

Quick Start Guide

BlueCoin Starter Kit - STEVAL-BCNKT01V1



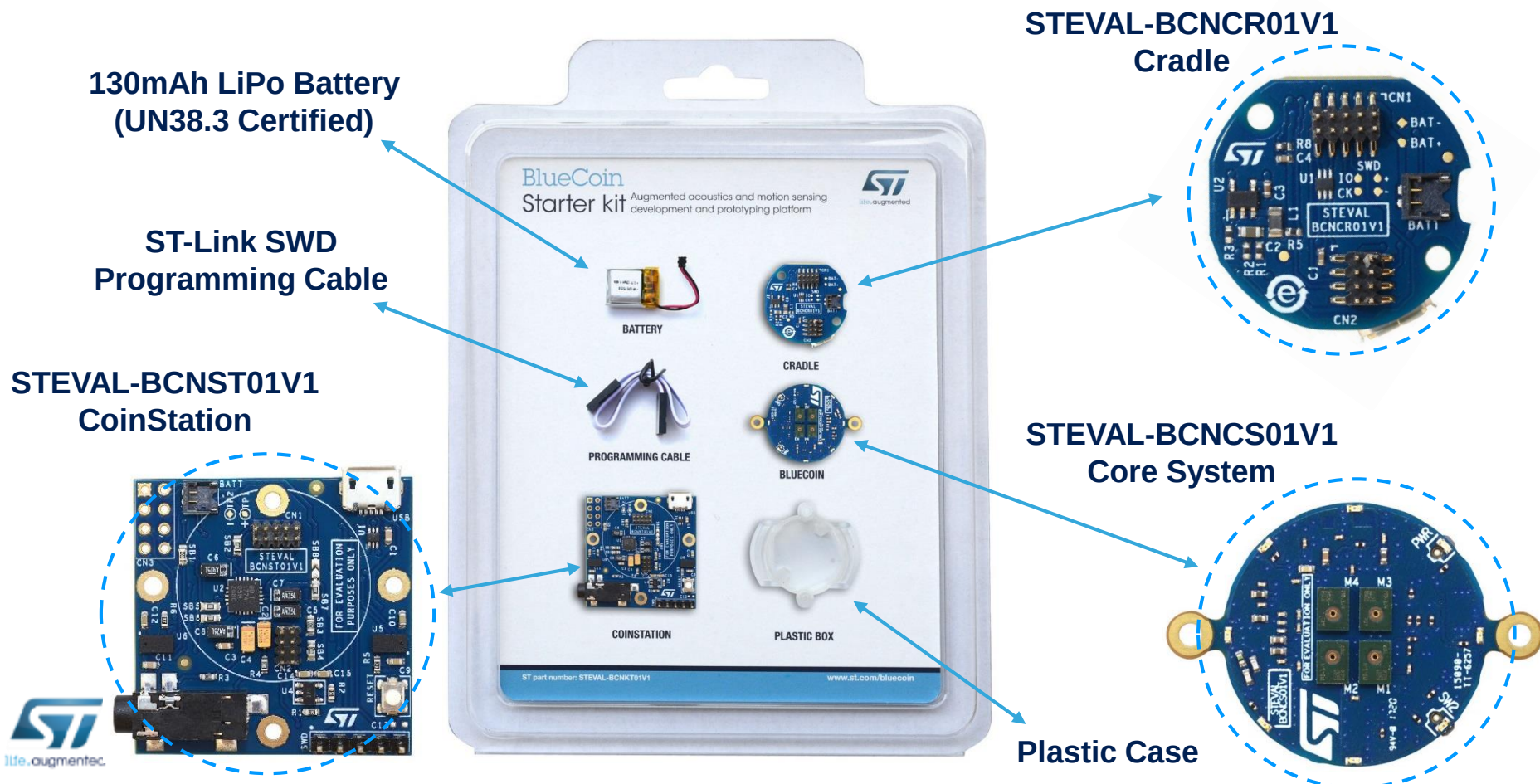
www.st.com/bluecoin



STEVAL-BCNKT01V1– BlueCoin Starter Kit

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With the expanded capabilities of its starter kit, BlueCoin lets you explore advanced sensor fusion and signal processing functions for robotics and automation applications with a 4 digital MEMS microphone array, a high-performance 9-axis inertial and environmental sensor unit and time-of-flight ranging sensors.



First Setup – Run the preloaded Demo

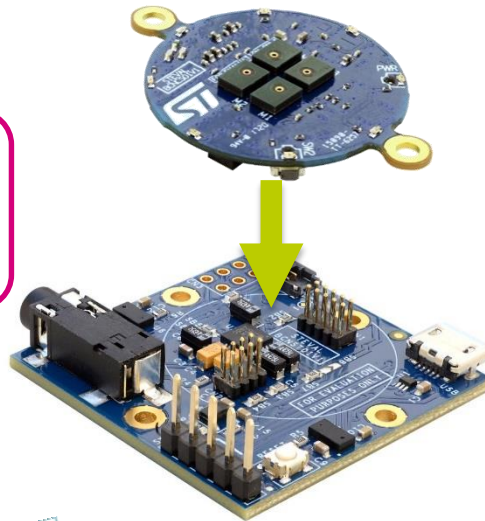
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The preloaded demo on BlueCoin Kit is the FP-AUD-SMARTMIC1

Step 1

Plug the BlueCoin Core System on the CoinStation.

Pay attention to the alignment of the BlueCoin connectors



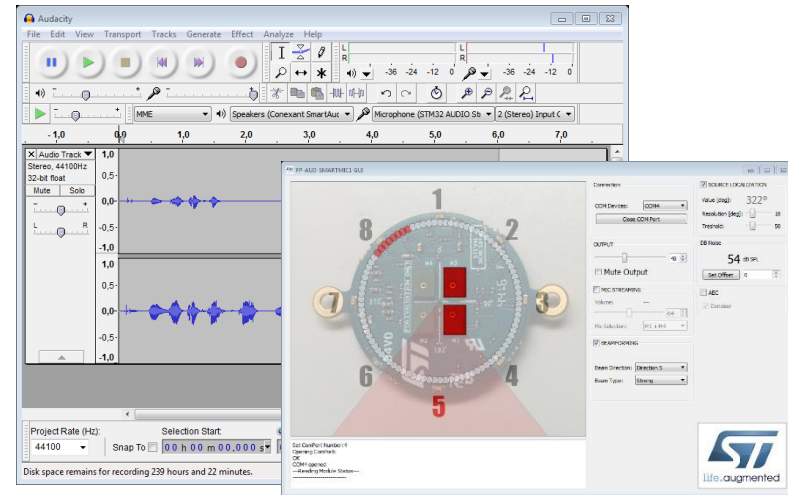
Step 2

Connect it to the PC via **USB**



Step 3

Run FP-AUD-SMARTMIC1 GUI, included in FP-AUD-SMARTMIC1 function pack available on www.st.com/bluecoin



Please refer to function pack documentation for more details about the software

Example projects in source code

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STSW-BCNKT01 Starter Firmware

4 code examples for basic features:
DataLog, AudioLoop, GestureDetect,
BLESample_App

FP-AUD-SMARTMIC1 Advanced Audio

Function Pack for advanced audio
algorithms (Beamforming, SL, AEC)
Works with dedicated PC Software GUI

FP-AUD-BVLINK1 Voice over BLE

Function Pack for Voice over Bluetooth
Low Energy
Works with dedicated Android or iOS app

FP-SNS-ALLMEMS1 Algorithms and Connectivity

Function Pack for advanced sensing
algorithms and BLE connectivity
Works with dedicated Android or iOS app

How to open the example projects

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Step 1

Download the chosen project from www.st.com/bluecoin

Figures below refer to STSW-BCNKT01, same procedure can be applied to any of the provided example projects

Step 2

Unzip the package on your PC

Step 3

Open one of the projects examples with your favorite IDE

- ▷ AudioLoop
- ▷ BLE_SampleApp
- ▾ DataLog

EWARM

→ IAR Embedded Workbench

Inc

MDK-ARM

→ ARM KEIL μVision IDE

Src

▷ SW4STM32

→ System Workbench for STM32



- STSW-BCNKT01_V1.0.0
 - _htmresc
 - Documentation
 - ▷ Drivers
 - ▷ Middlewares
 - ▾ Projects
 - BlueCoin
 - Applications
 - ▷ AudioLoop
 - ▷ BLE_SampleApp
 - ▷ DataLog
 - ▷ GestureDetect

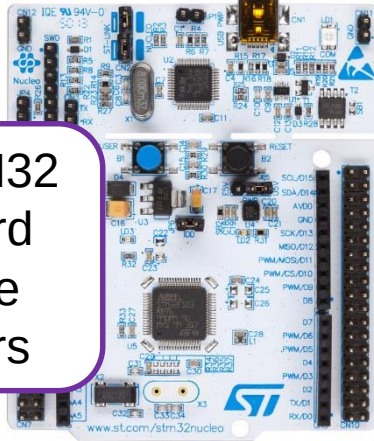


Hardware setup for board programming

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Step 1

Take an STM32 Nucleo board
And remove
CN2 jumpers



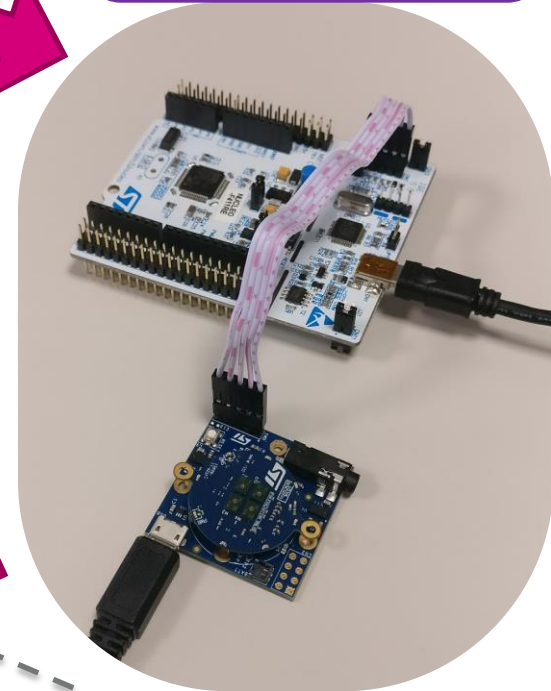
Step 2

Plug the BlueCoin
on top of the
CoinStation



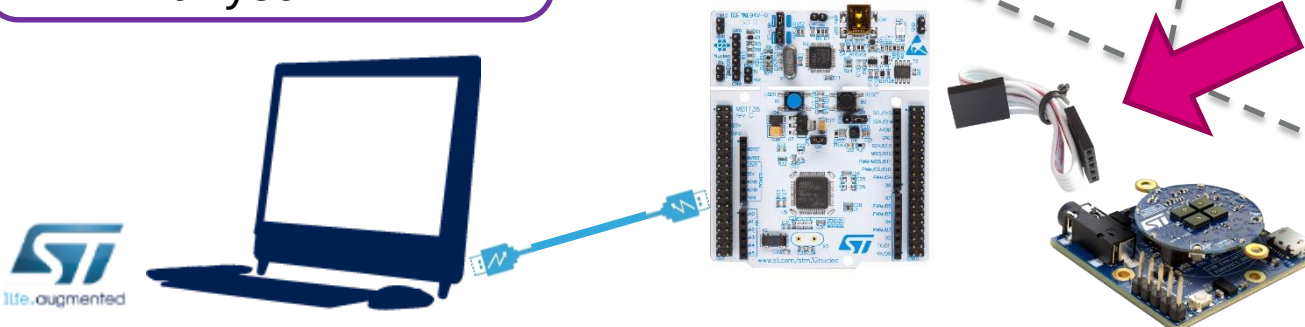
Step 3

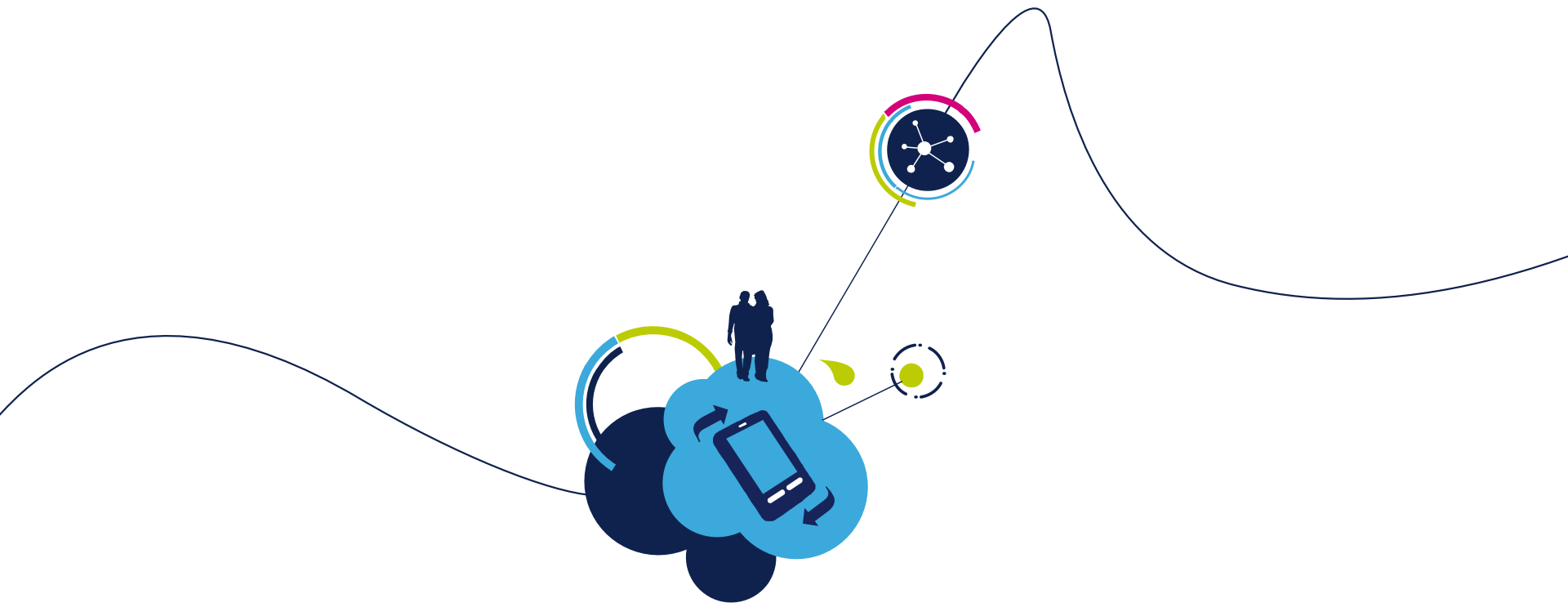
Connect the two
boards with the
provided flat cable



Step 4

Connect to the PC and
download the firmware
with your IDE



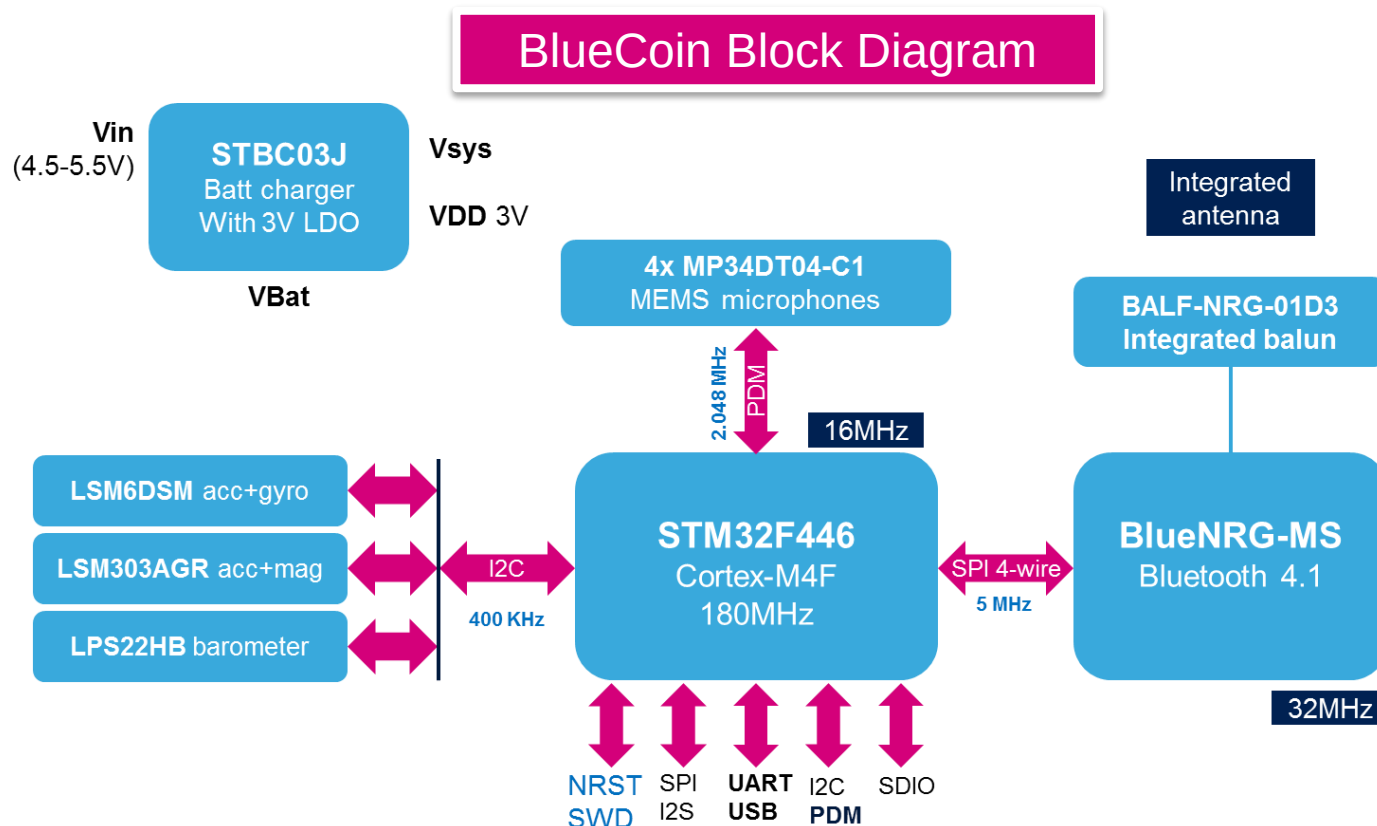


More information

BlueCoin Platform – Hardware overview

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- STEVAL-BCNKT01V1 is the starter kit for the BlueCoin board (STEVAL-BCNCS01V1), 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



BlueCoin - The Robotic Ear

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Core System: STEVAL-BCNCS01V1

LSM303AGR

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

LPS22HB

Barometer
1-75Hz, 3-12 μ A @ 1Hz

4x MP34DT04-C1

Digital MEMS Microphones
64dB SNR, 120dBSPL

LSM6DSM

3DAcc+3DGyro
0.65mA @ 1.6kHz
9 μ A @ 12.5Hz

STM32F446

Cortex-M4
up to 180MHz

STBC03

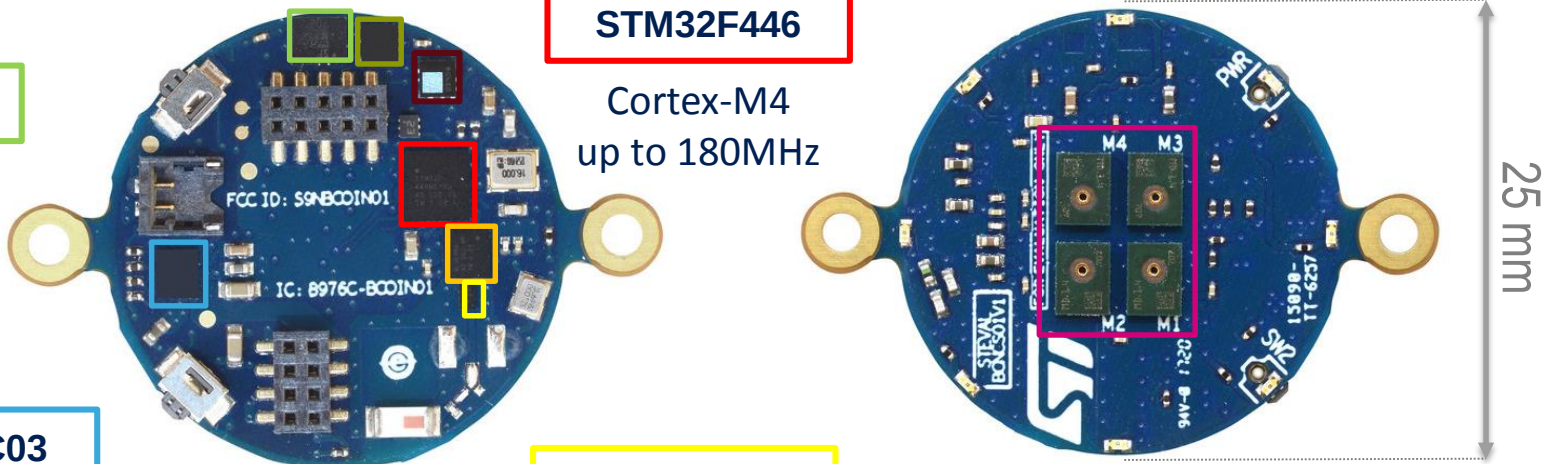
Li-Ion linear
battery charger
with LDO

Balun Filter

BlueNRG-MS

Bluetooth low-energy
Concurrent master/slave BT4.1

8 LEDs



CoinStation: STEVAL-BCNST01V1

Battery
Connector

BlueCoin
Connectors

USBLC6-2P6

ESD protection
for USB

Expansion
Connector

2x VL53L0X

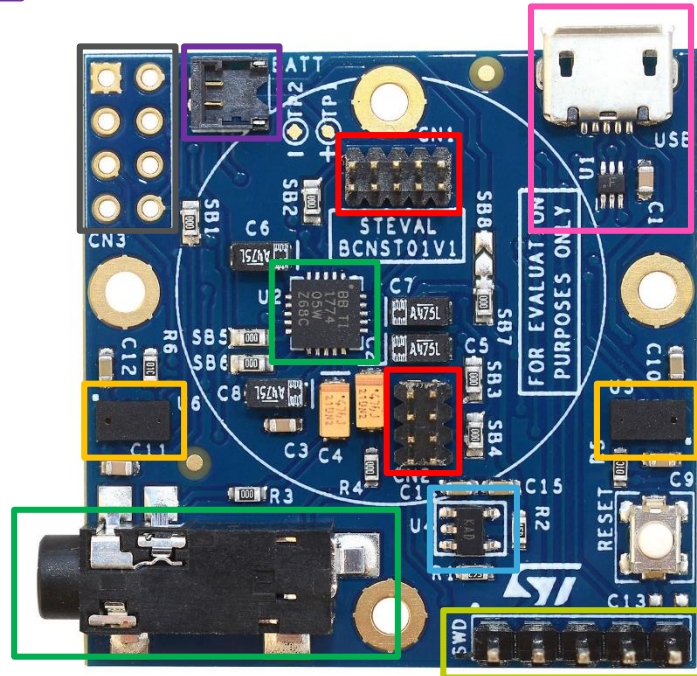
Time-of-Flight
ranging sensors

Stereo Audio DAC
and 3.5mm Jack

LDK120M

2.8V LDO

SWD
Connector



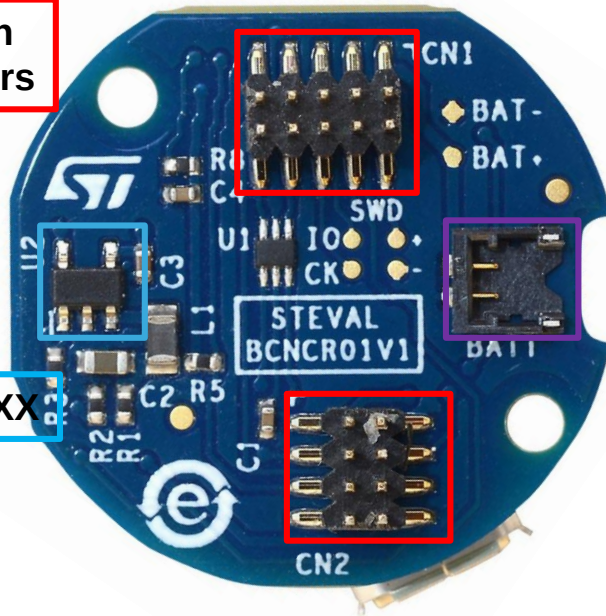
BlueCoin Cradle: STEVAL-BCNCR01V1

TOP VIEW

BlueCoin
Connectors

Battery
Connector

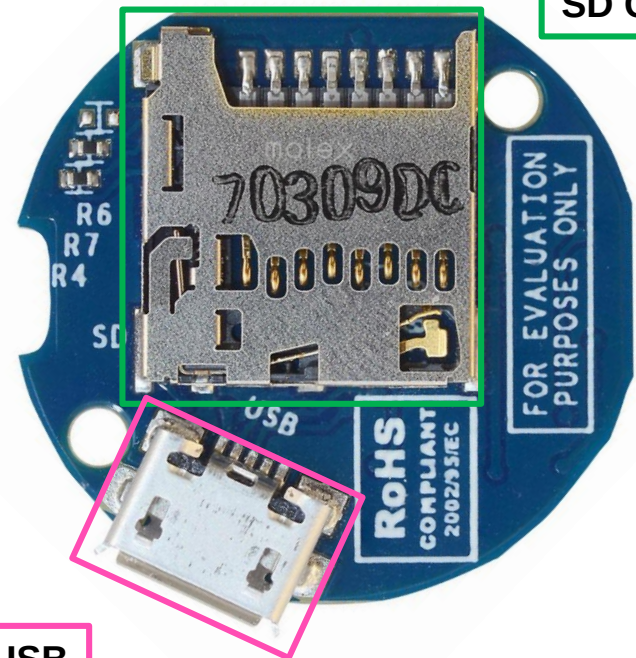
ST1S12XX



BOTTOM VIEW

Micro
SD Card

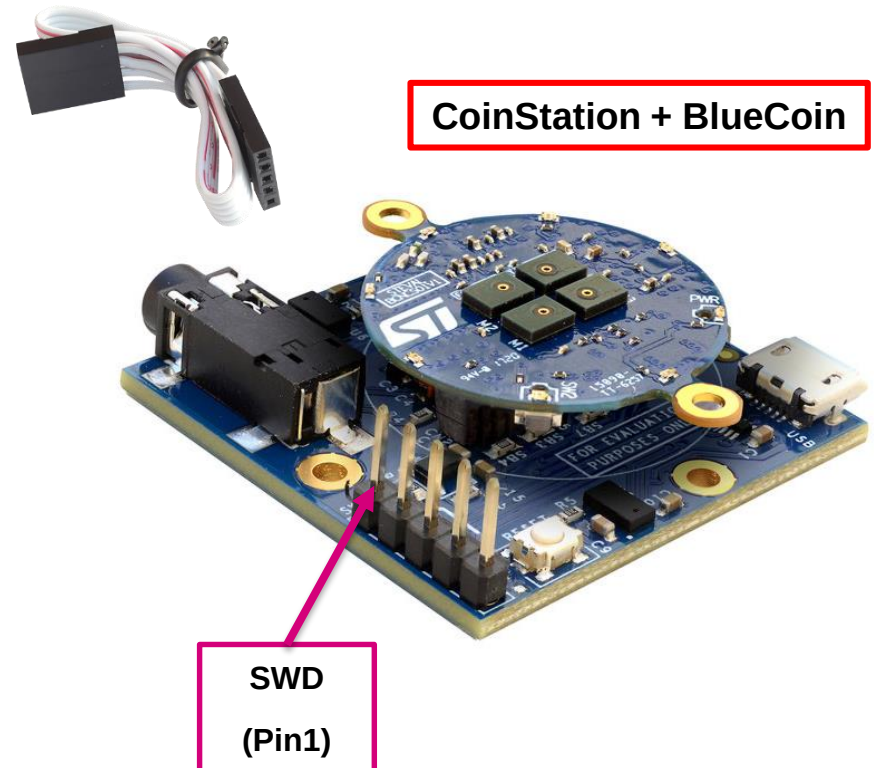
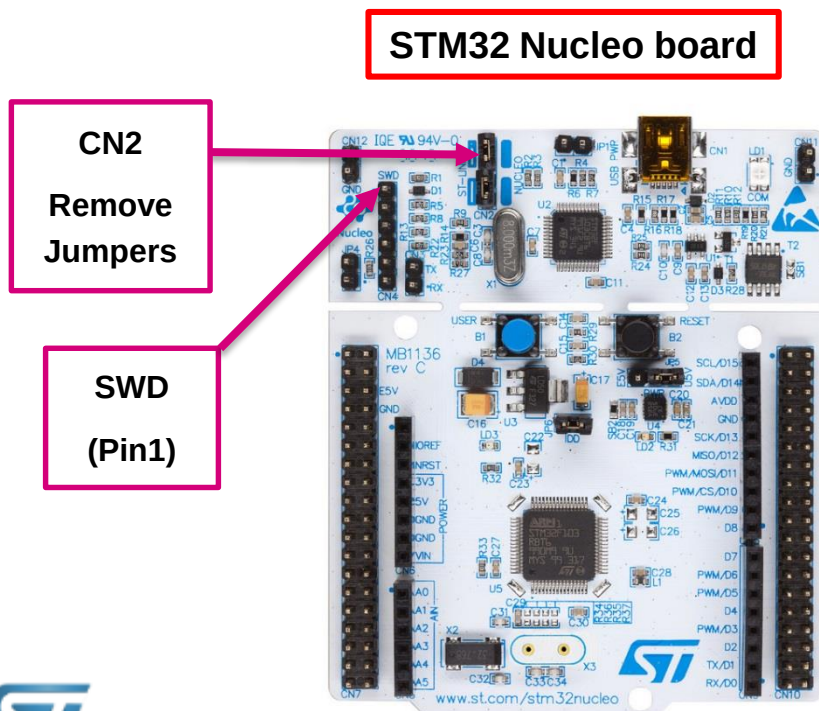
Micro USB



BlueCoin Programming/Debugging

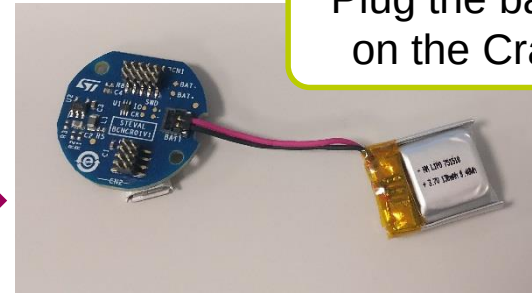
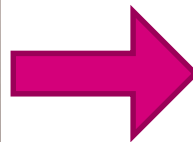
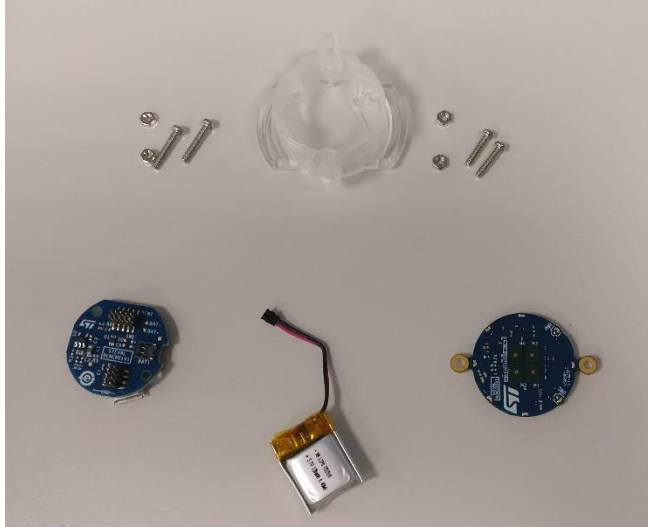
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- Connect an external ST-Link to the cradles SWD connectors. A 5pin flat cable is provided within the BlueCoin Starter Kit
 - The easiest way is to get an STM32-Nucleo board which includes an ST-Link V2.1
 - Remove CN2 Jumpers from the Nucleo Board
 - Connect the SWD interfaces using the provided cable



How to assemble the portable demo

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Plug the battery on the Cradle



Fold the Battery below the cradle, insert in the plastic case and secure with the bolts

Plug the BlueCoin and secure with the bolts

