### Features

- **NFCSENSOR.BOX**: optimized form factor and encapsulated in a plastic case for testing
- **ST25DV64KC-JF6D3**: dynamic NFC/RFID tag IC with 64-Kbit EEPROM and fast transfer mode capability
- **STM32L4P5-CGU6**: ultra-low-power Arm® Cortex®-M4 32-bit MCU+FPU, 150 DMIPS, up to 1-MB flash memory, 320-KB SRAM, LCD-TFT, external SMPS
- **LSM6DSO32X**: iNEMO 6 DoF inertial module with 32 g accelerometer and embedded machine learning core
- **LIS2DUXS12**: ultra-low-power 3-axis smart accelerometer with machine learning core and Qvar
- **H3LIS331DL**: MEMS motion sensor: low-power high-g 3-axis digital accelerometer
- **LPS22DF**: low-power and high-precision MEMS nano pressure sensor: 260-1260 hPa absolute digital output barometer
- **STTS22H**: low-voltage, ultra-low-power, 0.5 °C accuracy I²C/SMBus 3.0 temperature sensor
- **VD6283TX**: Ambient Light Sensor with Hybrid filter multispectral and with embedded light flicker engine
- **STLQ020**: 200 mA ultra-low quiescent current LDO
- **STBC15**: ultra-low current consumption linear battery charger (optional component, not populated)
- **STSAFE-A110**: authentication, state-of-the-art security for peripherals and IoT devices
- **M41T62LC**: low-power serial real-time clocks (RTCs) with alarm (optional component, not populated)
- **CR2032 or LIR2032**: battery powered (not included)
- **STM32Cube function pack (FP-SNS-SMARTAG2)**
- **End-to-end proof of concept ecosystem**: mobile app and cloud dashboard:
  - **DSH-ASSETTRACKING**: web cloud dashboard
  - **STAssetTracking**: mobile app available on Google Play and App store
- **Suitable for the following applications**:
  - Internet of things
  - Supply chain and cold-chain management
  - Smart building, home, and city
  - Retail and apparel
  - Smart packaging
  - Medical and pharmaceutical
  - Batteryless sensing
  - Smart agriculture (soil control, animal tracking)
  - Asset tracking
  - Impact detection

### Product summary

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<th>Feature</th>
<th>Component/IC</th>
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<tr>
<td>NFC dynamic tag sensor and processing node evaluation board</td>
<td>STEVAL-SMARTAG2</td>
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<td>Dynamic NFC/RFID tag IC with 64-Kbit EEPROM, and fast transfer mode capability</td>
<td>ST25DV64KC-JF6D3</td>
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<tr>
<td>Ultra-low-power 3-axis smart accelerometer with machine learning core and Qvar</td>
<td>LIS2DUXS12TR</td>
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<td>Low-power and high-precision MEMS nano pressure sensor: 260-1260 hPa absolute digital output barometer</td>
<td>LPS22DFTR</td>
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<td>Ambient Light Sensor with Hybrid filter multispectral and with embedded light flicker engine</td>
<td>VD6283TX45/1</td>
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<tr>
<td>Low power High-g 3-axis accelerometer, SPI/I2C digital output MEMS motion sensor, user-selectable full scales of ±100g/±200g/±400g</td>
<td>H3LIS331DLTR</td>
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<tr>
<td>INEMO inertial module: always-on 3D accelerometer and 3D gyroscope</td>
<td>LSM6DSO32XTR</td>
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Description

The STEVAL-SMARTAG2 is an NFC-enabled sensor node with inertial MEMS sensors and environmental sensors, an STM32 microcontroller, and a dynamic NFC tag for communication with NFC readers, such as tablets and smartphones.

Optionally, the STEVAL-SMARTAG2 can be equipped with: a battery charger fed by a full-wave rectifier for NFC energy harvesting (on top of the energy harvester already embedded in the dynamic NFC tag) and a real-time clock (RTC) with an embedded crystal oscillator to enable an accurate timekeeping and time stamping.

The board has a small and thin form factor, comparable to the size of a credit card, which makes it particularly fit for deployment in the field and data collection.

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<td>Cloud Amazon-based web application for asset tracking</td>
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<td>ST Asset Tracking application for Android and iOS</td>
<td>STassetTracking</td>
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<td>Applications</td>
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Figure 1. STEVAL-SMARTAG2 circuit schematic (1 of 6)
Figure 2. STEVAL-SMARTAG2 circuit schematic (2 of 6)
Figure 3. STEVAL-SMARTAG2 circuit schematic (3 of 6)

Temperature Sensor

Pressure Sensor

Multispectral Sensor
Figure 4. STEVAL-SMARTAG2 circuit schematic (4 of 6)

Dual Interface EEPROM

Push Buttons
Figure 5. STEVAL-SMARTAG2 circuit schematic (5 of 6)

LIR2032 Battery

\[ \text{BATT}_M(v) = \text{BATT} \times 0.353 \]

Linear regulator (1.9 V)
Battery Charger

\[ \text{RECT}_M(v) = V_{\text{RECT}} \times 0.2034 \]
2 Board versions

Table 1. STEVAL-SMARTAG2 versions

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<th>Bill of materials</th>
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1. This code identifies the STEVAL-SMARTAG2 evaluation board first version. It is printed on the board PCB.
2. This code identifies the STEVAL-SMARTAG2 evaluation board second version. It is printed on the board PCB.
## Table 2. Document revision history

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<th>Revision</th>
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<td>11-Nov-2022</td>
<td>1</td>
<td>Initial release.</td>
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<tr>
<td>06-Jun-2023</td>
<td>2</td>
<td>Updated Features, Description, Version and Schematic diagrams.</td>
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