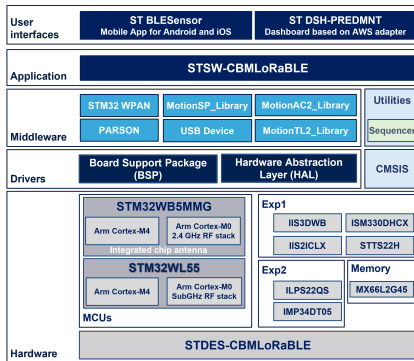


Software package for the STDES-CBMLoRaBLE multiconnectivity and multisensor industrial solution



Features

- Software package to develop a complete industrial IoT node application based on a standard STM32Cube framework, for condition-based maintenance (CBM) and structural health monitoring (SHM)
- STM32 wireless personal area network middleware developed within the STM32WB framework to support Bluetooth® Low Energy 5 applications
- Motion signal processing middleware for vibration analysis in time domain (speed RMS and acceleration peak) and frequency domain (FFT with programmable size, averaging, overlapping, and windowing), configurable alarm, and warning thresholds
- MotionAC2 and MotionTL2 middleware for inclination analysis
- Long-range connectivity (LoRaWAN®) based on AT-commands protocol between STM32WB (master) and STM32WL (slave)
- Fully integrated in an end-to-end, proof-of-concept ecosystem, which includes:
 - Short-range connectivity compatible with the **STBLESensor** app (Android and iOS) for nearby control and monitoring, and firmware update via fast FUOTA
 - Long-range connectivity, based on LoRaWAN®, compatible with the **DSH-PREDMNT** AWS cloud-based web application for condition and structural monitoring

Description

STSW-CBMLoRaBLE is an STM32Cube-based software package, used with the **STDES-CBMLoRaBLE** solution to support condition-based maintenance (CBM) and structural health monitoring (SHM).

The data extracted from the sensors mounted on external expansions (vibration, environmental, inclinometer) are used for embedded processing to detect potential conditions failures.

The processing results, with related warning or alarm status messages, are sent through short and/or long wireless connectivity.

The application is based on several execution tasks, designed with sequencer utilities, more suitable to address the different transmission payloads, connectivity, and embedded processing.

The short and long-range transmissions (Bluetooth® Low Energy and LoRa) are supported by the related user interface: nearby monitoring via the **STBLESensor** mobile app and remote monitoring by the **DSH-PREDMNT** AWS dashboard.

| Product summary | |
|---|--|
| Software package for the STDES-CBMLoRaBLE multiconnectivity and multisensor industrial solution | STSW-CBMLoRaBLE |
| System platform with multiconnectivity and multisensors for IIoT application | STDES-CBMLoRaBLE |
| BLE sensor application for Android and iOS | STBLESensor |
| Cloud based web application for condition monitoring and predictive maintenance | DSH-PREDMNT |
| Applications | Smart Industry/ Smart Farming/ Smart Home and City |

Revision history

Table 1. Document revision history

| Date | Revision | Changes |
|-------------|----------|------------------|
| 18-Nov-2022 | 1 | Initial release. |

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