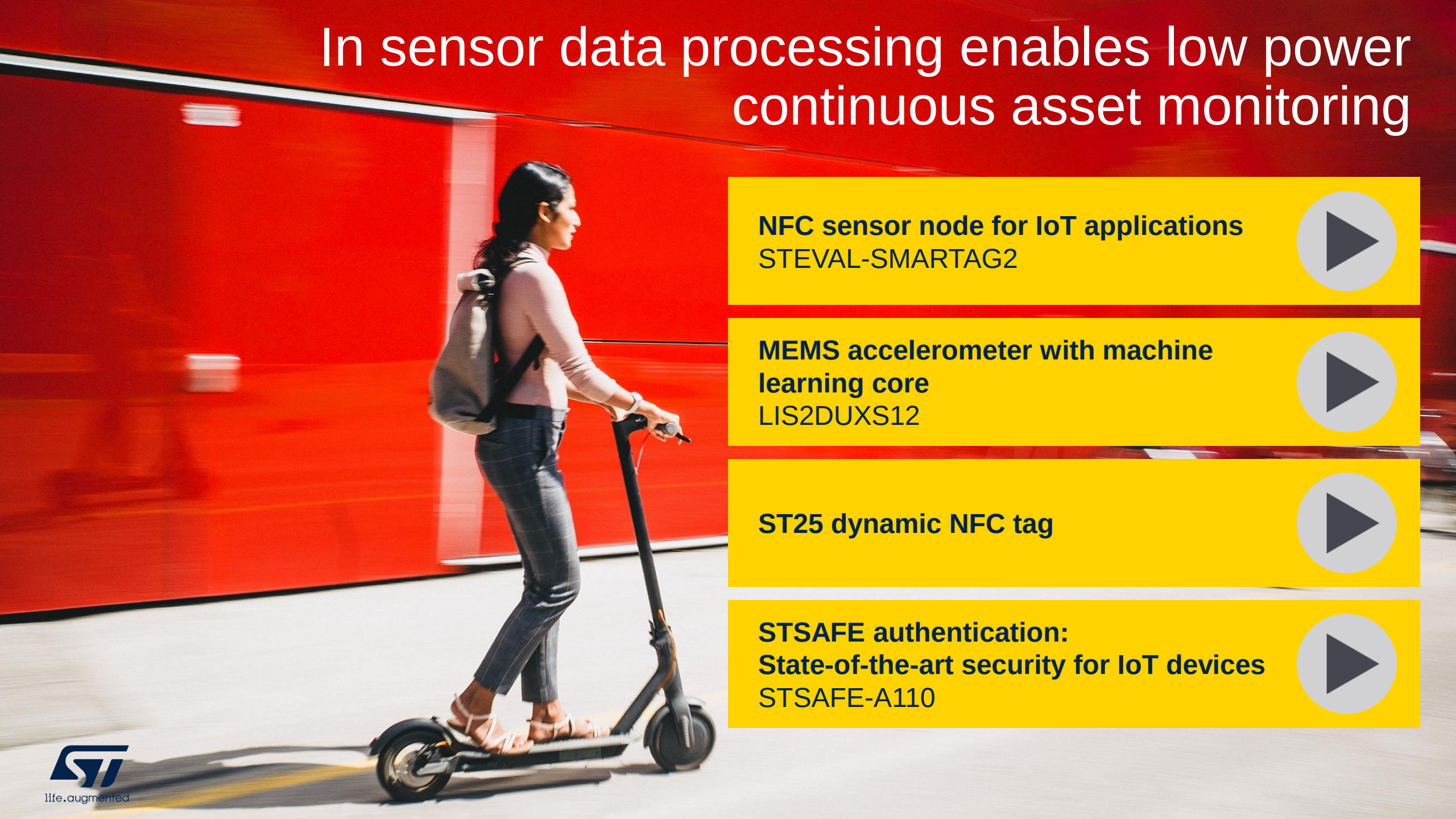
In sensor data processing enables low power continuous asset monitoring



NFC sensor node for IoT applications
STEVAL-SMARTAG2

MEMS accelerometer with machine learning core
LIS2DUXS12

ST25 dynamic NFC tag

STSAFE authentication:
State-of-the-art security for IoT devices
STSAFE-A110

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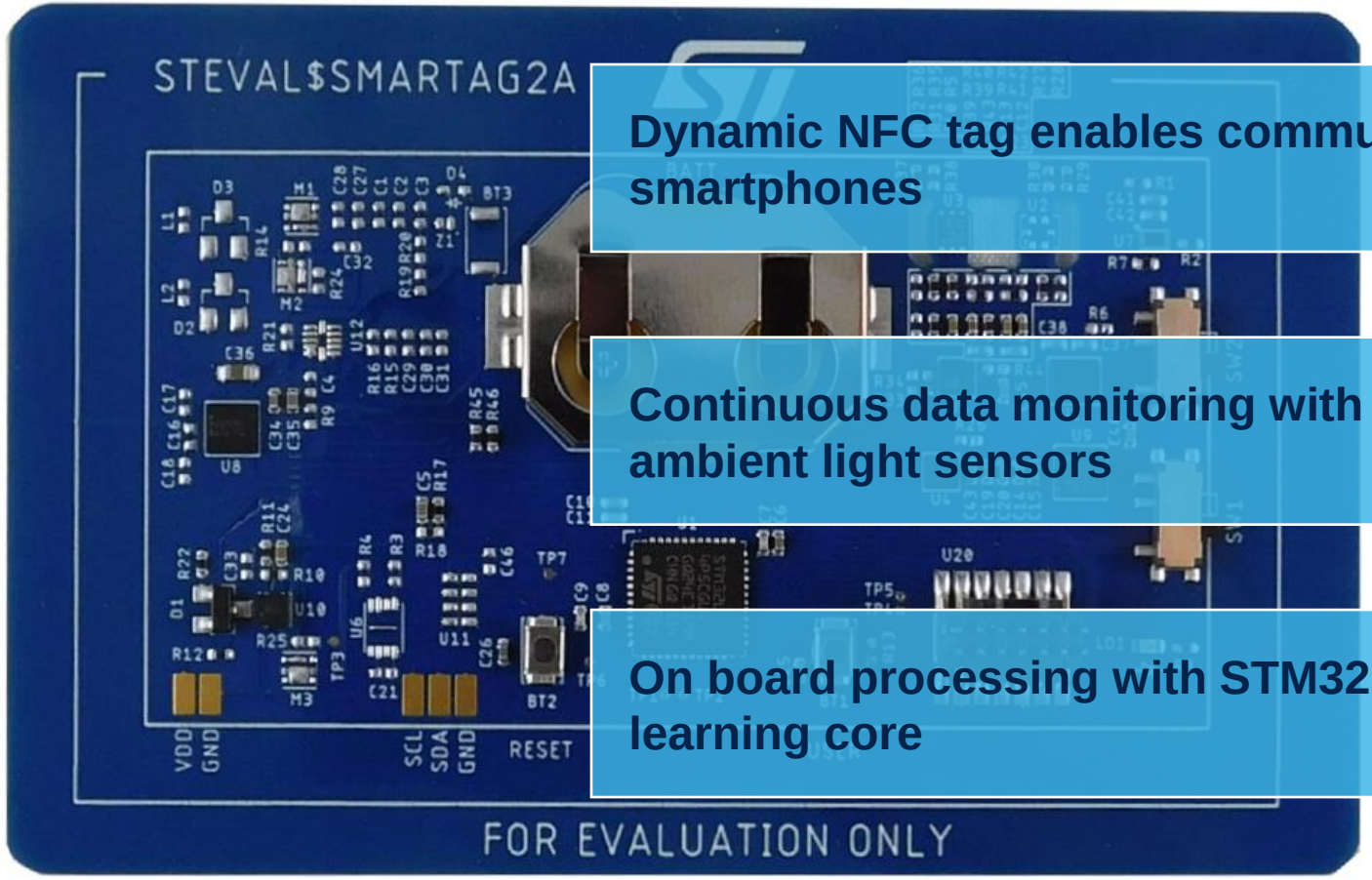
STEVAL-SMARTAG2

NFC-enabled sensor node for IoT applications



- Dynamic NFC tag enables communication with NFC reader and smartphones
- Continuous data monitoring with environmental, motion and ambient light sensors
- On board processing with STM32L4 and in-sensor machine learning core

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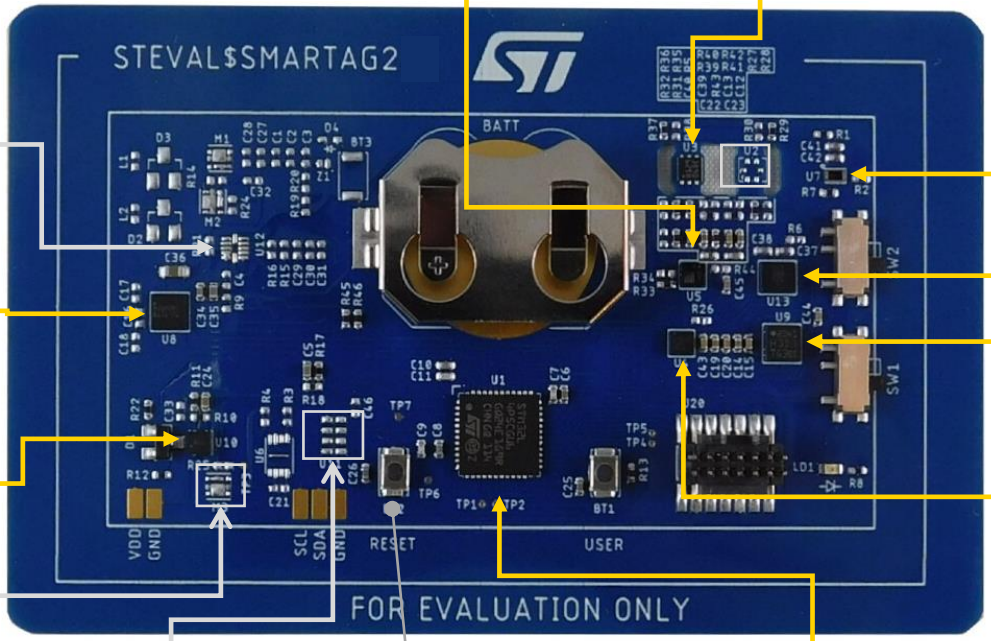
STEVAL-SMARTAG2



LPS22DF pressure

STTS22H temperature

Environmental sensors

VD6283 ambient light

STBC15 battery charger

ST25DV64 NFC/EEPROM

STLQ020 LDO voltage regulator

LSM6DSO32X IMU with MLC

H3LIS331DL Hi-G XL

Hi-g

LIS2DUX12 ULP XL with MLC

Inertial sensors

STSAFE A110 secure element

M41T62LC RTC Crystal

STM32L4P5CEU6 MCU Cortex-M4

Buttons Reset/User

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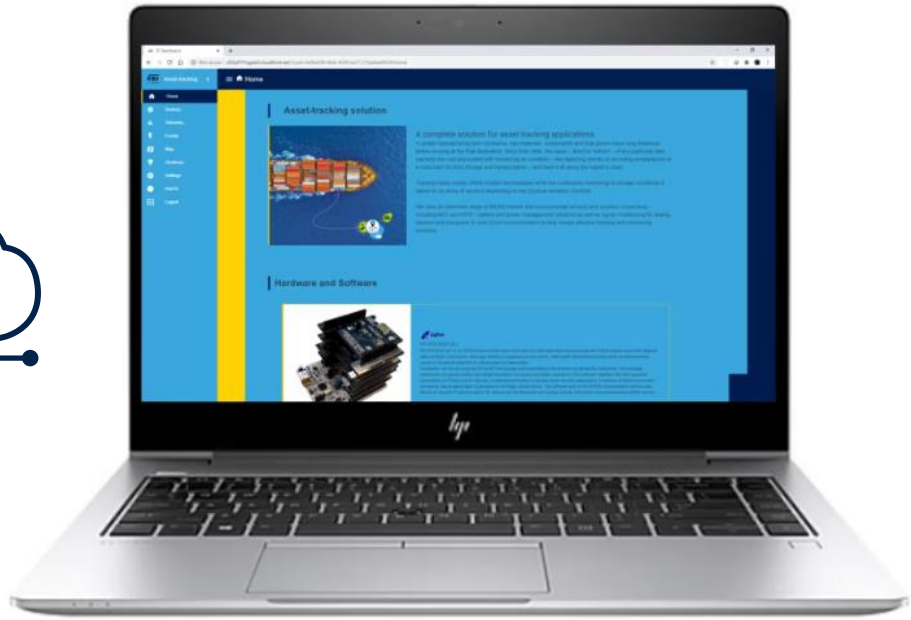
Ecosystem and demo flow

STEVAL-SMARTAG2 with **FP-SNS-SMARTAG2** firmware

STAssetTracking App

DSH-ASSETRACKING sandbox cloud application



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LIS2DUXS12 – Key benefits

Ultra-low-power 3-axis digital smart accelerometer with AAF

- Anti alias filter (AAF) in high performance and low power mode
- Machine learning core and finite state machine
- Adaptive self configuration (ASC)
- Advanced interfaces: I^2C, SPI & I^3C 1.1
- Ultra-thin package (2.0 x 2.0 x 0.74 mm LGA12)

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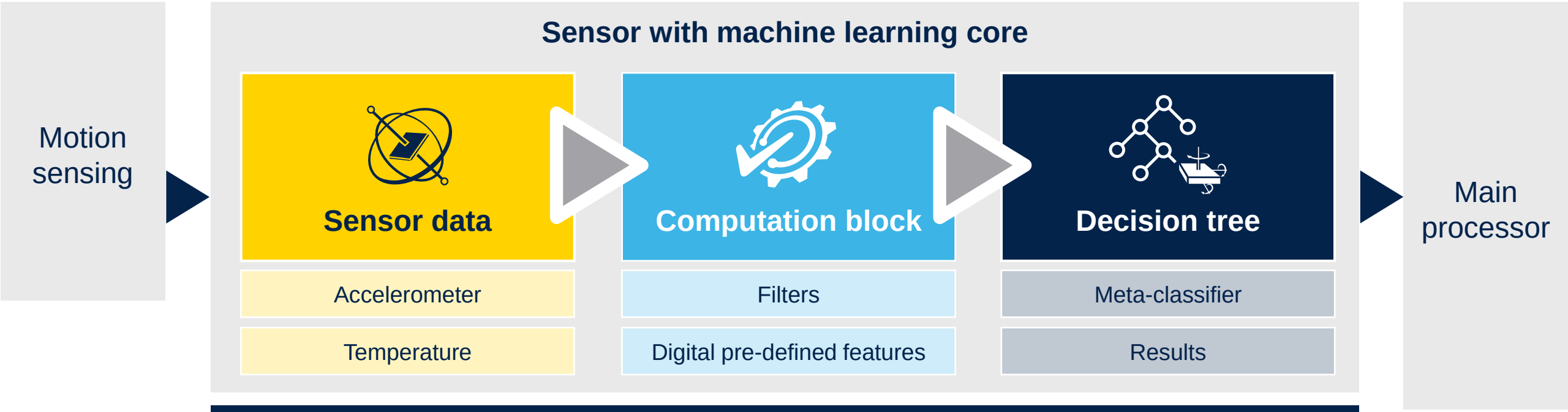
Machine learning core (MLC)

MLC is an in-sensor classification engine based on decision tree logic



MLC is able to **increase accuracy** with a **better context detectability**, **offloading the main processor** while the built-in sensors identify motion data

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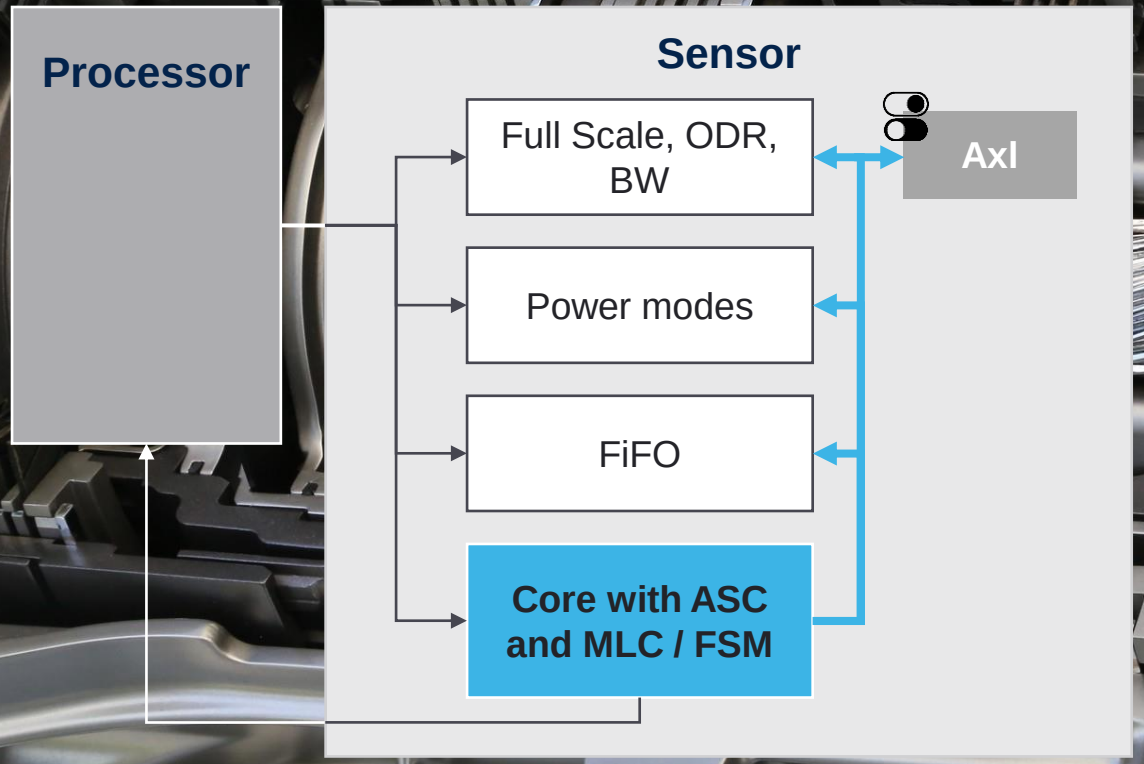
Adaptive self configuration (ASC)

Flexible and power-efficient sensor settings configuration



The ASC modifies the **sensor settings automatically** based on the **events detected** by the Machine Learning Core or the Finite State machine

No interaction with external processor
→ **No additional current consumption**

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ST25 product families

Consumer engagement, asset tracking, ticketing, brand protection, access control, gaming… www.st.com/st25t

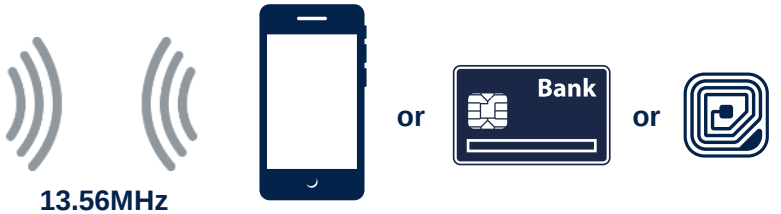
Tags

Industrial, lighting, metering, motor control, consumer, appliance, healthcare… www.st.com/st25d

Dynamic tags

POS & mPOS terminals, automotive, access control, gaming, reader+tag… www.st.com/st25r

Readers



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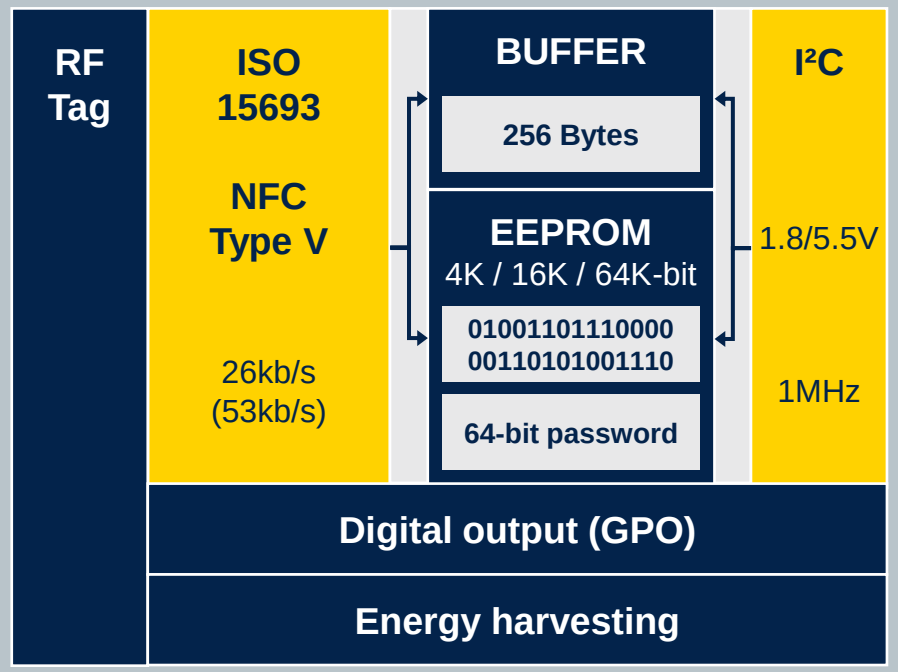
ST25DVxxKC dynamic NFC tag

ST25DV04KC / 16KC / 64KC



Use cases

- Fast data exchange with NFC phones / HF readers
  - Fast data transfer for MCU FW upgrade, fast data exchange
  - Parameters settings and update, with in-the-box programming
  - Data log download

Key features

- **ISO15693** and **NFC Type V**
- **Fast data transfer** thanks to 256 Bytes buffer
- I2C write on **16-Byte page**
- Low power mode, < 1 µA power consumption in standby
- -40 to **+125°C** (I^2C) industrial Grade 8 temperature range
- **Energy harvesting** function through RF
- I^2C enhanced features (write time improved, address configurable, access priority…)

Key benefits

- Smart applications using a **flexible interrupt GPO**
- Enhanced protection with multiple **64-bit passwords**
- Same 28.5 pF internal RF tuning capacitor, as in ST25DV-I2C & M24LR

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STSAFE-A110 overview

Secure solution for brand protection & connected devices

Optimized and certified

Provisioning services

Seamless integration

- Strong authentication
- Secure channel establishment (TLS)
- Signature verification
- Decrement counter
- Secure data storage
- Amazon AWS JIT and Microsoft Azure DPS device enrollment
- WPC 1.3 Qi authentication compliant
- Based on CC EAL5+ platform

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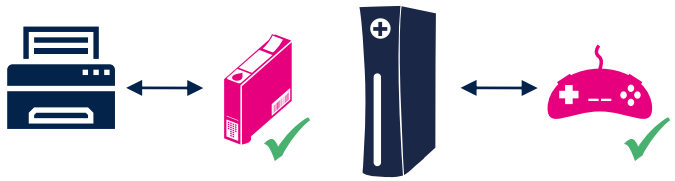
STSAFE-A110
Cryptographic authentication

Addresses two major needs

Brand protection

Customers want to :

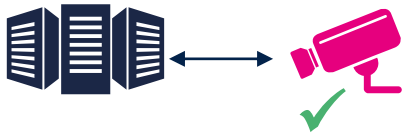


Verify that a consumable or a peripheral is genuine

Control the number of usages

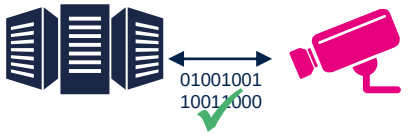
Security for connected devices

Customers want to :

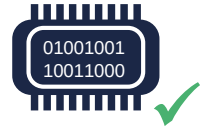


Verify that the device is genuine

Verify the device access rights to clouds



Ensure integrity and confidentiality of exchanged data



Ensure embedded system integrity

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