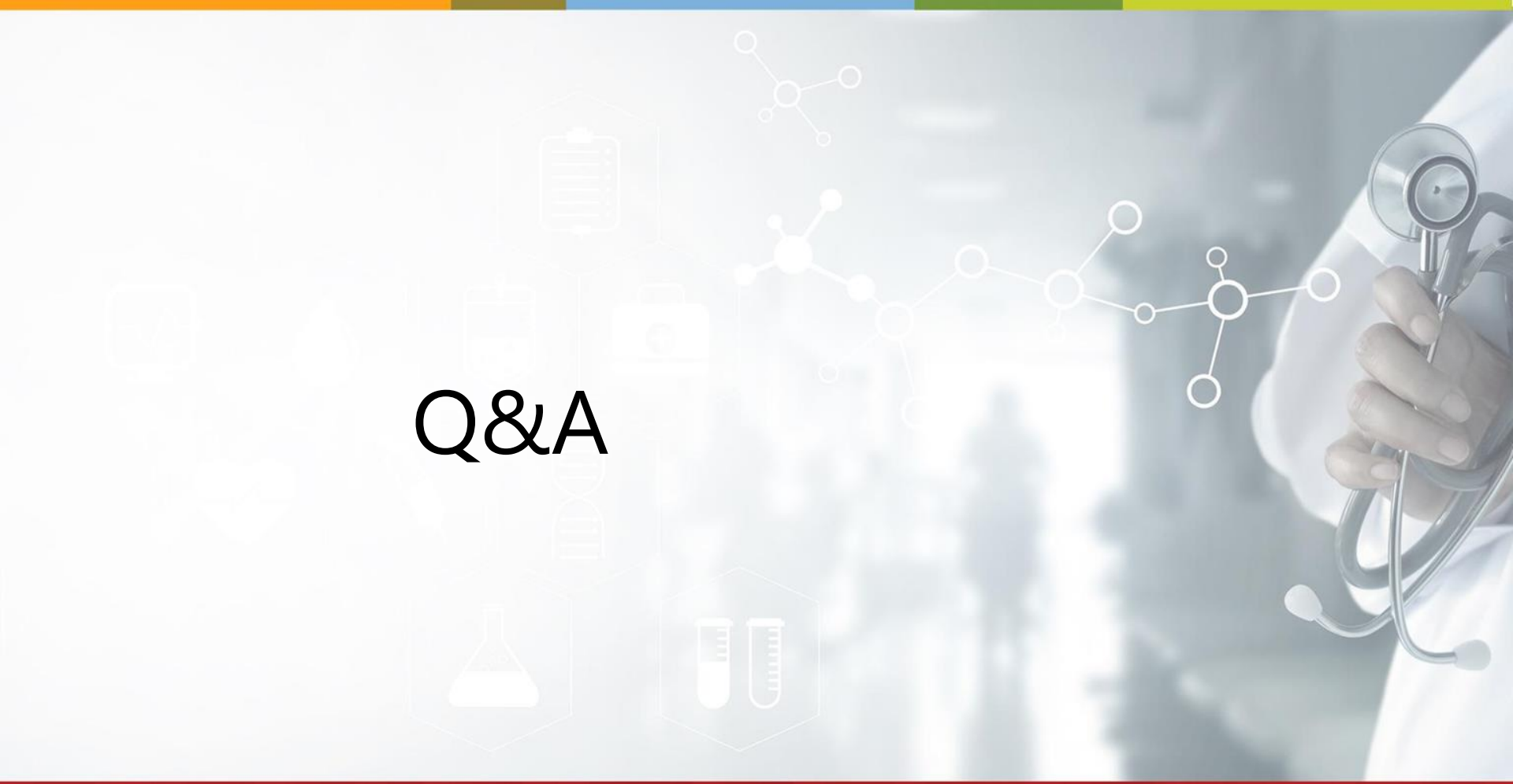
Q&A



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