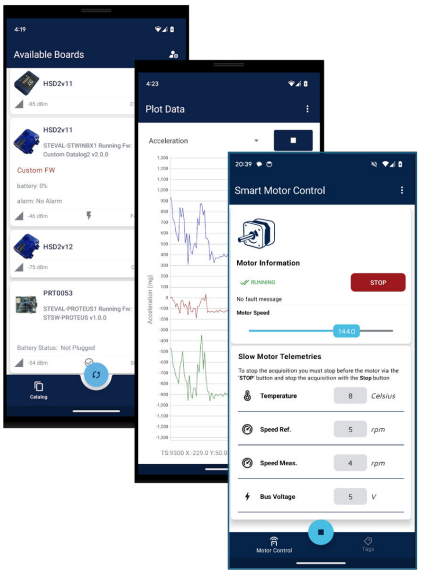
STBLESensor

Data brief

BLE sensor application for Android and iOS



Product summary	
BLE sensor application for Android and iOS	STBLESensor
Bluetooth low energy and sensor technology SDK	BlueST-SDK

Features

- Sensor data reception and command transmission over Bluetooth Low Energy (BLE)
- Support for multiple STM32Cube function packs and boards
- Available on Android and iOS app stores
- Cross-platform user interface and functionality
- Based on BlueST-SDK library
- Data logging support
- Data plotting support
- Included serial console (stdout/stdin/stderr) over Bluetooth
- Secure pairing (with pin) support
- Data publishing on the cloud support

Description

STBLESensor application is available for Android and iOS and shows the data exported by a BLE device using the BlueST protocol.

The app shows different panels based on the data types exported by the firmware, including: environmental data, MEMS sensor fusion, plot, activity recognition, carry position, acceleration event, BlueVoice, compass, cloud logging, high speed data log, smart motor control, node status.

All the data received by the app can be logged in CVS files and exported by e-mail.

If the firmware supports the functionality, the application can also show a serial console to exchange string messages with the board. This functionality is also used to upgrade the board firmware.

Both Android and iOS applications support the Bluetooth secure pairing with pin.

It is possible to use an NFC tag to read the board bluetooth address and its secure pin, and trigger the connection with the node.

1 Detailed description

The available panels shown by the application are:

- Environmental: display available temperature, pressure, humidity and Lux sensor values
- Level: show level and Pitch&Roll
- fitnessActivity: display recognized fitness activity and counter reps
- Compass: Display a magnetic compass direction
- HighSpeedDataLog2: high speed sensors data log configuration, control and tagging
- BlueVoiceADPCM: Blue voice ADPCM audio bluetooth streaming
- BlueVoiceOpus: Blue voice audio bluetooth streaming using advanced OPUS compression algorithm
- BlueVoiceFullDuplex: BlueVoice audio bluetooth streaming in a full-duplex configuration
- NavigationGesture: recognition of gesture navigation using sensor
- NEAIAnomalyDetection: AI library (generated using NanoEdgeAIStudio) for predictive maintenance solution
- NEAIClassification: AI library (generated using NanoEdgeAIStudio) for classification
- EventCounter: display the counter that is increased at each event detected by the board
- PianoDemo: display a piano keyboard for playing audio notes on the board
- Pnpl: board control and configuration using PnP-Like messages defined by a DTDL-Model
- Plot: display the sensors' value on a configurable plot
- NfcWriting: write NDEF records (Text/Wi-Fi/Business card and URL) to the board
- BinaryContentDemo: receive or send to the board a binary content
- ExtConfig: advance board extended configuration trough json-like messages
- TofObjectsDetection: multiobjects' distance and presence detection using Time-of-Flight (ToF) sensor
- ColorAmbientLightDemo: display illuminance, intensity of UV radiation and correlated color temperature
- GNSS: display GNSS coordinates (Latitude, longitude and altitude) and satellites' signal information
- ElectricChargeVariation: display raw data coming from electric charge variation (QVAR) sensor
- MotionIntensityDemo: display the level of motion intensity measured by the board
- ActivityRecognition: display the activity recognized using different algorithms that could be enabled on the board
- CarryPositionDemo: display the board carry position recognized
- MemsGestureDemo: recognition of the gesture performed by the user with the board
- MotionAlgorithms: recognition of different human stances with different algorithms
- PedometerDemo: calculate the number of steps and its frequency
- ProximityGestureRecognition: gesture recognition (tap/swap) using Time-of-Flight (ToF) sensor
- SwitchDemo: switch on/off the LED placed on the board
- RegistersFMSDemo: display the registers output for the finite State machine core present on the advance accelerometer
- RegistersMLCDemo: display the registers output for the machine learning core present on the advance accelerometer
- AccelerationEventDemo: detect different acceleration event types
- SourceLocalization: real-time source localization algorithm using the signals acquired from multiple board's microphones
- AudioClassificationDemo: real-time audio scene classification using the signal acquired from the board's microphone
- LedControl: switch on/off the LED placed on the board and display the RSSI value and the alarm received from the board
- TextualMonitor: show in a textual way the values received and parsed from any bluetooth characteristics
- HeartRateDemo: display the heart rate Bluetooth standard profile
- SensorFusion: 6-axis or 9-axis sensor fusion demo
- PredictedMaintenance: display sensor data values acquired and processed with a dedicated predictive maintenance algorithm

- FftAmplitude: display in a graphical way the FFT amplitude values received from the board
- MultiNeuralNetwork: display advanced applications such as human activity recognition or acoustic scene classification on the basis of output generated by multi-neural networks
- CoSensorDemo: display electrochemical toxic gas level though CO sensor
- SpeechToTextDemo: speech to text conversion from bluevoice audio bluetooth streaming
- BeamFormingDemo: combine signals from multiple omnidirectional microphones to synthesize a virtual microphone that captures sound from a specific direction
- BeamFormingDemoADPCM: combine signals from multiple omnidirectional microphones to synthesize a virtual microphone that captures sound from a specific direction
- BlueVoiceFullBand: BlueVoice audio bluetooth streaming music
- SpeechToTextDemoAPDCM: speech to text conversion from bluevoice audio bluetooth streaming
- RawPnpl: raw feature controlled using PnP-Like messages defined by a DTDL-Model
- SmartMotorControl: motor control integration with high speed sensors data log configuration, control and tagging
- WbsOtaFUOTA: firmware update over the air for WB/WBA boards
- CloudAzureIotCentral: connect the board to one Azure IoT Central dashboard
- CloudMqtt: connect the board to one MQTT server
- Flow: deploy one application to the board
- NodeStatus: display board RSSI and battery information if available

2 Order codes

Table 1. **STBLESensor and BlueST-SDK order codes**

Order code	Description
STBLESensor-iOS	iOS demo application compatible with BlueST-SDK protocol-based STM32Cube function packs
STBLESensor-Android	Android demo application compatible with BlueST- SDK protocol-based STM32Cube function packs
BlueST-SDK-Ipa	iOS version of BlueST-SDK library that permits easy access to the data exported by a Bluetooth low energy (BLE) device that implements the BlueST protocol.
BlueST-SDK-Aar	Android version of BlueST SDK library that permits easy access to the data exported by a Bluetooth low energy (BLE) device that implements the BlueST protocol.

Revision history

Table 2. **Document revision history**

Date	Version	Changes
18-Oct-2018	1	Initial release.
22-May-2019	2	Updated *Section 1 Detailed description.*
28-Mar-2024	3	Updated cover image, Section Description and Section 1: Detailed description.