Getting started with the SensNet application for Android and iOS

Introduction

The ST SensNet is an application available for Android and iOS which allows visualization of data exported by a BLE gateway connected to a network of devices, such as, for example, in the STM32 ODE FP-NET-BLESTAR1 function pack deployment scenario.

The app connects to a star network master node and displays data sent by the slave nodes.

For each slave node in the network, the app shows a set of sensor data (e.g., temperature, pressure and humidity) measured by the slave and read by the master node.

For each node the user LED status is also displayed. From the app it is also possible to change the LED status, since the related command is forwarded to the correct node by the master node.

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

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1 References

Table 1: SensNet references

Order code	Description
BlueST-SDK-Ipa	BlueST SDK library iOS version which allows easy access to the data exported by a Bluetooth low energy (BLE) device implementing the BlueST protocol
BlueST-SDK-Aar	BlueST SDK library Android version which allows an easy access to the data exported by a Bluetooth Low Energy (BLE) device implementing the BlueST protocol
SensNet-iOS	iOS demo application compatible with BlueST SDK for FP-NET-BLESTAR1 function pack for STM32Cube
SensNet-Android	Android demo application compatible with BlueST SDK for FP-NET-BLESTAR1 function pack for STM32Cube
FP-NET-BLESTAR1	STM32 ODE function pack providing application-layer bridge between a Bluetooth LE network and a Wi-Fi network

2 Acronyms and abbreviations

Table 2: List of acronyms

Acronym	Description
CSV	Coma separated values
SDK	Software development kit

3 Setup

The setup includes an STM32 Nucleo development board and the expansion boards needed to run the FP-NET-BLESTAR1 firmware version 1.2 or above.

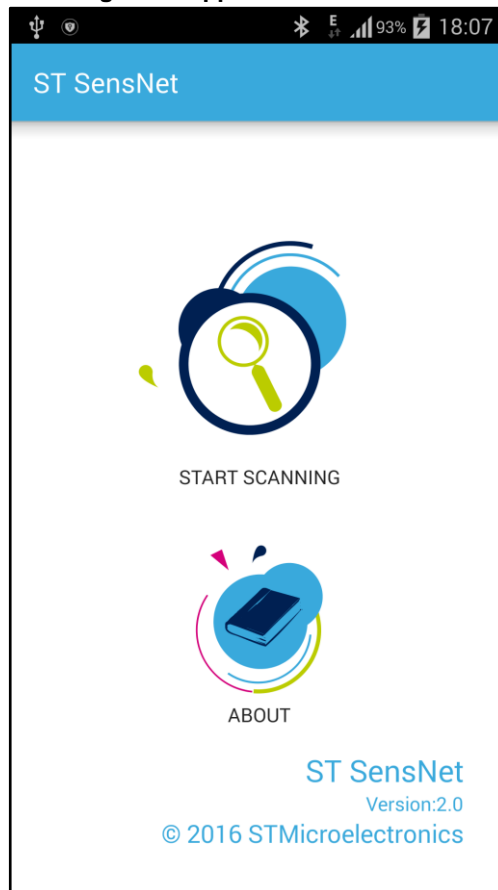The FP-NET-BLESTAR1 firmware and related documentation can be found here:

FP-NET-BLESTAR1

iOS 9 or above devices are supported by the application at this link: *ST SensNet iOS*.

Android 4.4 or above devices are supported by the application at this link: *ST SensNet Android.*

4 Mobile application

The application initial view provides an info button and a "Start Scanning" button: by pressing it, the application starts searching for a compatible BLE node nearby.

Figure 1: Application main view

In particular, the scanning searches for a device running the FP-NET-BLESTAR1 firmware. The node running this firmware collects information from the slave nodes (running the compatible firmware) and transmits their data to the application.

In Android 6.0 and above, the application prompts for permission to access the device position. This information is not used by the application itself but is requested by the system to start a Bluetooth scanning.

Figure 2: List of compatible devices
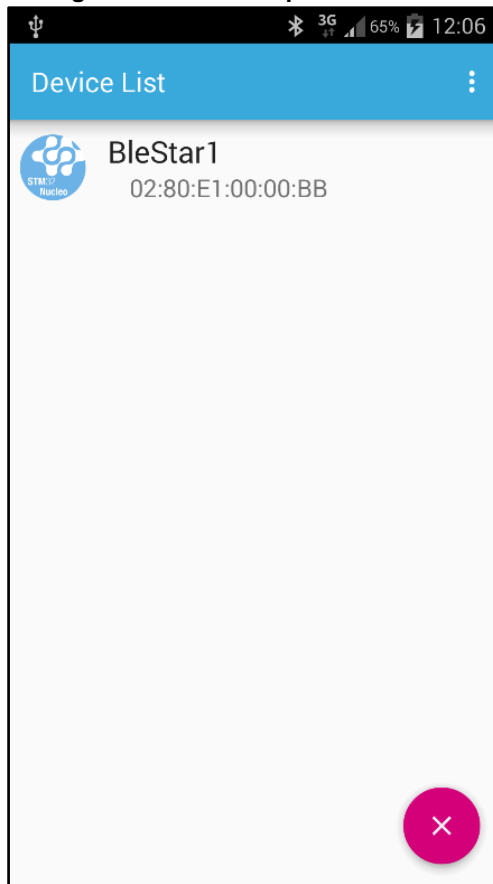
Clicking a list item opens a connection with the master node.

Figure 3: Application connected to a master node with three slave nodes
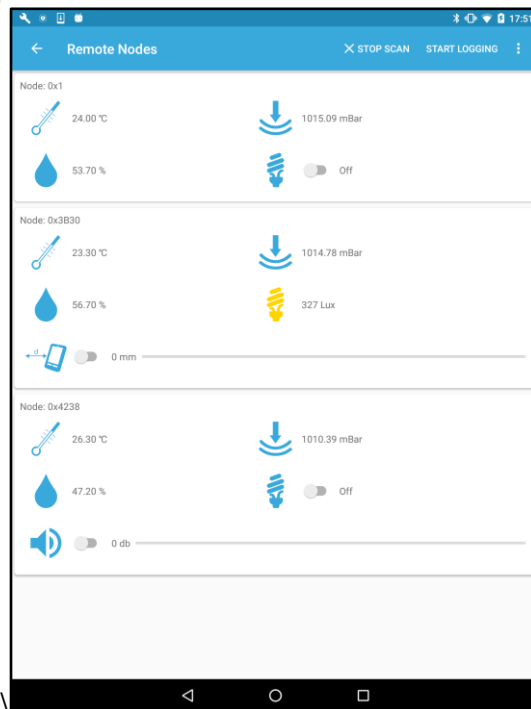
Afterwards, the application shows a row for each slave device connected to the master node. Each slave node has a 16 bit name (represented as a hexadecimal value) that corresponds to the last 2 bytes of the MAC address.

All the rows will show:

- temperature
- humidity
- pressure
- and, if the LSM6DS3 accelerometer is present, the last time the board detects a wake up event.

Other data are shown according to the node type.

In a node that runs the FP-SNS-MOTENV1 firmware, a switch (near the LED icon) will appear to change the board LED status.

The icon changes accordingly once the master node receives the notification of the new LED status from the slave node.
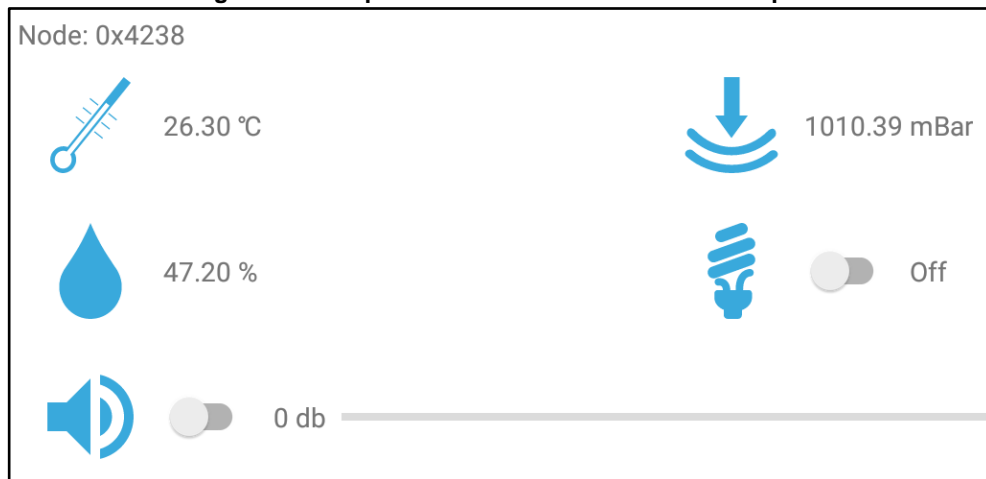
Figure 4: Example of FP-SNS-MOTENV1 node output

A node that runs the FP-SNS-ALLMEMS1 firmware will show a switch to change the board LED status and a switch to enable the transmission of the sound level detected from the onboard microphone.

When the microphone is enabled the other data are not updated.

Figure 5: Example of FP-SNS-ALLMEMS1 node output

A node that runs the FP-SNS-FLIGHT1 firmware will show the detected luminosity and a switch to enable the transmission of the distance measured by the proximity sensor. The possible range values are between the 0 and 255 mm. When range detection is enabled the other data are not updated.

Figure 6: Example of FP-SNS-FLIGHT1 node output
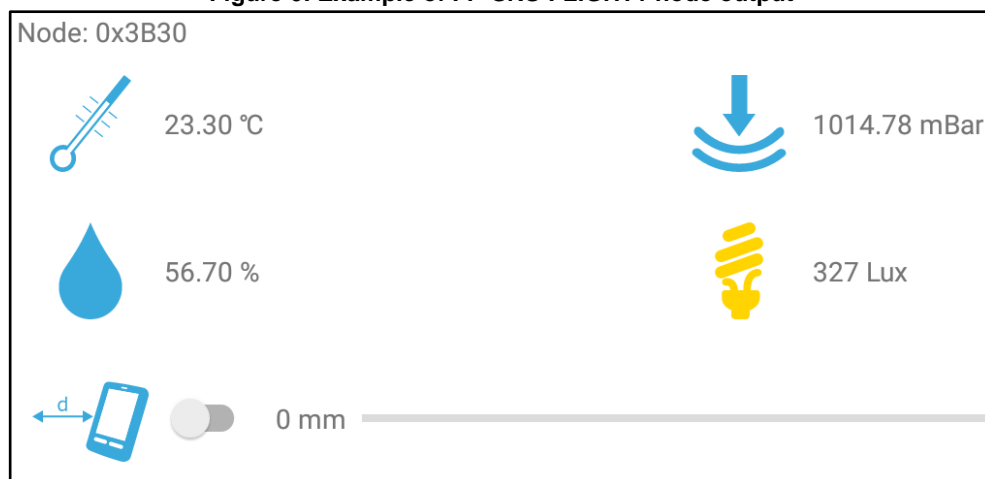
Clicking the "Start Logging" button, the application logs all data received into a CSV file that can be sent by e-mail once the logging session has stopped.

5 Revision history

Table 3: Document revision history

Date	Version	Changes
21-Nov-2016	1	Initial release.
30-May-2017	2	Updated all content to reflect version 2.0 of the application.

IMPORTANT NOTICE – PLEASE READ CAREFULLY