

PHOENIX CONVENTION CENTER, PHOENIX, ARIZ., SEPT. 27, 2021



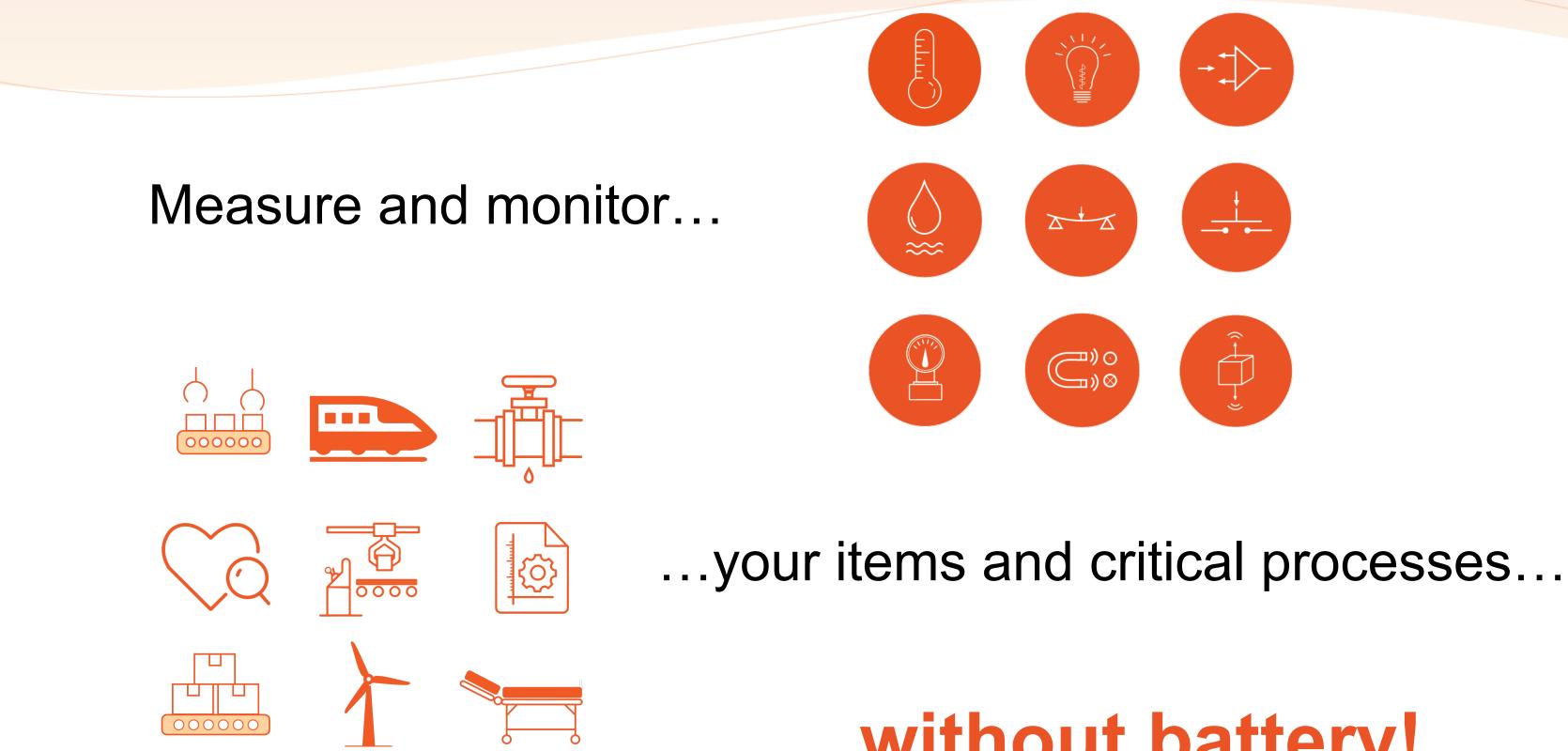
# 35Y6N

# Fundamentally Changing the RFID Industry





# **AS321X Proposition**

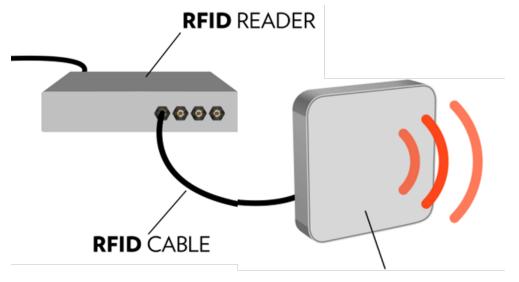


# ...without battery!



## How?

# Attaching an RFID Sensor Tag to the object you wish to monitor...



RFID ANTENNA



# And reading it upto several meters away with any RAIN RFID Reader.



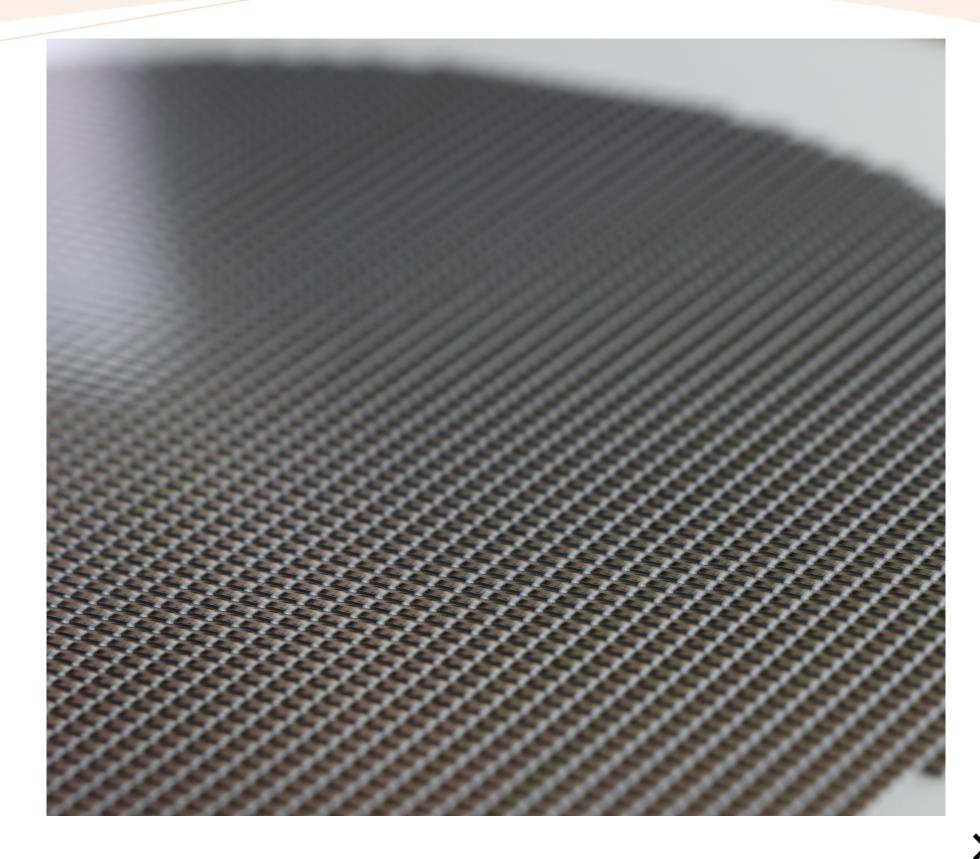


# THANK YOU !

contact@asygn.com

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### em aura-sense Augmented RFID





## **Pioneering RFID for more than 3 decades**

Swatch Group's **EM Microelectronic** serves the RFID market since 1989 with premium ICs, standard and customized, for LF, HF, UHF and multi-frequency/multi-protocol applications



#### 1989

EM4001 First EM LF chip



1996

ISO 11784/11785 standard for animal identification, EM4005



2000

EM4095 High Performance LF Reader AFE



#### 2003-2008

World's first mass UHF RFID retail deployment, EM delivers 90% of worlds UHF chips



#### 2017 New benchmark for

RAIN RFID crypto transponders

em aura-C



#### 2020

#### Holistic omnichannel RAINFC solution



#### 2021

Scalable high-performance NFC web authentication

## Where Augmented RFID technology leads us

**Building construction &** Maintenance



Manufacturing



**Transportation &** Logistic



Cannot really take shape because most sensor solutions are not cost-effective for widespread distribution

IoT

Many use cases cannot tolerate the presence of a battery or recycling and ubiquity constraints.





Healthcare



Agriculture



**Automotive Industry** 

No need for battery power using RFID field. Existing know-how in RFID and sensors

em aura-sense AUGMENTED RFID

Collecting through wireless sensing

Sustainable green tag deployments with no maintenance and footprint.

#### aura-sense Passive capacitive sensor tag em **AUGMENTED RFID**

#### **RF performance**

- ✓ Inventory: -19.5dBm\*
- ✓ Sensing :-18dBm\*
- ✓ Data storing: -15.5dBm\*

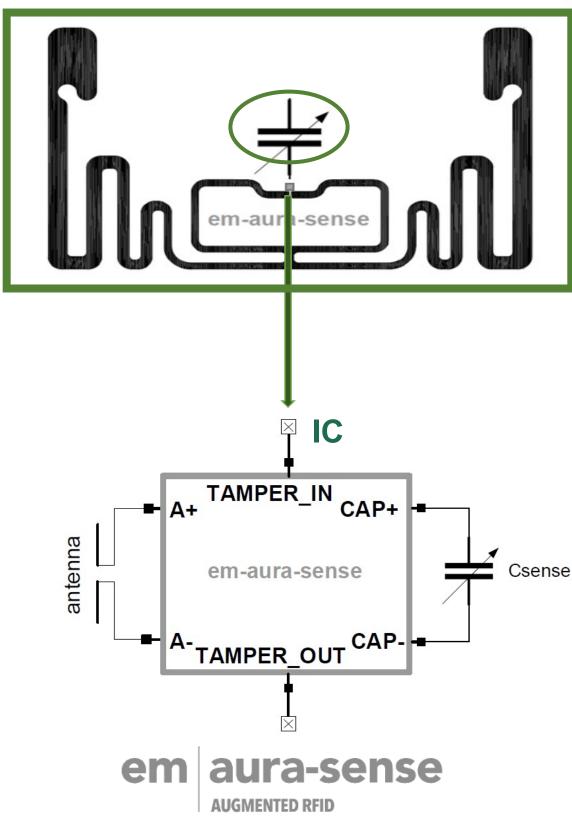
\*with dipole antenna



#### **Snapshot sensor**

- ✓ No coupling between sensing element and antenna.
- Standard reader commands and tag  $\checkmark$ replies.
- Retrieve sense at boot acquisition  $\checkmark$ with simple read command.

#### **RFID Tag UHF**





#### 1-step inlay manufacturing

 $\checkmark$  The capacitive sensor is external to the chip and integrated in the inlay.

#### **Capacitive sensing**

- $\checkmark$  7 bits resolution
- Capacitive sensitivity: 160fF/code  $\checkmark$
- Capacitance effective range: 17pF  $\checkmark$
- ✓ Sensing error reporting





#### emmicroelectronic.com



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# RFD JOURNAL LIVE!

# Best New Product 2021: Intelligent RFID Makes Healthcare Simpler, Smarter, and Safer

Amir Khoshniyati Vice President, RFID & NFC Solutions - Identiv





# DENTIV

## YOUR WORLD, VERIFIED.

Identiv is a global leader in digitally securing the physical world.

#### **Physical Access Control and Video**

When it comes to high security at the lowest cost, our robust, feature-rich systems support frictionless access managed from anywhere.

#### **Logical Access** Control

 $\hat{\mathbb{A}}_{=}$ 

From remote authentication to embedded applications, get the tech to keep you moving (or at home) and keep your data safe and secure.



**Credentials** 

Our end-to-end credentials portfolio covers all of the bases, from proximity to high-security, and highlights every form factor.

### HIRSCH









#### **RFID Inlays** and Tags

We're experts in designing and manufacturing RFID inlays and tags for embedded use in billions of everyday objects in the IoT.



### ONE OF THE MOST PROLIFIC TECHNOLOGIES ON THE PLANET



Smartphone users worldwide will reach **2.87 billion** in 2020.



64 NFC-enabled devices are produced approximately

every second

## Billions Of People Use NFC Around The World





### 20%

of the world's population and growing uses NFC in their daily life.

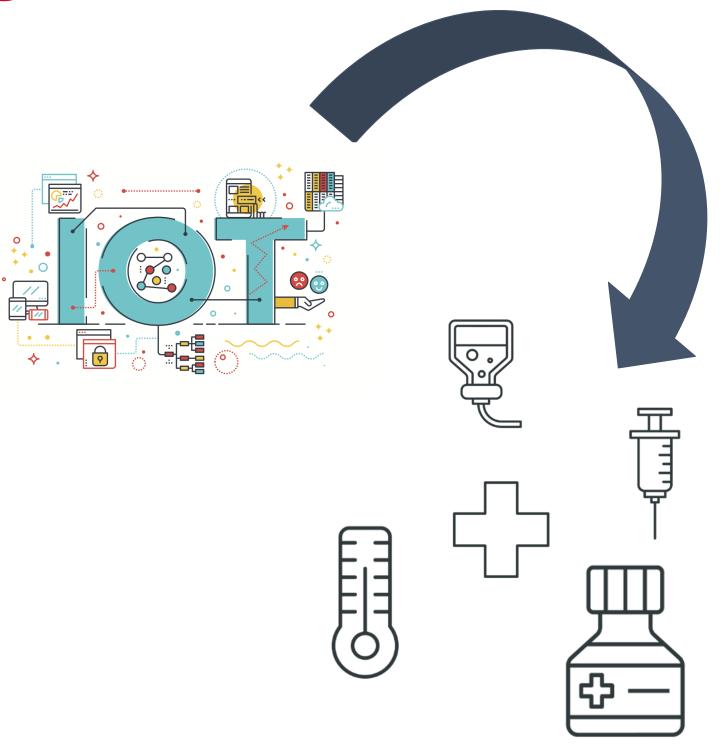


# When IoT Meets Wellness

- RFID makes the world increasingly more digital
- Connecting everyday items in the IoT
- Benefits for healthcare and pharmaceutical market by adding flexible RFID:
  - Authentication
  - Anti-counterfeiting
  - Transfer of patient information
  - Temperature sensing and monitoring
  - Patient compliance monitoring



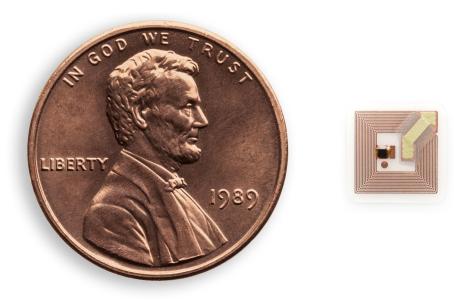




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# Making Healthcare Simpler, Smarter, Safer

Identiv in the Healthcare and Pharmaceuticals Market





#### **Smallest Copper NFC Tags**

- Pharma packaging
- Integration into medical equipment
- Authentication of medication

#### **RFID Tags for Patient Information** Transfer

- Integration into medical equipment •
- Highest quality standard
- Use in operating room





#### **Eco Friendly NFC Tags**

- Sustainable pharma packaging
- Can be used as label
- Processed directly into boxes
- Authentication of medication

## **NFC-Enabled** Patient Compliance Monitoring Solutions

## "Medicines don't work in patients who don't take them ..."

Dr.C. Everett Koop, frmr Surgeon General, USA.

"If there were a cure for noncompliance — a pill that would make you take your other pills it would be a greater boon to health than any medication since penicillin..."

Dr.Craig Saxton, fmr Head Pfizer HQ R&D, New York, USA.



# Identiv's Intelligent Response Patient Compliance Monitoring Solutions



#### uTrust Sense BlisterCheck





#### uTrust Sense SyringeCheck Smart Injectable Dose Monitoring

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# Patient Compliance Monitoring Benefits for the Two Big Use Cases

Clinical Trials			Expensiv	
•	Exclusion of non-compliant participants from statistics → <b>Meaningful trial results</b>	•	Ensur works <b>comp</b>	
•	Clinical trial can be conducted in "natural environment" (at home and not in clinic) → <b>Better trial results</b>	•	Allow <b>comb</b> (i.e., a	
•	Efficient way of performing "Phase IV Studies" → <b>More cost-effective trial results</b>	•	See <b>ir</b> assist medio	





#### ive Medication

re that expensive medication that ks is also **paid for by insurance** panies

v more complex intake plans by bining with reminder schemes app, alarms, etc.)

mproved patient outcomes and st those who actually want to take their icine (but might forget to do so)

## uTrust Sense Temperature Tracker Compact Datalogging Smart Sensor

- Enhance supply chain in healthcare
  - Hospital environments
  - Pharmacies
- Protect highly temperature sensitive goods in pharmaceuticals
- Improper temperature handling costs the healthcare industry millions
- Adding a visual indicator element for WHO Pharma Logger compliance





# YOUR WORLD, VERIFIED.



## Amir Khoshniyati Vice President, RFID & NFC Solutions akhosh@identiv.com





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# Optical RFID system for smart factory optimization implementation

Yanggi Kang IDRO Co., ltd.

# Two challenges in RFID Technology

98%, 99% 100%? Tag Recognition Rate

CROSS READING (Stray Reading)

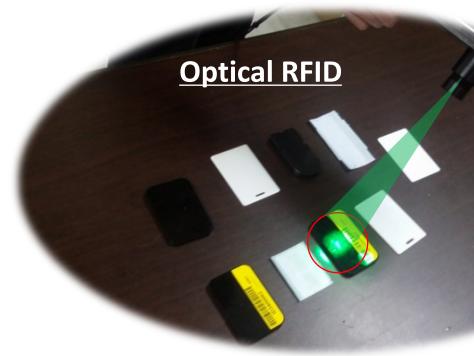






# **RFID vs Optical RFID**











#### Response: RF

# Advantages of Optical RFID

#### [Advantages]

- A complete solution to solving Stray-reading problem
- Supports ISO 18000-63 and Optical RFID
- Optical Reading distance: over 5m

### [Who needs?]

- Manufacturers (Smart Factory)
  - ➔ Maximize Production Efficiency with Error-Free Smart Factory Solution
  - ➔ Minimize Maintenance Costs





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# Main applications of Optical RFID

01 Conveyor applications 컨베이어 응용



02

**Process** management 공정 관리

**Vehicle** production management 자동차 생산관리













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