

STEVAL-ROBKIT1

Evaluation kit for robotics applications

Sections overview

1 Meet STEVAL-ROBKIT1

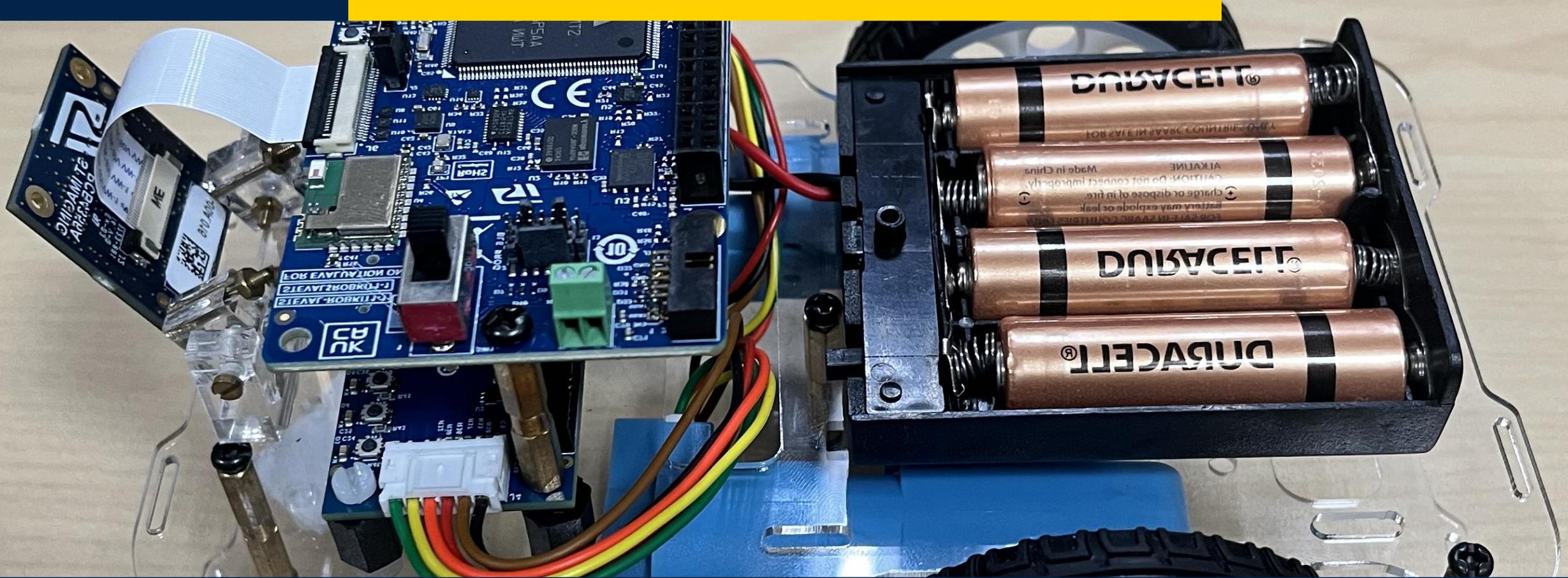
2 Hardware details

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4 Firmware and software

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Meet STEVAL-ROBKIT1



Meet STEVAL-ROBKIT1



STEVAL-ROBKIT1 is a comprehensive robotics evaluation kit designed as a platform for the development of robotic technology and its applications.

Comes with a complete hardware, firmware, and software ecosystem
Allows the robot to move autonomously
Allows the users to run various AI algorithms

The solution is provided as a kit with sales code **STEVAL-ROBKIT1**
→ [Link](#)

Meet STEVAL-ROBKIT1



Certification: CE, FCC

Kit content

- STEVAL-ROBKIT1-1 main board
- STEVAL-ROBKIT1-2 motor control board
- STEVAL-ROBKIT1-3 camera board
- Battery pack and wiring
- DC motors and wheels
- Spacer and screws
- Chassis

Firmware

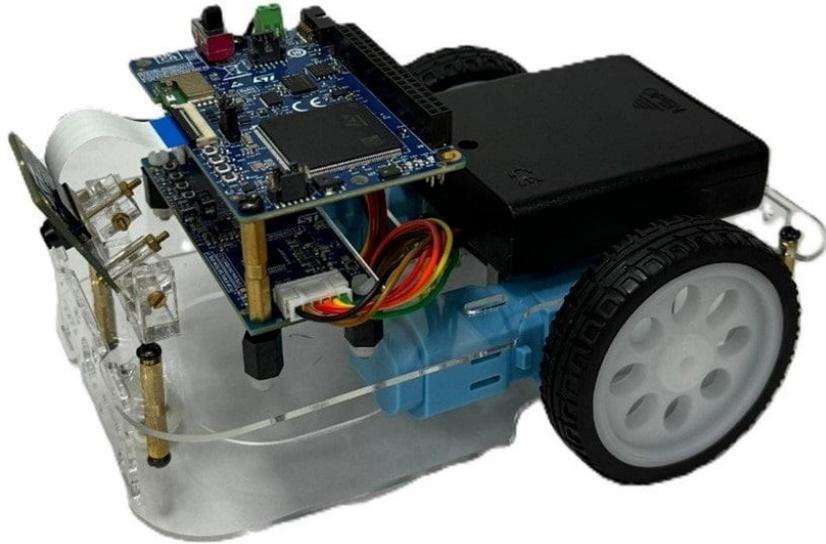
- **STSW-ROBKIT1**: Firmware for STEVAL-ROBKIT1 evaluation board for Robotics applications

Collaterals

- **STROBOTICS** mobile app (iOS and Android)
- Hardware and software data brief and user manual

Meet STEVAL-ROBKIT1

High level block architecture



Certification: CE, FCC

Power management & protections

Synchronous step-down converter, low drop regulator

ESD protection

Navigation & sensing

Camera module

ToF

MEMS

IMU, magnetometer,
inertial sensor

Processing

STM32

Arm Cortex®-M7

STM32

Arm Cortex®-M0

Driving

STSPIN

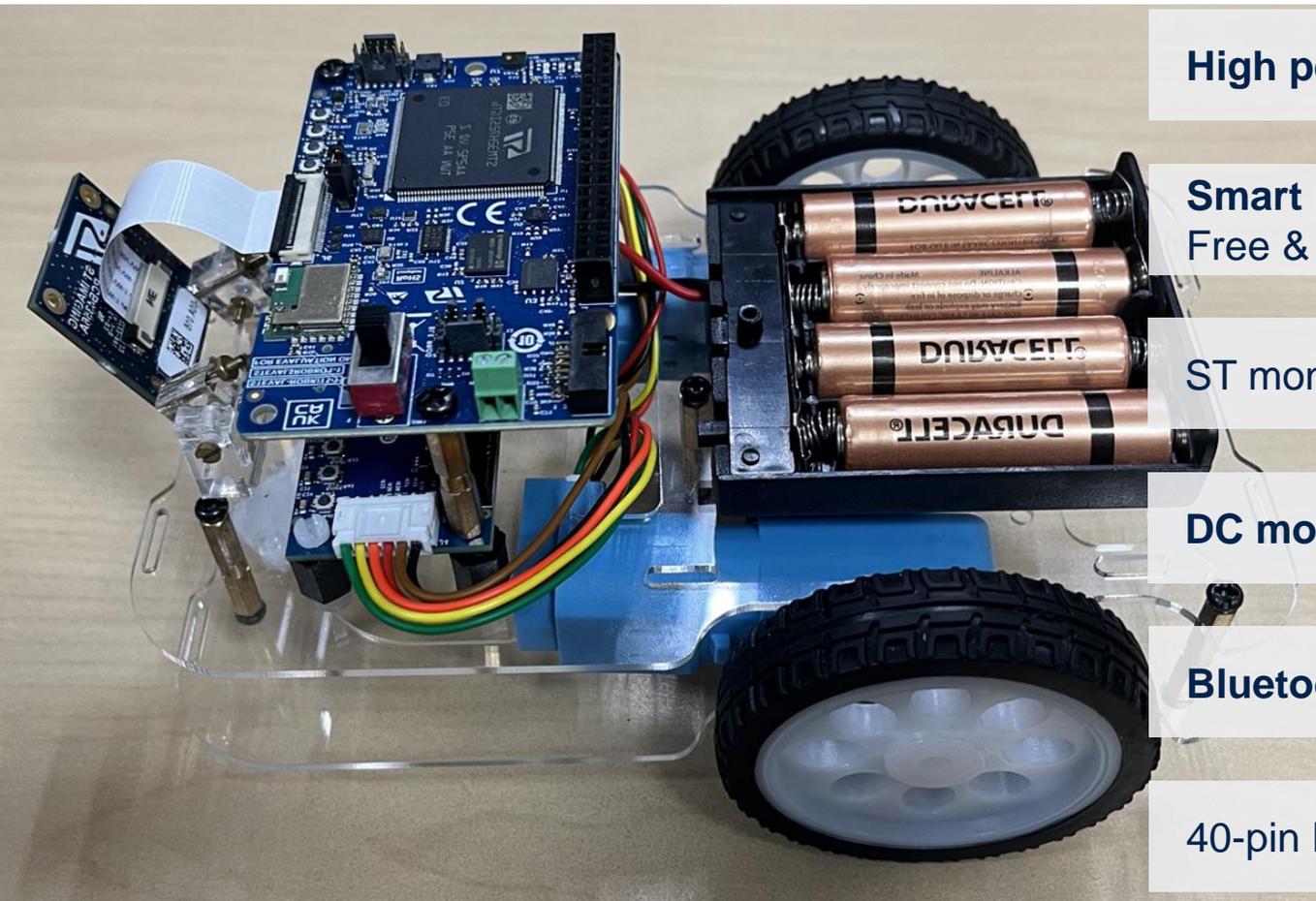
Low voltage driving
DC motor

Hardware details



STEVAL-ROBKIT1

Modularity for compact & easy-to-use robot



High performance data processing with STM32H7 MCU

Smart navigation:
Free & follow-me navigation, object & cliff detection

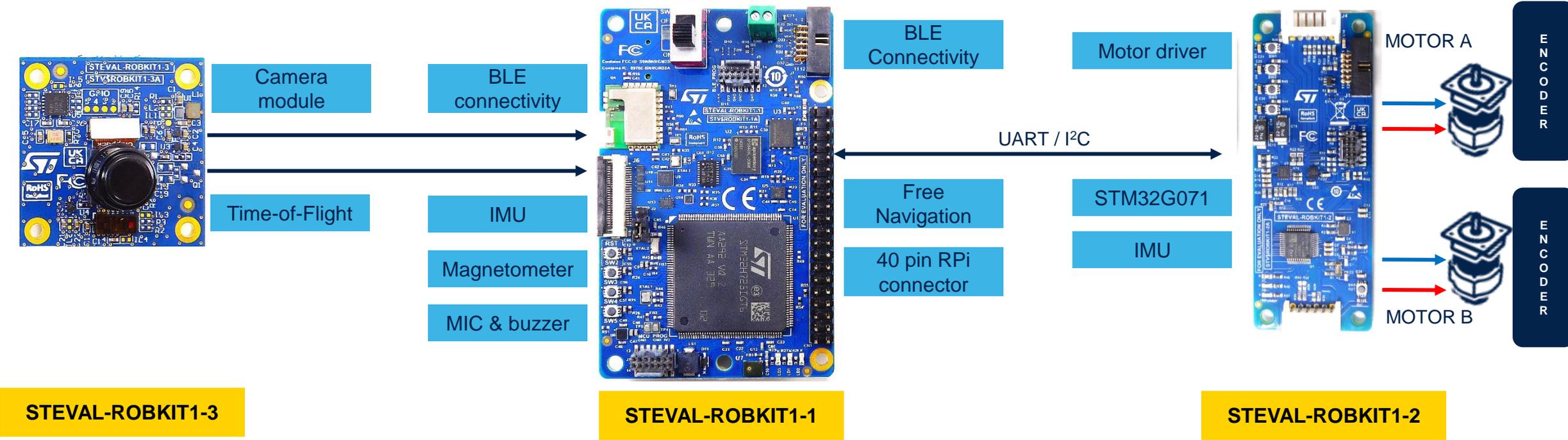
ST monochrome camera for **object detection**

DC motor + **STM32G0** controller for navigation

Bluetooth® Low Energy connectivity using BLUENRG-M2SA

40-pin **Raspberry Pi** GPIO connector

System architecture



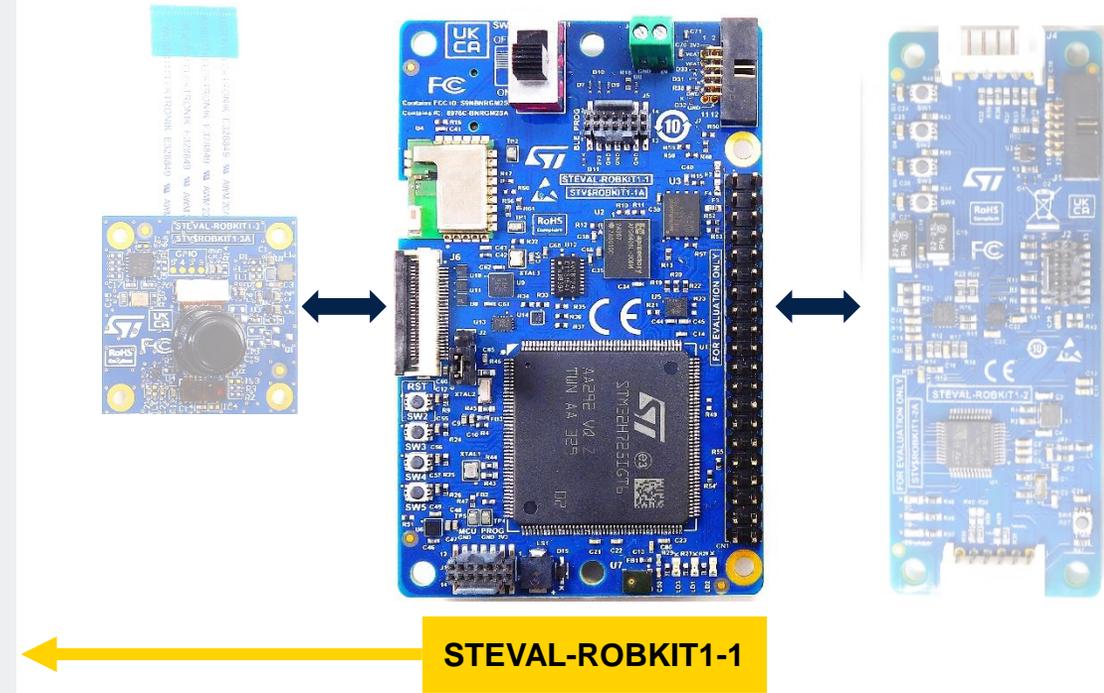
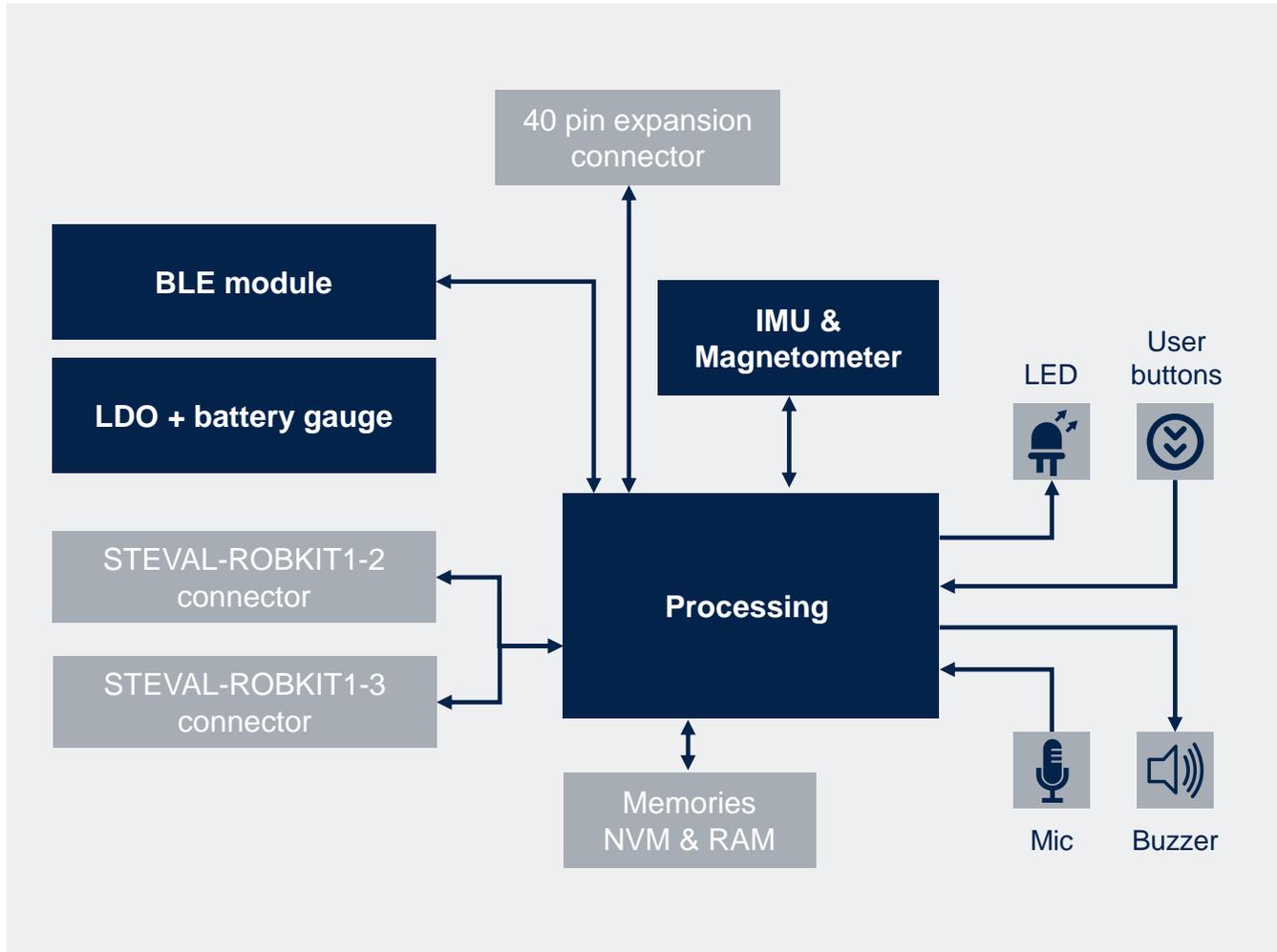
STEVAL-ROBKIT1-3

STEVAL-ROBKIT1-1

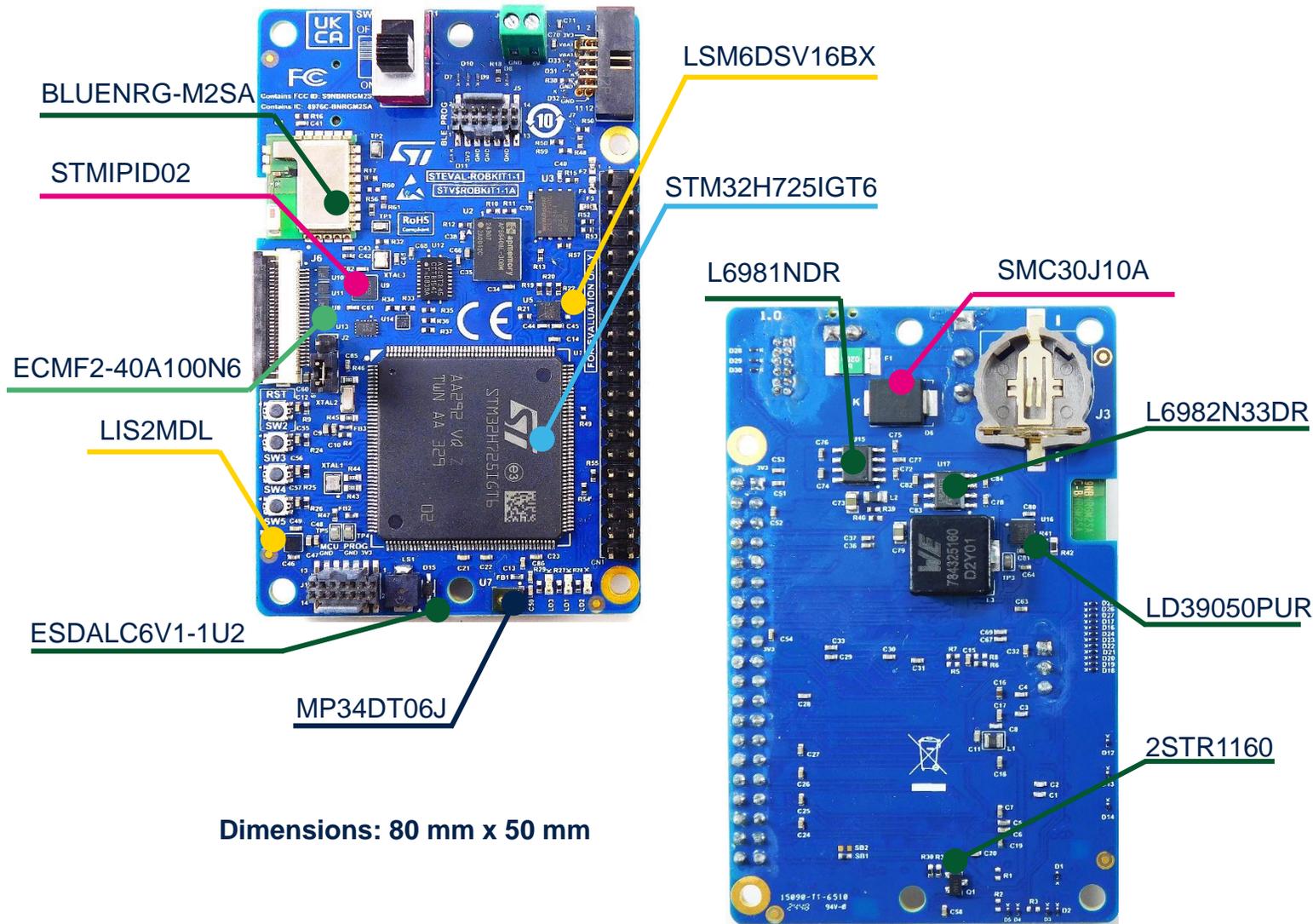
STEVAL-ROBKIT1-2



Block diagram STEVAL-ROBKIT1-1



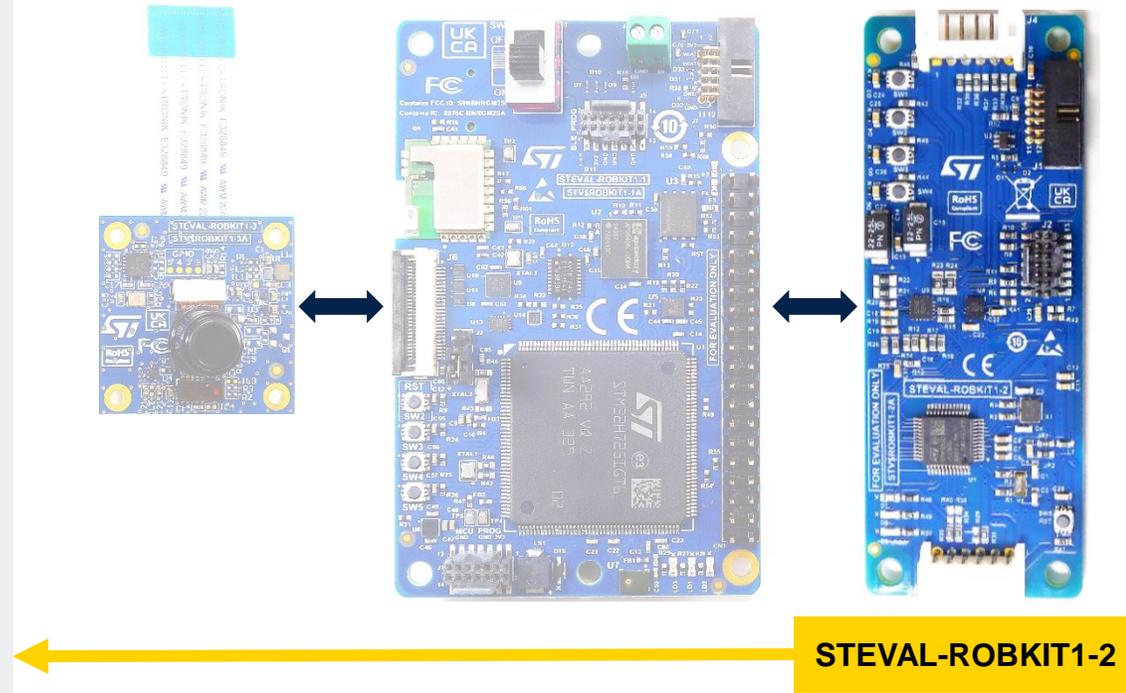
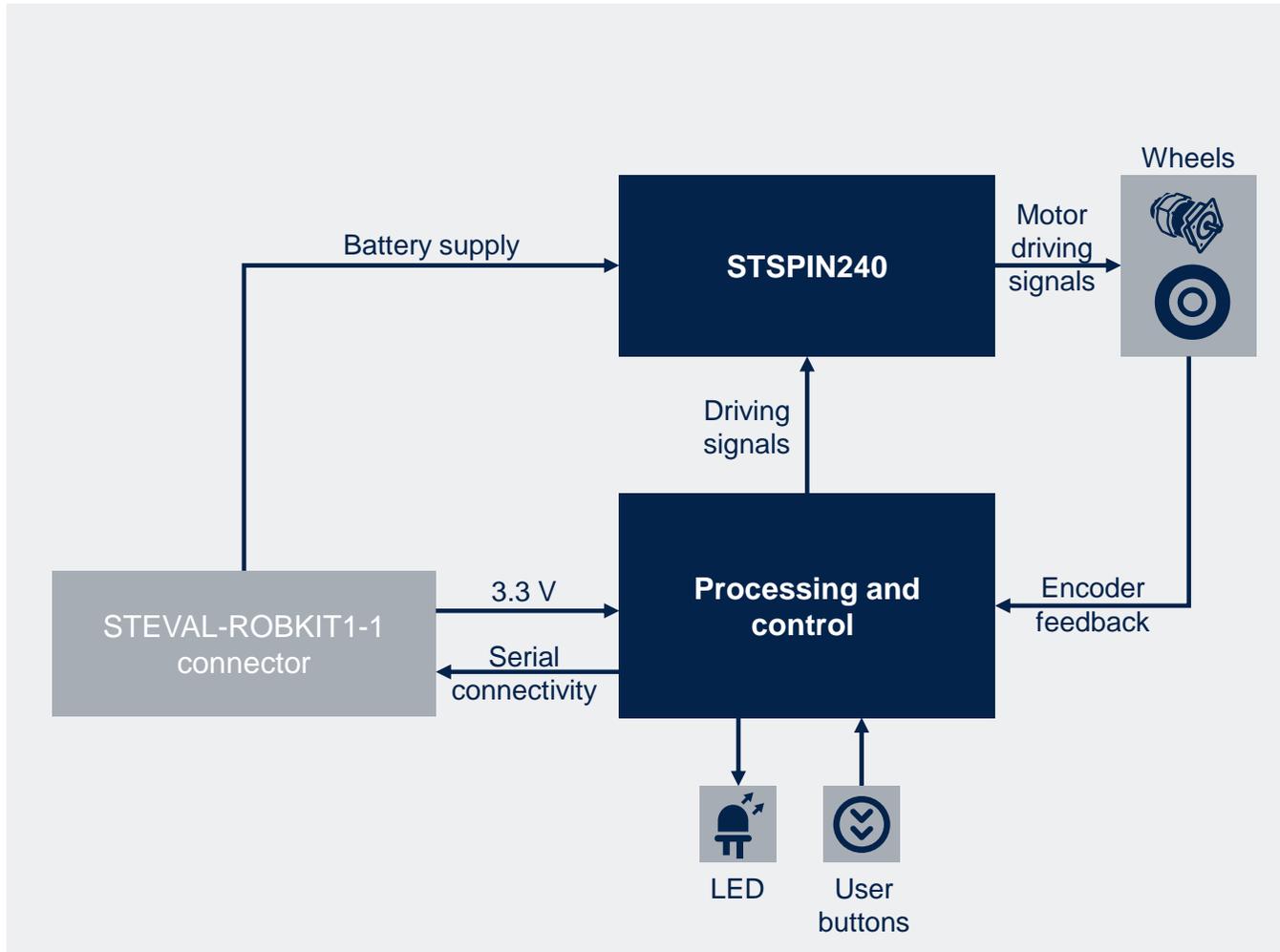
ST products STEVAL-ROBKIT1-1



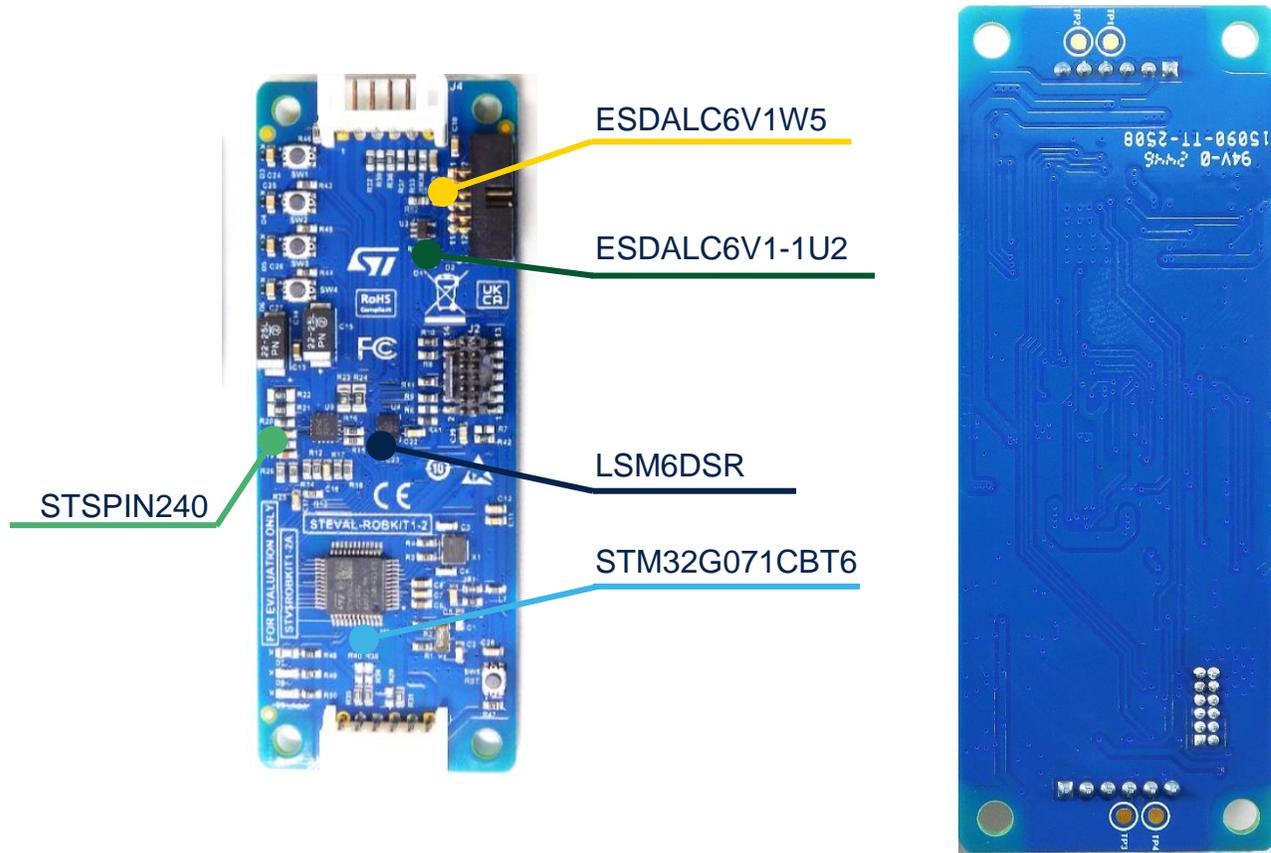
Products

- **STM32H725IGT6:** MCU with Arm Cortex®-M7
- **LSM6DSV16BX:** 6-axis IMU
- **LIS2MDL:** 3-axis magnetometer
- **MP34DT06J:** Microphone
- **SMC30J10A:** TRANSIL protection
- **ESDALC6V1-1U2:** ESD protection
- **ECMF2-40A100N6:** Common-mode filter with ESD protection
- **STMIPID02:** Dual-mode MIPI CSI-2/SMIA CCP2 de-serialize
- **LD39050PUR:** Low drop linear regulator
- **2STR1160:** Low voltage fast-switching NPN power transistor
- **L6981NDR, L6982N33DR:** Switching voltage Regulators
- **BLUENRG-M2SA:** Very-low power application processor module for Bluetooth® low energy v5.2

Block diagram STEVAL-ROBKIT1-2



ST products STEVAL-ROBKIT1-2

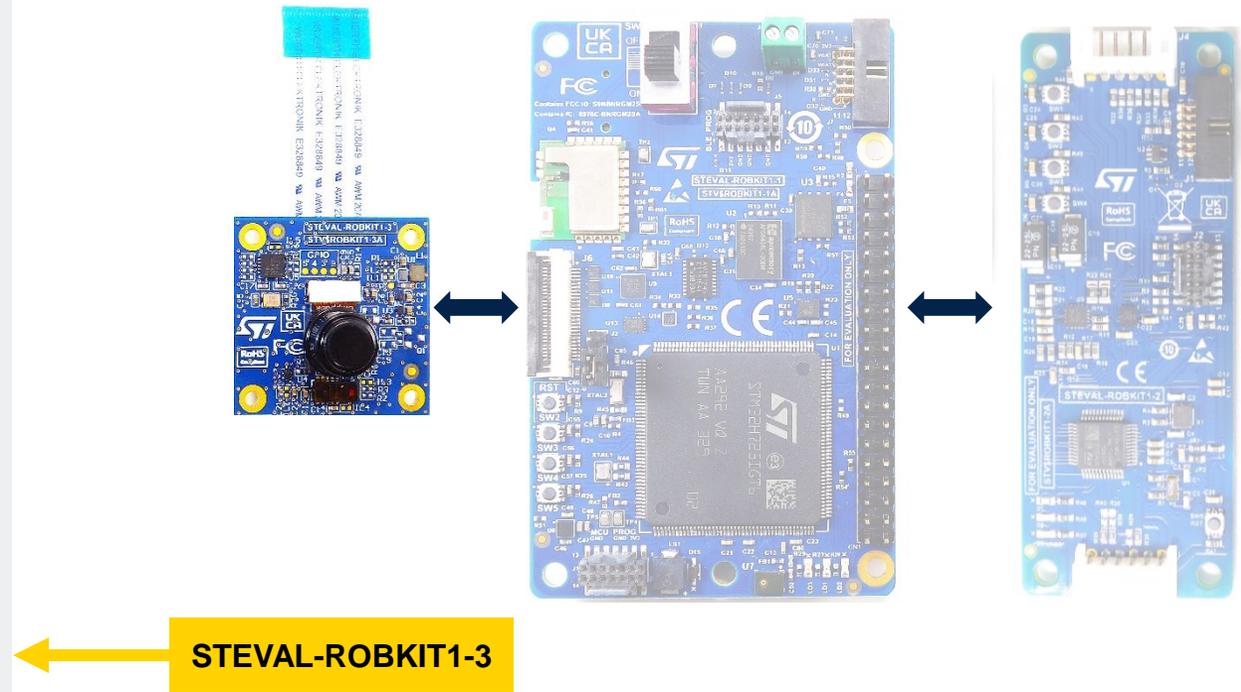
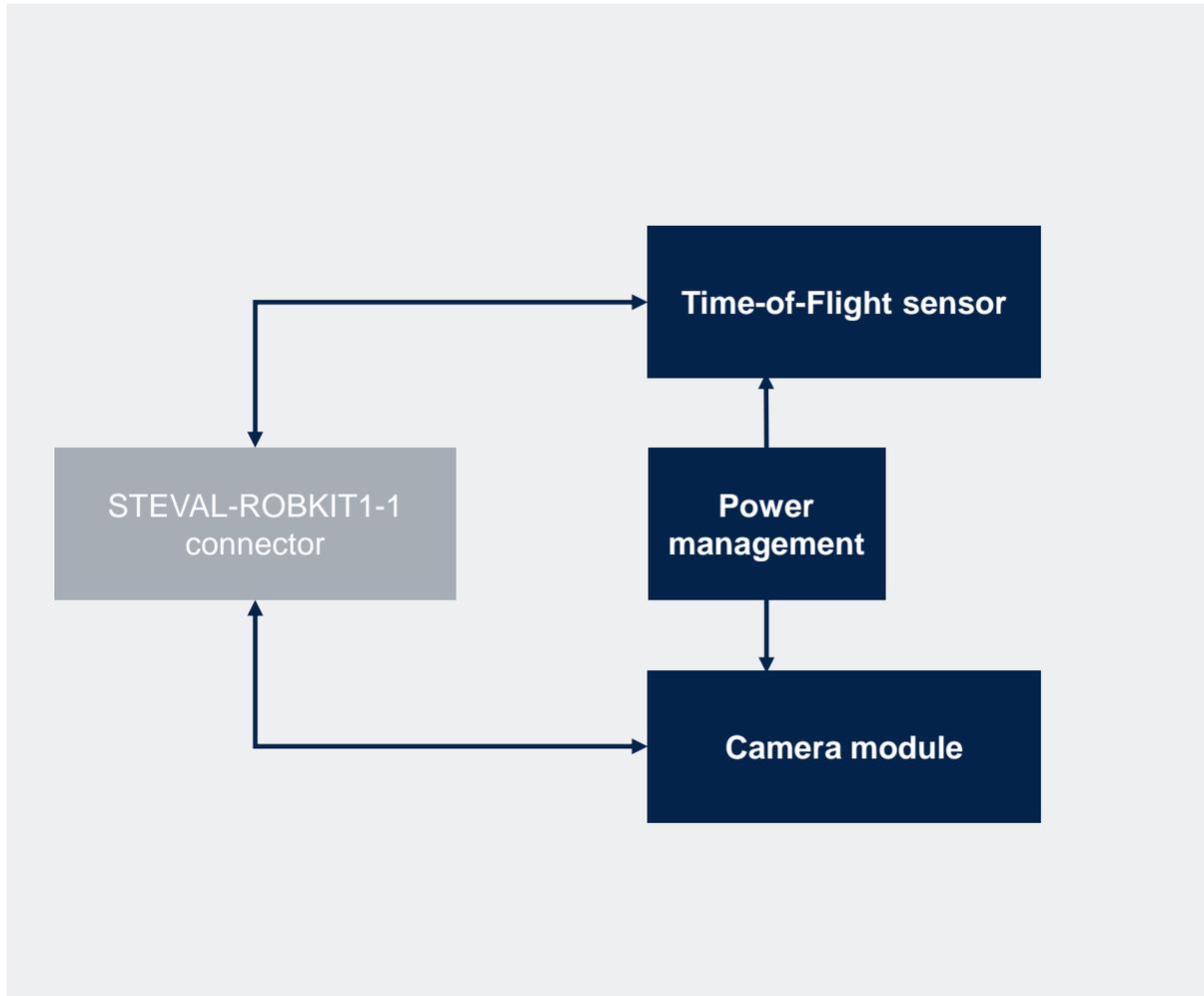


Dimensions: 80 mm x 30 mm

Products

- **STM32G071CBT6**: MCU with Arm Cortex®-M0+
- **STSPIN240**: DC brushless motor driver
- **LSM6DSR**: 6 axis IMU (Accelerometer + gyroscope)
- **ESDALC6V1W5**: Quad TRANSIL array
- **ESDALC6V1-1U2**: ESD Protection

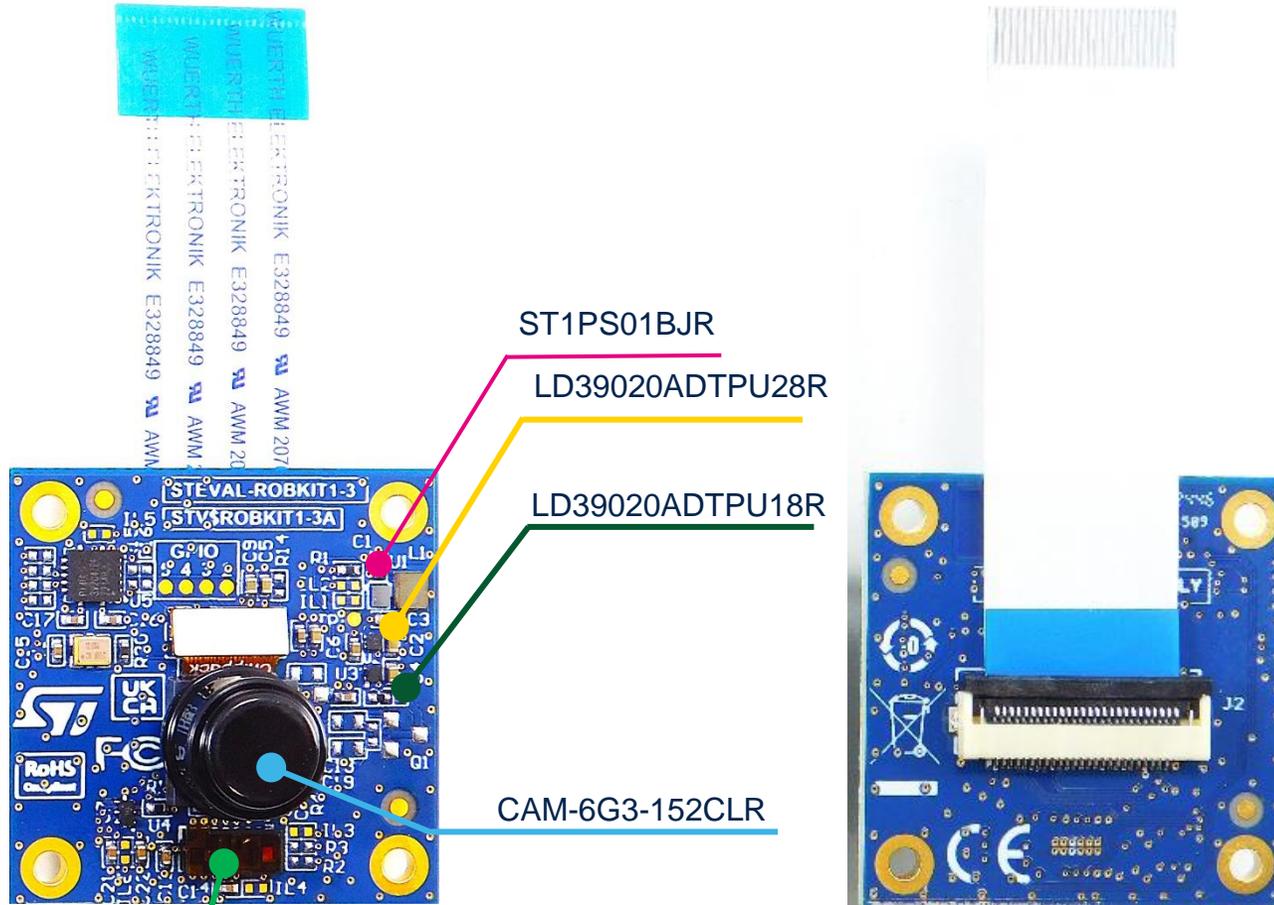
Block diagram STEVAL-ROBKIT1-3



ST products STEVAL-ROBKIT1-3

Products

- **VL53L8CXV0GC**: Low-power high-performance 8x8 multizone Time-of-Flight sensor (ToF)
- **CAM-6G3-152CLR**: CAM-56G3 promodules: evaluation camera modules for VD56G3 image sensor
- **LD39020ADTPU28R, LD39020ADTPU18R**: Low drop linear regulator
- **ST1PS01BJR**: nano-quiescent synchronous step-down converter

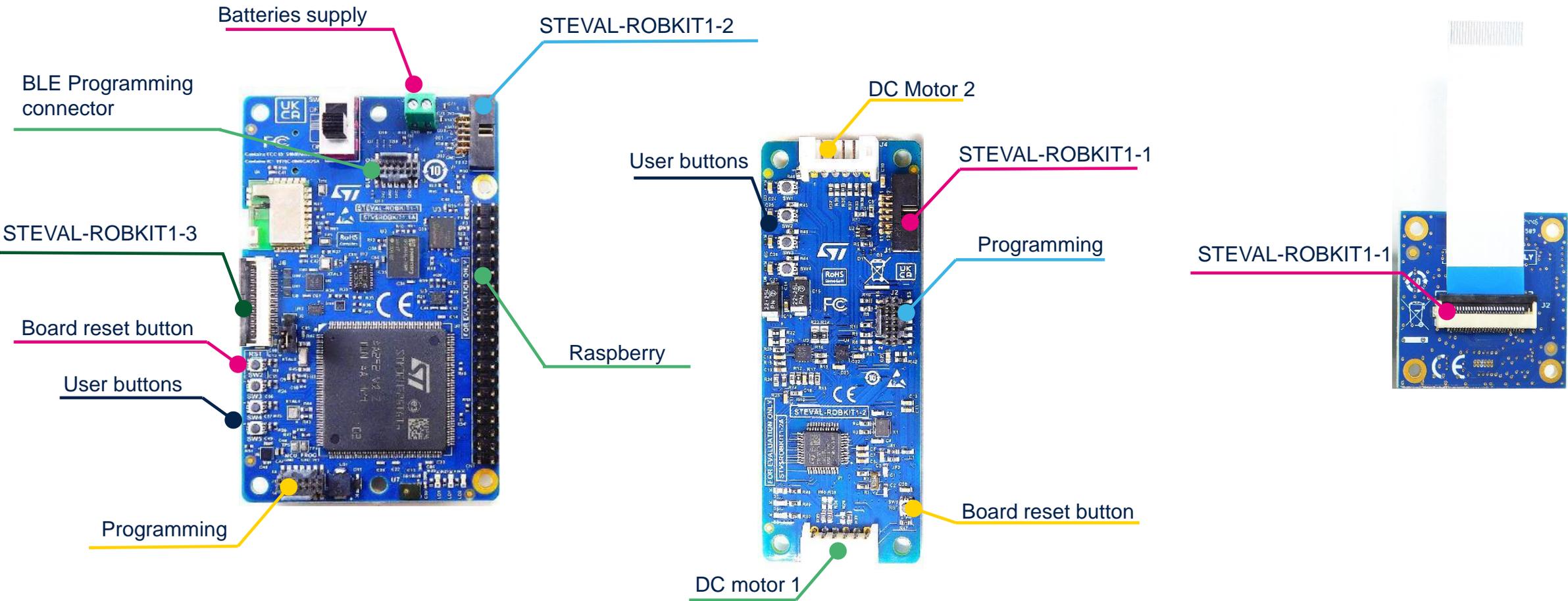


Dimensions: 30 mm x 30 mm



STEVAL-ROBKIT1

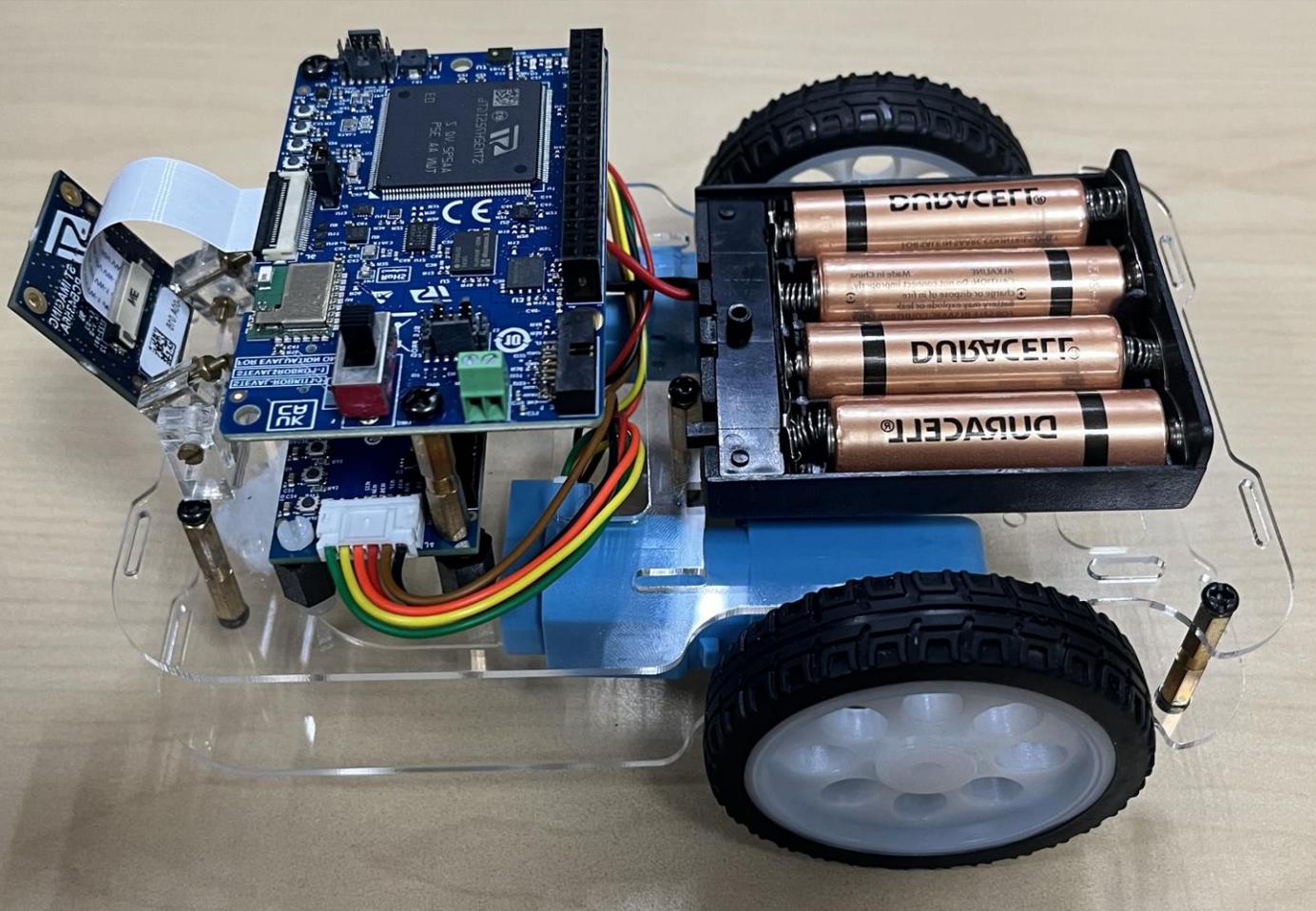
Connectors and push buttons



Ecosystem



Ecosystem for STEVAL-ROBKIT1 robotics evaluation kit



STM32 programming tools



Embedded firmware and mobile app



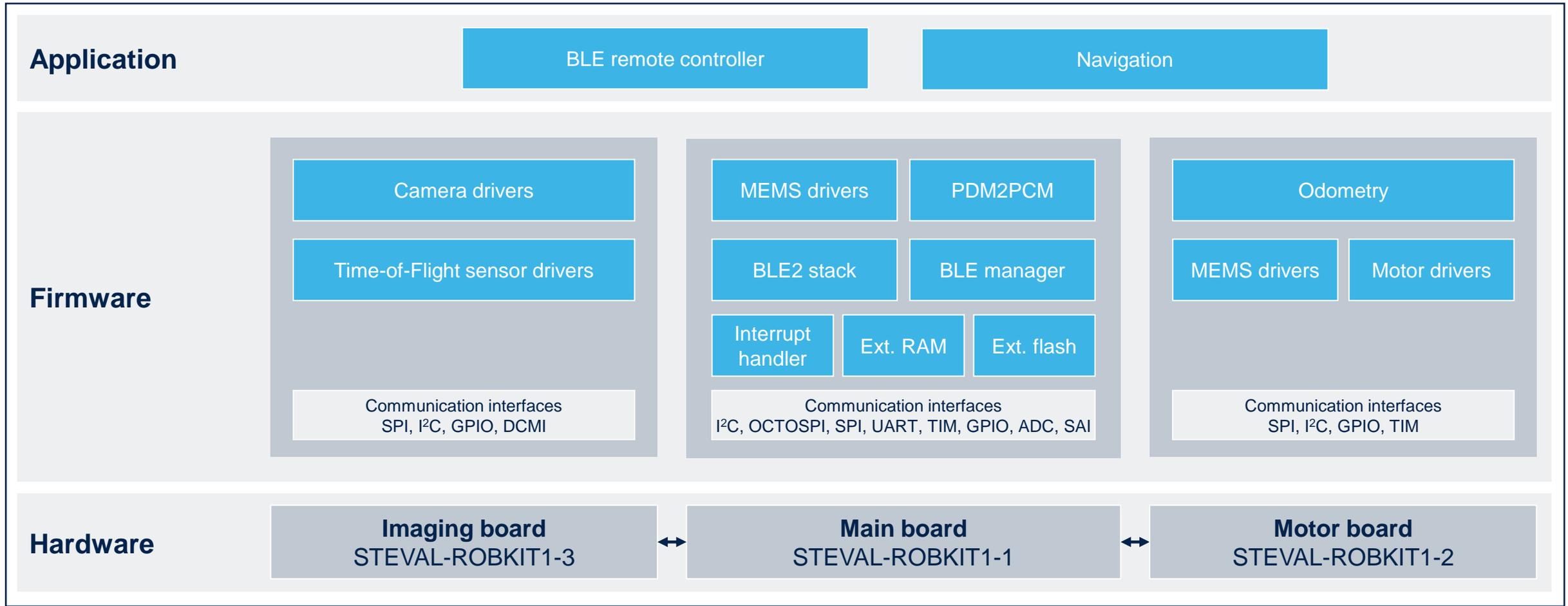
AI neural network algorithm

Firmware and software



STSW-ROBKIT1

Application firmware architecture

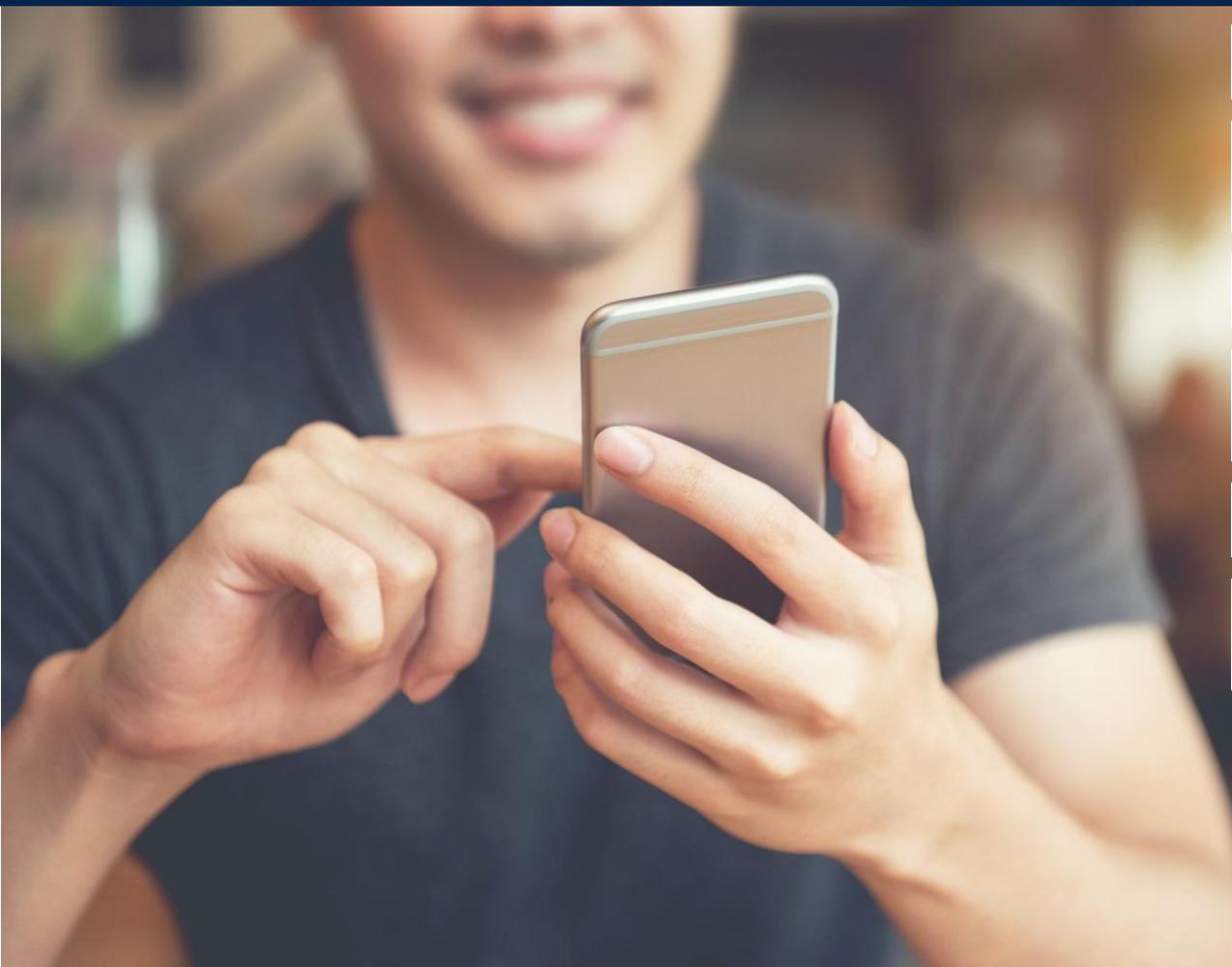


STSW-ROBKIT1



STROBOTICS mobile app

Remote control using STROBOTICS mobile app



Scan, connect, and control Bluetooth® Low Energy based robotics kits

Various options to control the speed and movement of the robotic car using also virtual joystick interface

Support for mecanum / omni-wheel and differential drive mechanisms

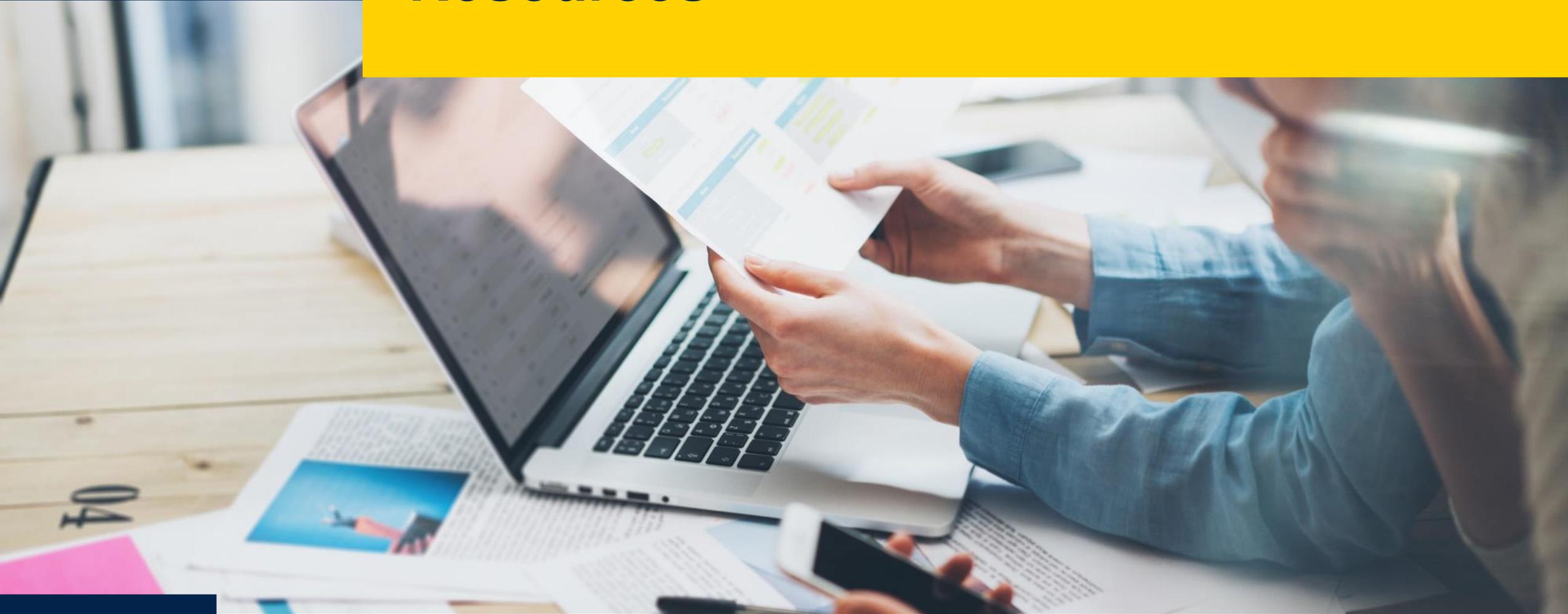
Provides interoperability with other Bluetooth-based boards through BlueST-SDK integration

Data logging with annotation for use in machine learning tools

Embedded debug console for sending direct commands and viewing log messages for troubleshooting and sensor data plotting feature



Resources



Documentation & package

Hardware

- **DB5348:** Evaluation kit for Robotics applications
- **UM3457:** Getting started with STEVAL-ROBKIT1
- **CAD Resources:** Schematic, BOM, Gerber

Firmware

- **STSW-ROKIT1:** Evaluation firmware allows easy to use of the platform
- **DB5394:** Firmware for STEVAL-ROBKIT1 evaluation board for Robotics applications
- **UM3456:** Getting started with STSW-ROBKIT1 for STEVAL-ROBKIT1 Robotics evaluation kit

Software

- **STROBOTICS:** Robotics mobile App
- **DB5454:** Smartphone app for Android and iOS platforms



Our technology starts with You



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