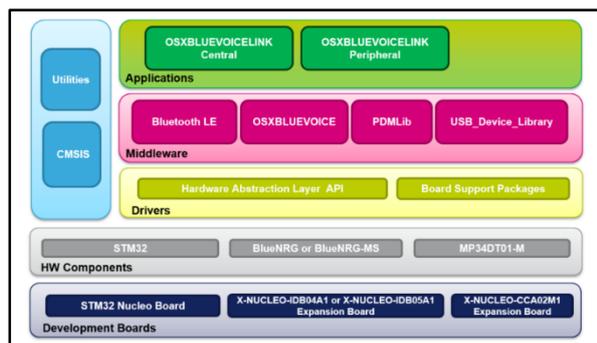


Voice over Bluetooth low energy, vendor-specific profile library for STM32 and BlueNRG

Data brief



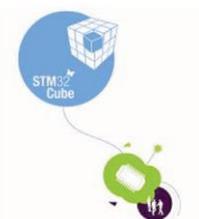
Description

The OSXBLUEVOICE library implements a BlueVoice vendor-specific profile based on the Bluetooth 4.0 specification and designed for systems adopting the BlueNRG/BlueNRG-MS Bluetooth low energy network processor, digital MEMS microphones and the STM32 MCU.

The OSXBLUEVOICE library (under OPEN.Audio license) is implemented in the BLUEVOICELINK1 sample application; BLUEVOICELINK1 is part of the OPEN.Framework program while OSXBLUEVOICE is part of the OPEN.Audio program available for free source code download. The OSXBLUEVOICE library is also part of the BLUEMICROSYSTEM2 sample application that can stream audio from the ST platform to the BlueMS app, available for Android™ or iOS™.

Features

- Half-duplex or simplex voice over Bluetooth low energy communication profile.
- Based on the very low power Bluetooth low energy (BlueNRG/BlueNRG-MS) single-mode network processor, compliant with Bluetooth specifications core 4.0.
- Designed for optimal performance in applications using digital MEMS microphones (e.g., MP34DT01-M).
- Digital audio signal processing.
- Easy portability across different STM32 MCU families thanks to modular architecture and STM32Cube
- Free user-friendly license terms
- BLUEVOICELINK1 sample implementation available on X-NUCLEO-IDB04A1/X-NUCLEO-IDB05A1 and X-NUCLEO-CCA02M1 connected to a NUCLEO-F401RE, NUCLEO-L476RG or NUCLEO-L053R8 board
- BLUEMICROSYSTEM2 sample implementation available on STEVAL-STLKT01V1 or X-NUCLEO-CCA02M1, X-NUCLEO-IKS01A1 and X-NUCLEO-IDB04A1/X-NUCLEO-IDB05A1 boards connected to a NUCLEO-F401RE or NUCLEO-L476RG board



What is STM32Cube?

STM32Cube™ represents the STMicroelectronics initiative to make developers' lives easier by reducing development effort, time and cost. STM32Cube covers the 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?

The software is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller.

The OSXBLUEVOICE profile defines a BLE service with a characteristic for audio transmission and one for synchronization. In a half-duplex system, both sides of communication (central and peripheral) can act as information servers. Notifications containing compressed audio data are sent periodically from a server to a client via the selected central-to-peripheral or peripheral-to-central channel. The OSXBLUEVOICE middleware handles audio encoding and periodic data transmission on the server side and decoding received voice data on the client side.

The X-CUBE-BLE1 is an expansion software package for STM32Cube which runs on the STM32 and includes drivers for the BlueNRG/BlueNRG-MS Bluetooth low energy device.

X-CUBE-MEMSMIC1 is an expansion software package for STM32Cube with drivers and middleware for audio data acquisition from MEMS digital microphones (MP34DT01-M) and USB streaming of recorded signals.

BLUEVOICELINK1 is a sample application on www.st.com that the developer can use to start experimenting with the code. It enables the acquisition, compression and transmission of voice data from the acting transmitter module to acting receiver, via the Bluetooth low energy protocol. The receiver handles audio decompression and USB streaming of audio data to a PC.

Any freeware or commercial audio recording software can be used to interface with the system. The peripheral module can also stream audio to an Android™/iOS™ device running the ST BlueMS app v3.0.0 or higher.

Revision history

Table 1: Document revision history

Date	Version	Changes
20-May-2015	1	Initial release.
22-Aug-2016	2	On cover page, updated cover image, Features and Description Updated Section "How does this software complement STM32Cube?"

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