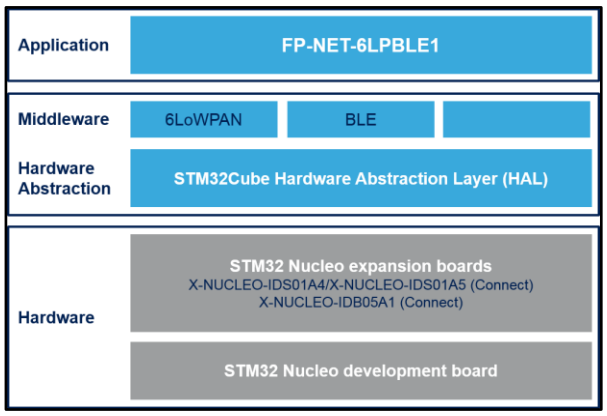
FP-NET-6LPBLE1

STM32 ODE function pack for connecting 6LoWPAN IoT nodes to smartphones via BLE interface

Data brief



Features

- Complete firmware package to create a border router and connect it to wireless sensor nodes using 6LoWPAN over sub-1 GHz communication technology
- Middleware libraries with BLE and Contiki 6LoWPAN protocol stack 3.x
- Support for mesh networking technology through the standard RPL protocol
- Mesh network tree and sensor data can be displayed on an Android™ device connected through BLE
- Sample implementation for X-NUCLEO-IDS01A4 or X-NUCLEO-IDS01A5 and X-NUCLEO-IDB05A1 boards connected to a NUCLEO-F401RE board
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

Description

FP-NET-6LPBLE1 is an STM32 ODE function pack which lets you connect your 6LoWPAN network consisting of SPIRIT1-based sub-1 GHz RF communication sensor nodes to a smartphone or tablet device in a BLE network, allowing control of the sensor nodes with an application.

This software, together with the suggested combination of STM32 and ST devices, can be used, for example, to develop smart home, building or lighting applications.

The software runs on the STM32 microcontroller and includes drivers for the BLE module (SPBTLE-RF) and SPIRIT1-based sub-1 GHz RF communication modules (SPSGRF-868 or SPSGRF-915); the software also comes with binary firmware ready for wireless sensor nodes.

STM32 Open Development Environment

What can you do with STM32 ODE function packs?

The STM32 ODE function packs leverage the modularity and interoperability of STM32 Nucleo and X-NUCLEO boards with STM32Cube and X-CUBE software, to create functional examples representing some of the most common use cases in each sphere of application.

These software function packs are designed to fully exploit the underlying STM32 ODE hardware and software components to best satisfy the final user application requirements.

Function packs may also include additional libraries and frameworks not present in the original X-CUBE packages, thus enabling new functions and creating more pertinent and usable systems for developers.

What is STM32Cube?

STMCube™ is designed by STMicroelectronics to reduce development effort, time and cost across the entire STM32 portfolio.

STM32Cube version 1.x includes:

- STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards.
- A comprehensive embedded software platform specific to each series (such as the STM32CubeF4 for the STM32F4 series), which includes:
  - the STM32Cube HAL embedded abstraction-layer software, ensuring maximized portability across the STM32 portfolio
  - a consistent set of middleware components such as RTOS, USB, TCP/IP and graphics
  - all embedded software utilities with a full set of examples

How does this software complement STM32Cube?

This software is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a board support package (BSP) for the BLE and the sub-1 GHz RF communication expansion boards. The drivers abstract low-level hardware information and allow the middleware components and applications to access sensor data in a hardware-independent manner, to access and control the BLE module (SPBTLE-RF) and SPIRIT1-based sub-1 GHz RF communication modules (SPSGRF-868 or SPSGRF-915).

The package includes some middleware libraries to support BLE and 6LoWPAN stacks and a sample application for accessing sensor and actuator resources on the 6LoWPAN nodes, using embedded Bluetooth low energy protocol stacks such as GAP and GATT. It is designed to help you prototype end-to-end IoT applications.

Revision history

Table 1: Document revision history

Date	Version	Changes
01-Sep-2016	1	Initial release.
04-Sep-2017	2	Updated cover page image, features and description.

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