Quick Start Guide

SensorTile Kit - STEVAL-STLKT01V1

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SensorTile kit
Connectable sensor node

SENSORTILE

CRADLE

BATTERY

PROGRAMMING CABLE

CRADLE EXPANSION BOARD

PLASTIC CASE

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Summary
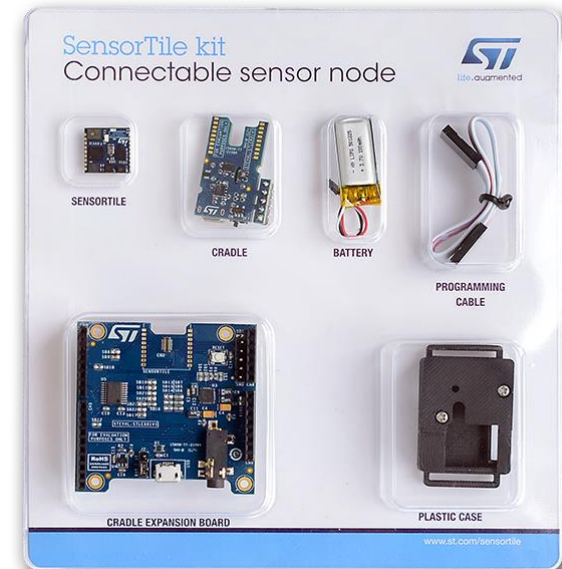
- SensorTile platform overview
  - SensorTile – STEVAL-STLCS01V1
  - SensorTile Cradle – STEVAL-STLCR01V1
  - SensorTile Expansion Cradle – STEVAL-STLCX01V1

- SensorTile Programming/Debugging

- First Setup: Running the pre-loaded demo
  - With the Expansion Cradle
  - With the Cradle

- Start your own Design
 - With the Expansion Cradle
  - With the Cradle

Hardware overview

STEVAL-STLKT01V1 Hardware Description

- STEVAL-STLKT01V1 is the development kit for the SensorTile board (STEVAL-STLCS01V1), a highly Integrated Development Platform with a broad range of functionalities aiming to improve system design cycle and accelerate delivery of results

- Two host boards are also provided as part of the kit, both featuring SWD programming interface
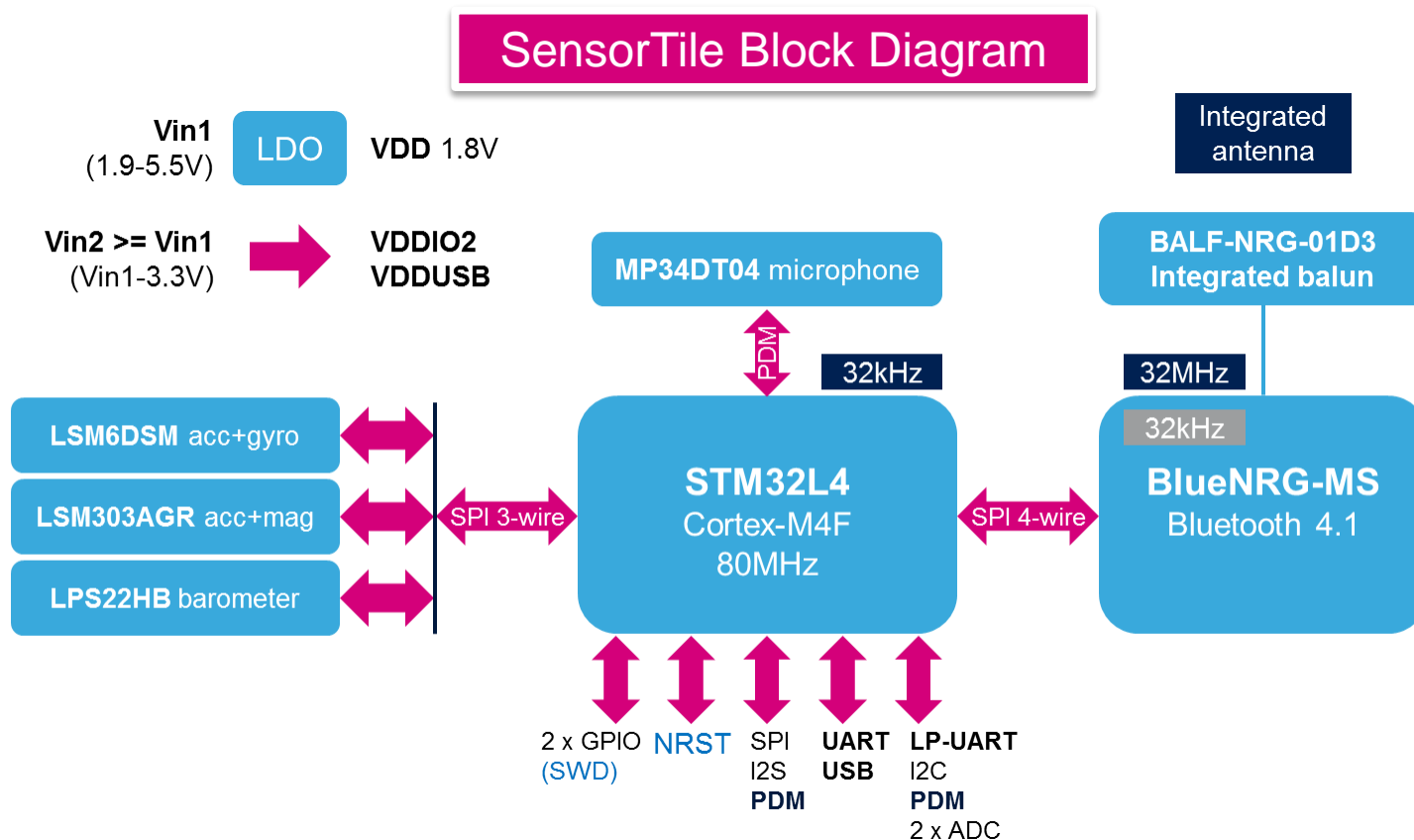
SensorTile Block Diagram

SensorTile Core System: STEVAL-STLCS01V1

MP34DT04

Microphone
64 dB SNR, 120 dB SPL

STM32L476

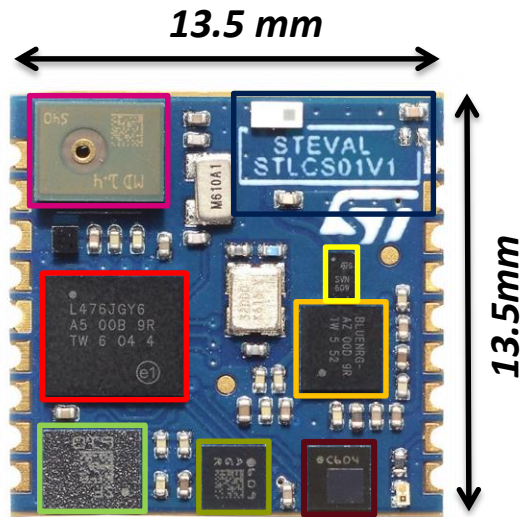Cortex-M4
Up to 100DMIPS 80MHz
100uA/MHz@24MHz in run mode

13.5 mm

13.5mm

Antenna Clearance Area

Balun Filter

BlueNRG-MS

Bluetooth low-energy
Concurrent master/slave BT4.1

Solderable

LSM6DSM

3DAcc+3DGyro
0.65 mA @ 1.6kHz – 9 µA @ 12.5Hz

LSM303AGR

3DAcc+3DMag
200 µA @ 20 Hz (HR mode)
Accel/Mag independent
power down mode

LPS22HB

Barometer
1-75 Hz, 3-12 µA @ 1Hz

Plugin
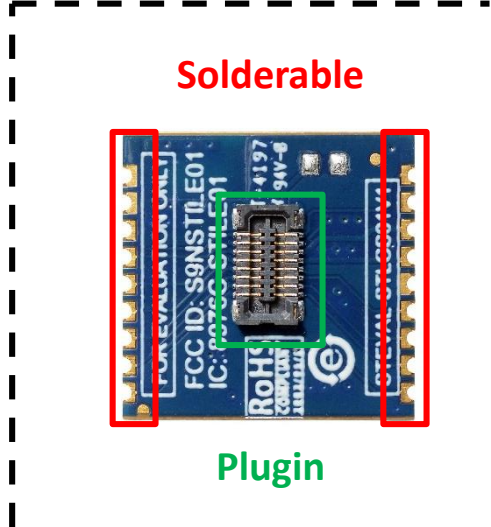
SensorTile Cradle: STLCR01V1

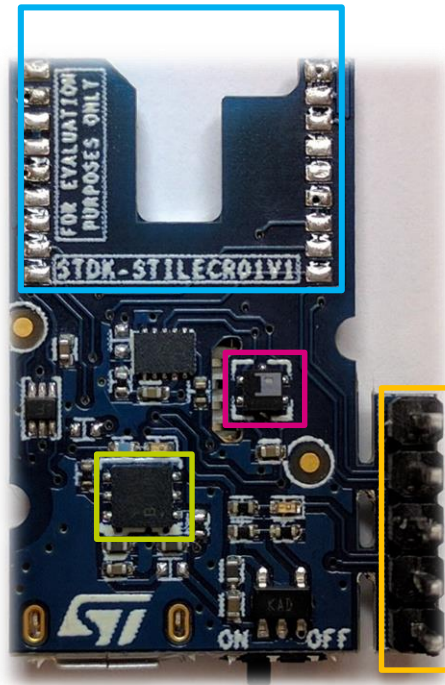**TOP VIEW**

BOTTOM VIEW

SensorTile Footprint

Solderable

HTS221

Humidity and
Temperature sensor

STBC08
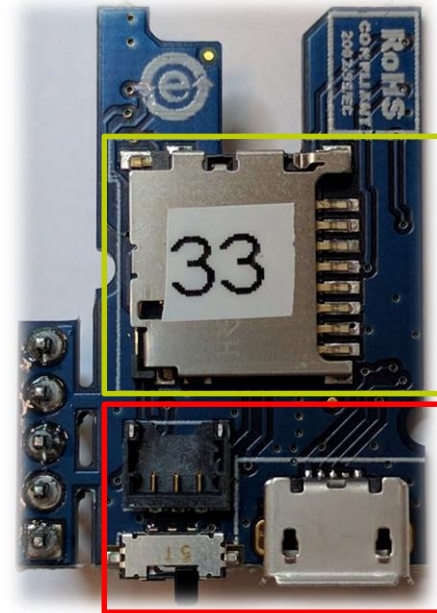
Li-Ion Battery charger
with thermal regulation

SWD

SWD programming
interface

**Micro-SD
Card slot**

**Micro USB
ON/OFF switch
Battery Plug**

SensorTile Expansion Cradle: STLCX01V1

SensorTile Footprint

ST2378ETTR

8-Bit Level Translator
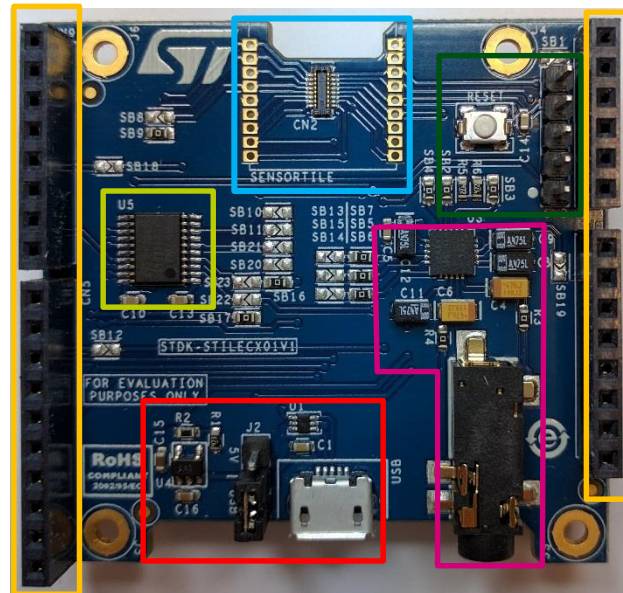3.3 V ⟷ 1.8 V

SWD & Reset

SWD programming interface
and reset button

Arduino Connector

**Audio DAC
&
3.5 mm jack**

**Micro USB
&
3.3 V Regulator**
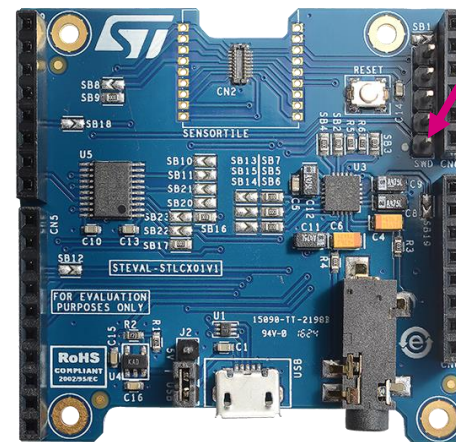
SensorTile Programming/Debugging [1/2]

- Connect an external ST-Link to the cradles SWD connectors. A 5 pin flat cable is provided within the SensorTile Kit package

  - The easiest way is to get an STM32-Nucleo board which includes an ST-Link V2.1

  - Remove CN2 Jumpers from the Nucleo Board

  - Connect the SWD interfaces using the provided cable
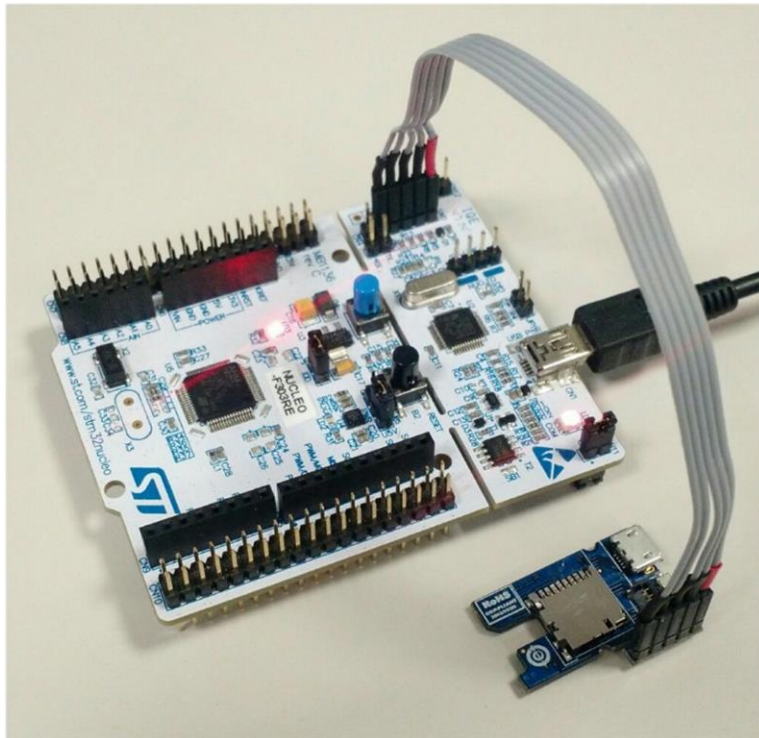
CN2

Remove

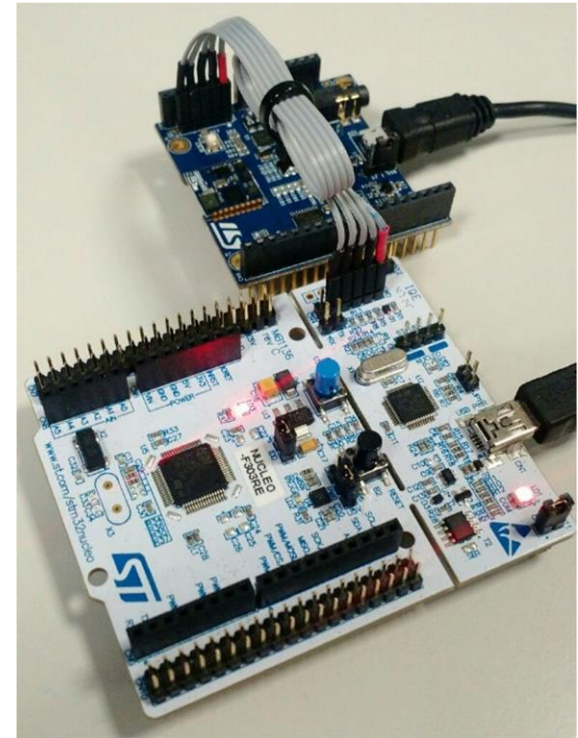**Jumpers**

SWD

(Pin1)
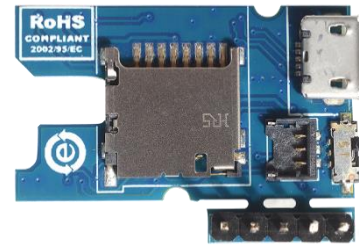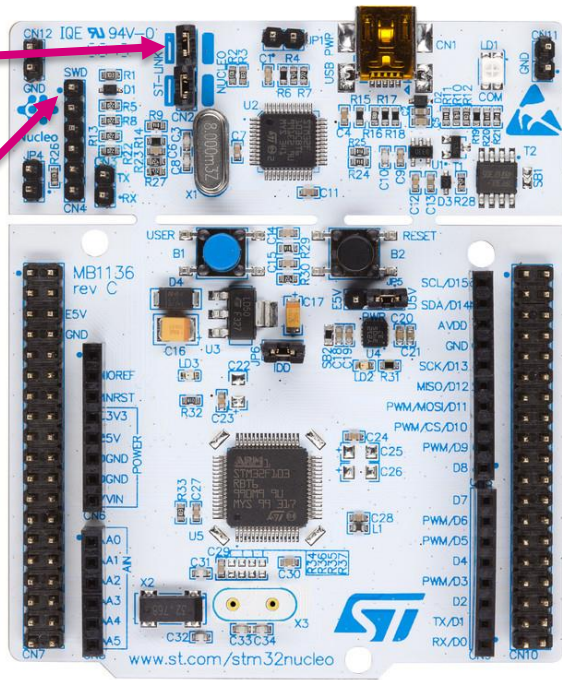
SWD

(Pin1)

SensorTile Programming/Debugging [2/2]

SensorTile Programming with Cradle

SensorTile Programming with Expansion Cradle

First Setup with the Expansion Cradle

Running the pre-loaded demo

[1/2]

HW
- SensorTile Core System **(STEVAL-STLCS01V1)**
- SensorTile Expansion Cradle **(STLCX01V1)**
- Android™ or iOS™ device
- USB type A to Micro-B USB cable for SensorTile power supply

SW App (Android or iOS)
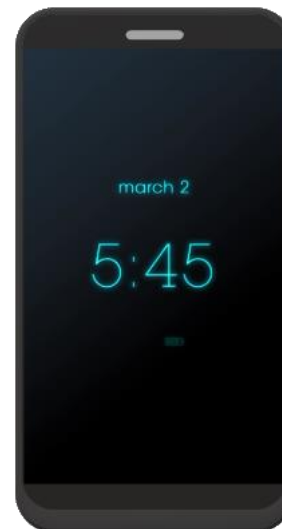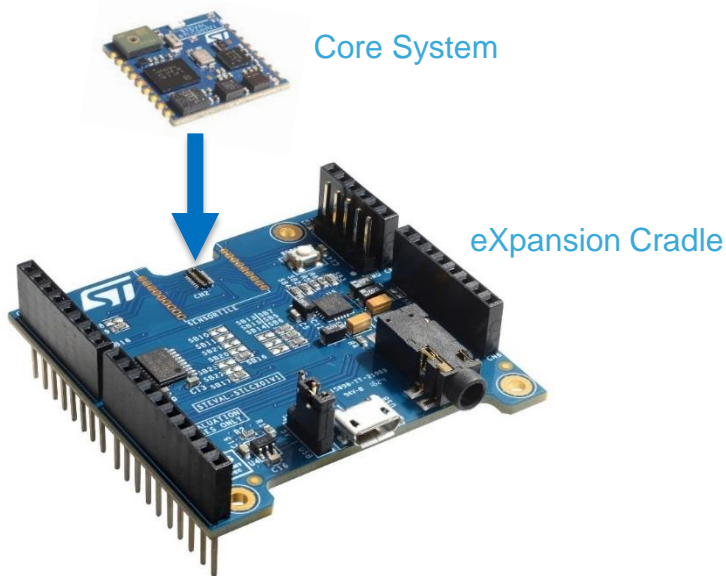- ST BlueMS app (available on Play store and Apple store)

Micro USB cable

ST BlueMS App

www.st.com/bluems

Core System

eXpansion Cradle

Smartphone

march 2

5:45

Plug the SensorTile Core System on the Expansion Cradle.
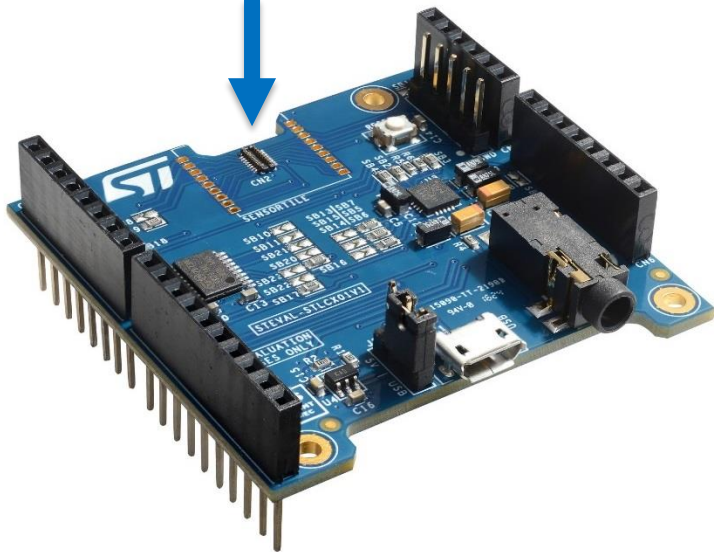
Power it via USB

Connect to your Android or iOS smartphone or tablet using the BlueMS app

First Setup with the Cradle
Running the pre-loaded demo

[1/2]

HW
- SensorTile Core System **(STEVAL-STLCS01V1)**
- SensorTile Cradle **(STLCR01V1)**
- SensorTile Battery
- SensorTile Plastic Box
- Android™ or iOS™ device
- [optional] USB type A to Micro-B USB cable for battery charging

SW App (Android or iOS)
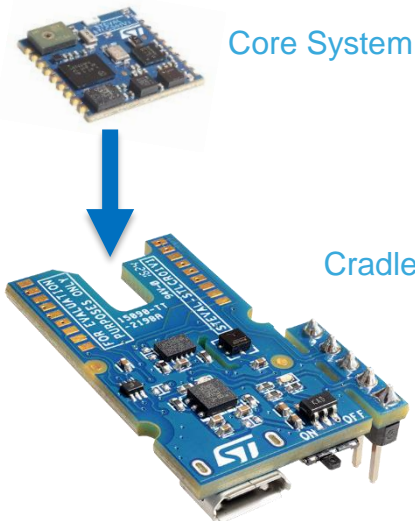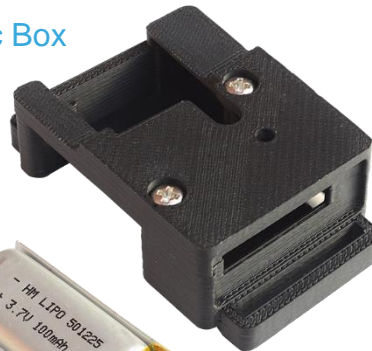- ST BlueMS app (available on Play store and Apple store)
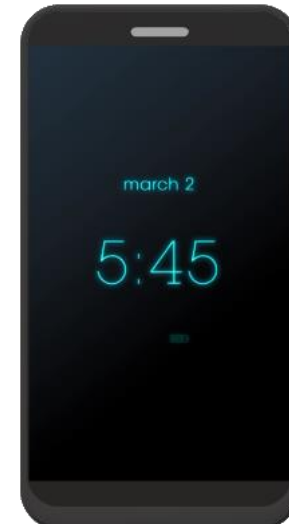
Micro USB cable

ST BlueMS App

www.st.com/bluems

Core System

Plastic Box

Cradle

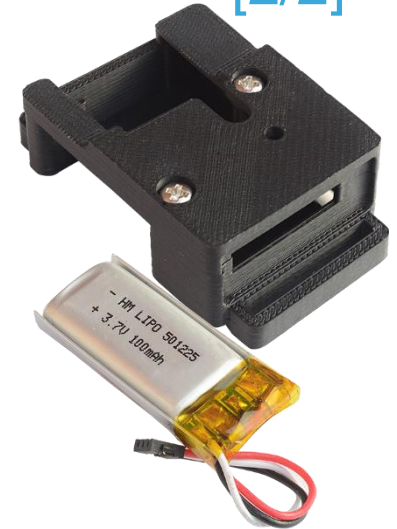Battery

Smartphone

march 2

5:45

First Setup with the Cradle
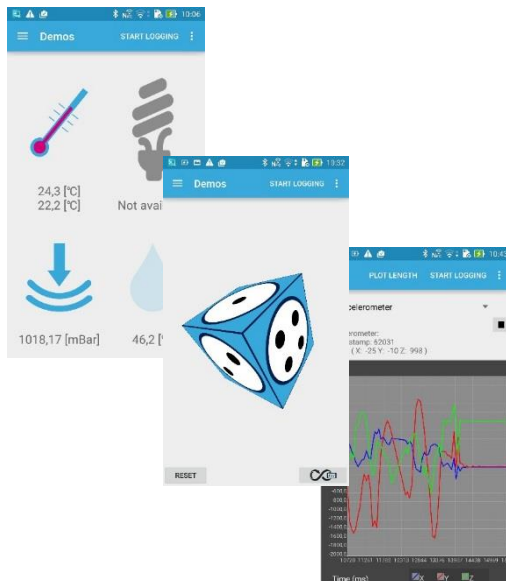## Running the pre-loaded demo

[2/2]

Solder the SensorTile Core System to the Cradle.

Plug the battery, protect it with the plastic cover
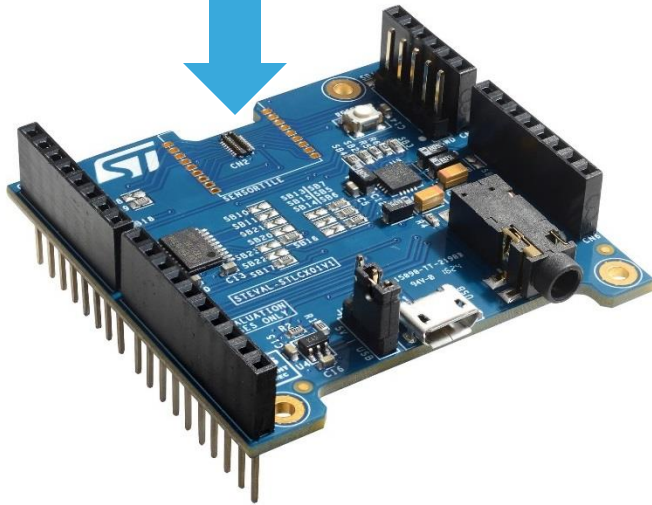
Turn it **ON** using the switch

Connect to your Android or iOS smartphone or tablet using the BlueMS app

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Start your own design
With the expansion Cradle

Plug the SensorTile Core System on the expansion Cradle.

Connect with your development environment

Open the USB starter project on your PC STSW-STLKT01

Compile & Run the USB Audio or DataLog example application

Design your custom application

With the Cradle

Solder the SensorTile
to its Cradle

*You better protect it with its
plastic cover!*

Setup your PC programming environment

SWD

Program your data tracking application

Field test your application