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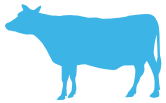
ST Solutions for **Asset Tracking**

Ernesto Manuel CANTONE

Asset tracking applications and segmentation

Outdoor Real-Time Monitoring		Containers	Livestock monitoring 	e-bike	Fleet management	Pet tracking
Industrial Logistic		Pallets	Racks	Luggage	Smart parcels	
Good Guarantee		Cold chain	Food	Medical		
Disposable		Letters	Packages	Parcels		

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Asset tracking
Needs per applications

	Processing & Security	Sensing	Connectivity	Power Management
Outdoor Real-Time Monitoring Containers, livestock monitoring, e-bike, Fleet management, pet, tools management	Dedicated MCU Dedicated Secure chip	HI-G	UHF, LPWAN, WPAN, GNSS	
Industrial Logistic Pallets, racks, indoor / outdoor location	Dedicated MCU Embedded security	HI-G	UHF, LPWAN, WPAN, Wi Fi	
Good Guarantee Cold chain, food, medical, smart parcels	Dedicated MCU Embedded security	HI-G, ToF	UHF, LPWAN, WPAN, Wi Fi	
Disposable Letters, packages, parcels	Digital Sensors Embedded security		UHF, LPWAN	

LPWAN: LoRaWAN,
LTE CATM1 / NBIoT, Sigfox

Real-time tracker

Complexity
(# of sensors, connectivity)

Logger

ST offering for asset tracking

Processing | Sensing & Actuating | Security | Connectivity | Power & Energy Management | Signal Conditioning & Protection

ST offers components and evaluation platforms that are suitable for all asset tracking use cases

NFC & RFID

NFC Sensor Tag
FP-SNS-SMARTAG1

Bluetooth

SensorTile.box
FP-ATR-BLE1

Sub 1GHz Sub-1 GHz

IoT LoRA® Tracker
FP-ATR-LORA1

Sub 1GHz Sub-1 GHz

Sigfox™ Tracker
FP-ATR-SIGFOX1

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NFC Sensor Tag
STEVAL-SMARTAG1

NFC Dynamic sensor TAG for asset tracking

Available Software

FP-SNS-SMARTAG1

Mobile App

ST NFC Sensor

Motion & Environmental Sensors

- Low power accelerometer **LIS2DW12**
- Altimeter / Pressure sensor **LPS22HH**
- Humidity and temperature sensor **HTS221**

Processing

STM32L0 low-power MCU **STM32L031K6**

Connectivity

Dynamic NFC Tag **ST25DV64K**

RFID

Power management

Voltage regulator **STLQ015**

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STM32 Open Development Environment

SensorTile.box
STEVAL-MKSBOX1V1

A ready-to-go IoT Node

Available Software

FP-SNS-STBOX1

FP-AI-SENSING1

FP-ATR-BLE1

Mobile App

ST BLE Sensor

ST Asset Tracking

Motion Sensors

Low-power 6-axis IMU, with Machine Learning Core

LSM6DSOX

High-performance and low power accelerometers

LIS3DHH & LIS2DW12

Magnetometer

LIS2MDL

IP54-compliant casing
500 mA-h Li-Po battery

Environmental Sensors

Altimeter / Pressure sensor

LPS22HH

Accurate temperature sensor

STTS751

Humidity sensor

HTS221

Analog wide-band microphone

MP23ABS1

Processing

STM32L4 low-power MCU

STM32L4R9ZIJ6

Connectivity

Bluetooth Low Energy Module

Power management

Battery charger

STBC02

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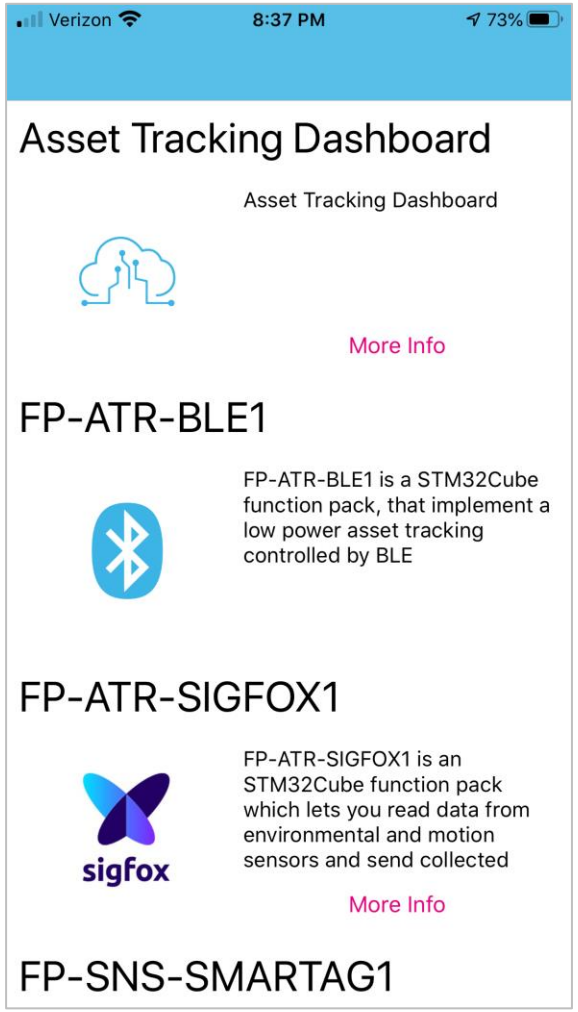
STM32 Open Development Environment

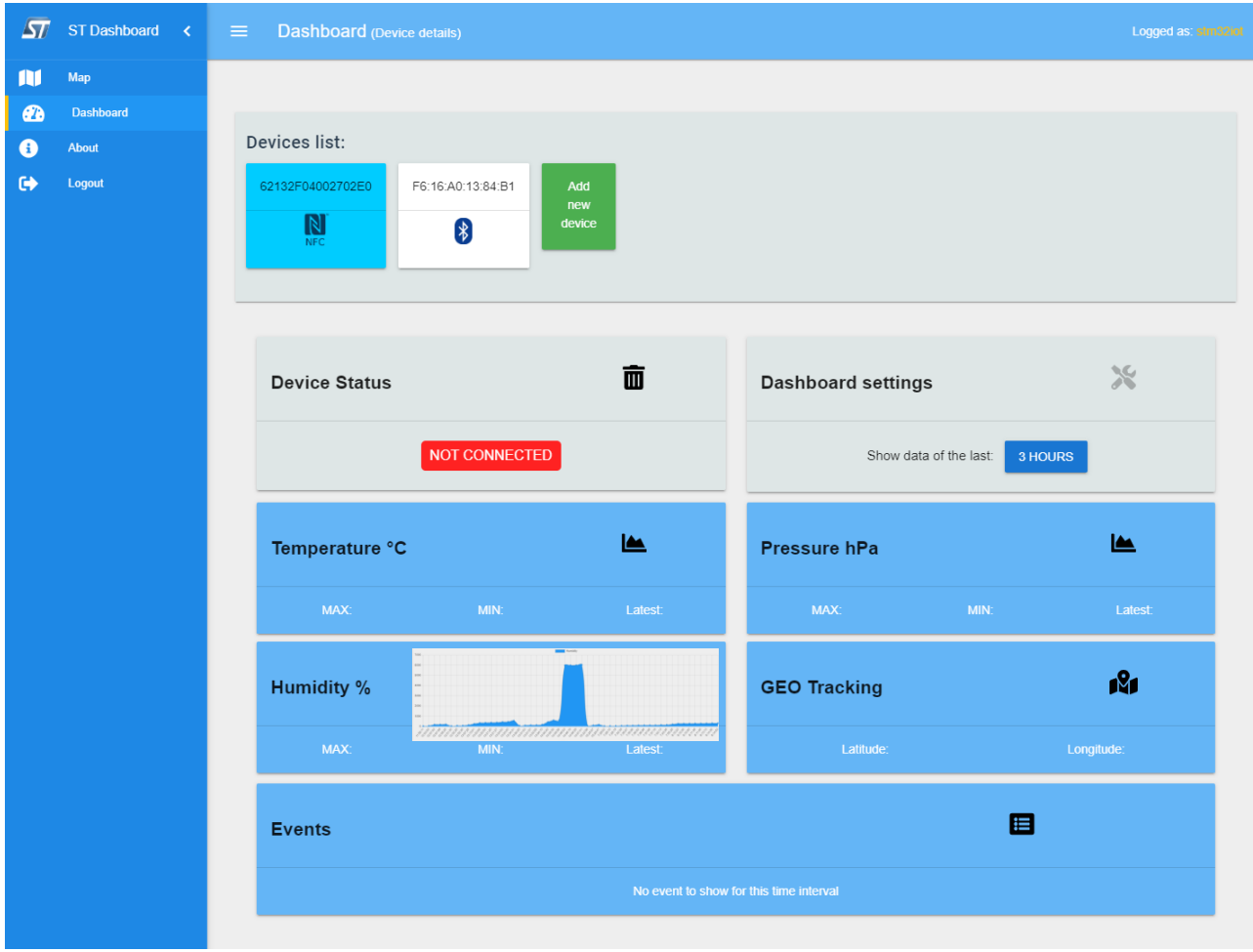
FP-ATR-BLE1

- STM32Cube function pack for asset tracking using BLE connectivity for the SensorTile.box wireless multi sensor development kit
- Complete example on how to create an **asset tracking application** a using Bluetooth Low Energy (BLE) Sensor Node
- Mobile device running **ST Asset Tracking** client application for Android/iOS
- Collect and display sensors data:
  - Wake-up, tilt and orientation detection by the on-board accelerometer
  - Environmental sensor data and inertial data saved on SD card



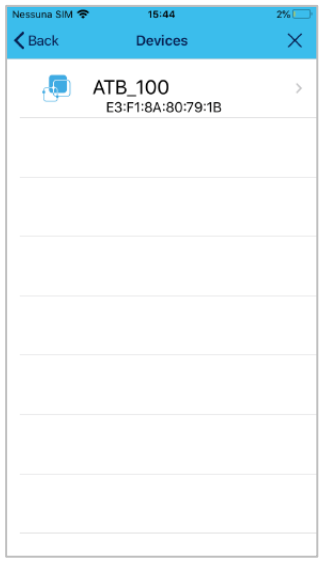
DSH-ASSETRACKING

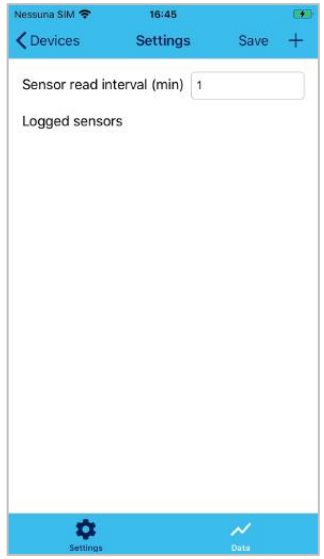
- **SensorTile.box** running **FP-ATR-BLE1**
- **ST Asset Tracking** App
- **ST NFC Sensor** App
- **DSH-ASSETRACKING** cloud application providing intuitive interface tailored for the collection, visualization and analysis of asset tracking position as well as data from motion and environmental from compatible ST devices such as NFC Sensor Tag and SensortTile.box.

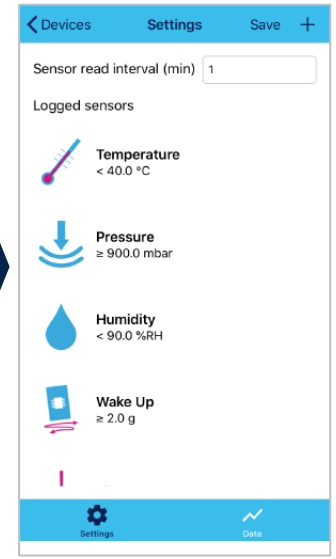


Asset Tracking with SensorTile.box

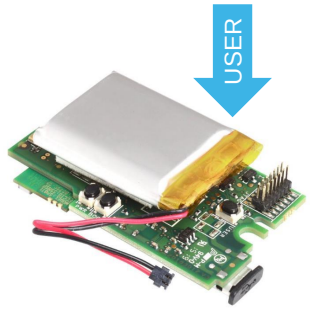
Prepare SensorTile.box for Shipping

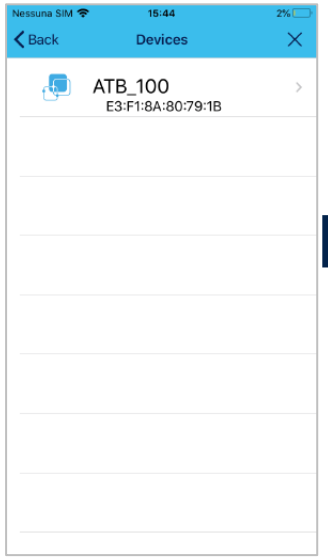


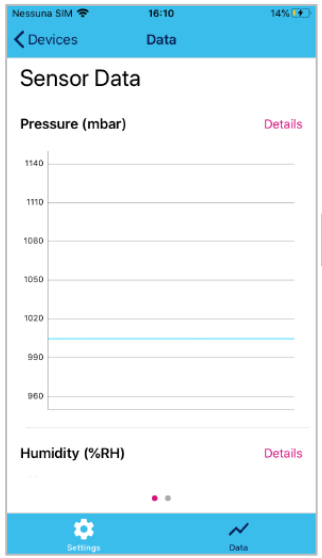


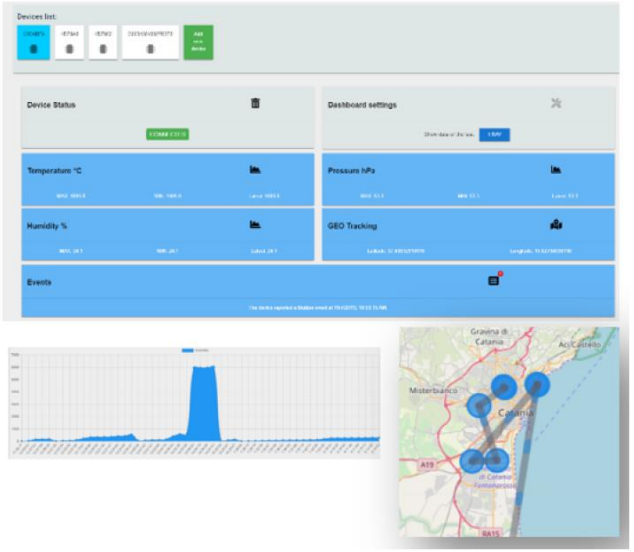


Receiving goods equipped with SensorTile.box

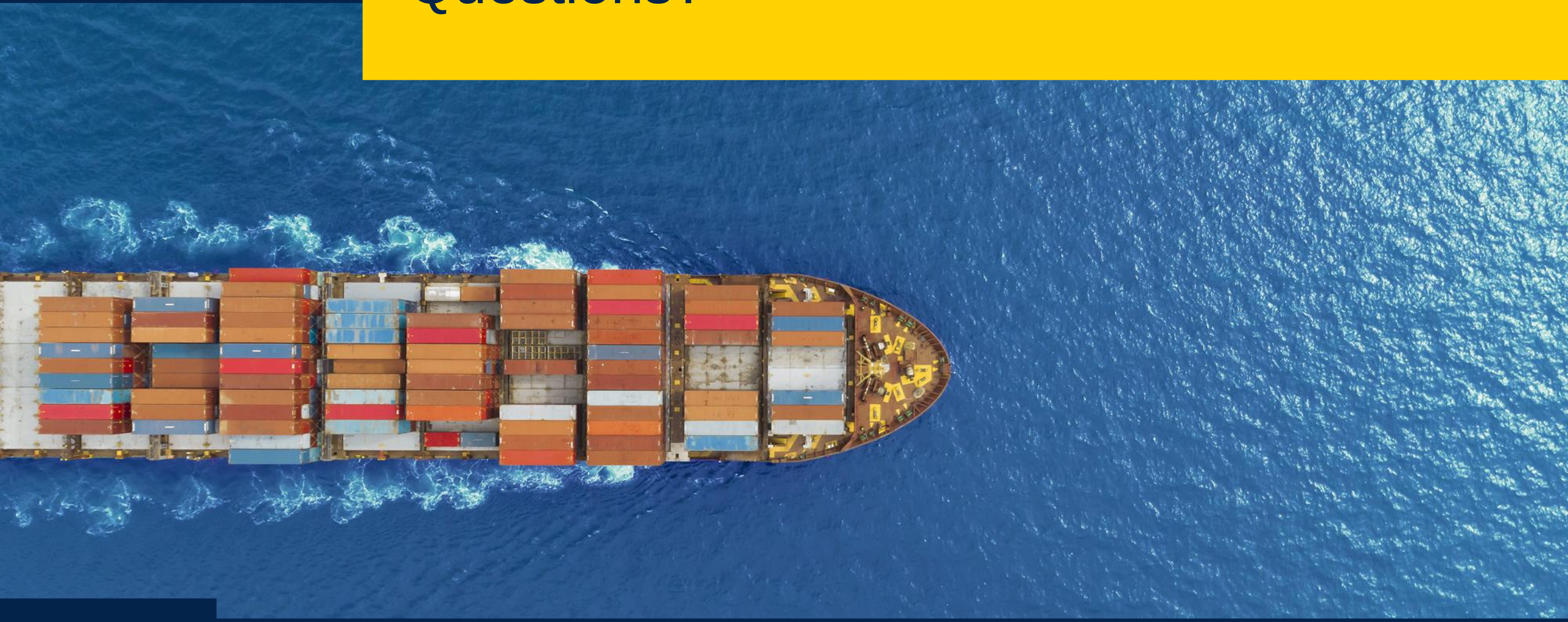








Questions?



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