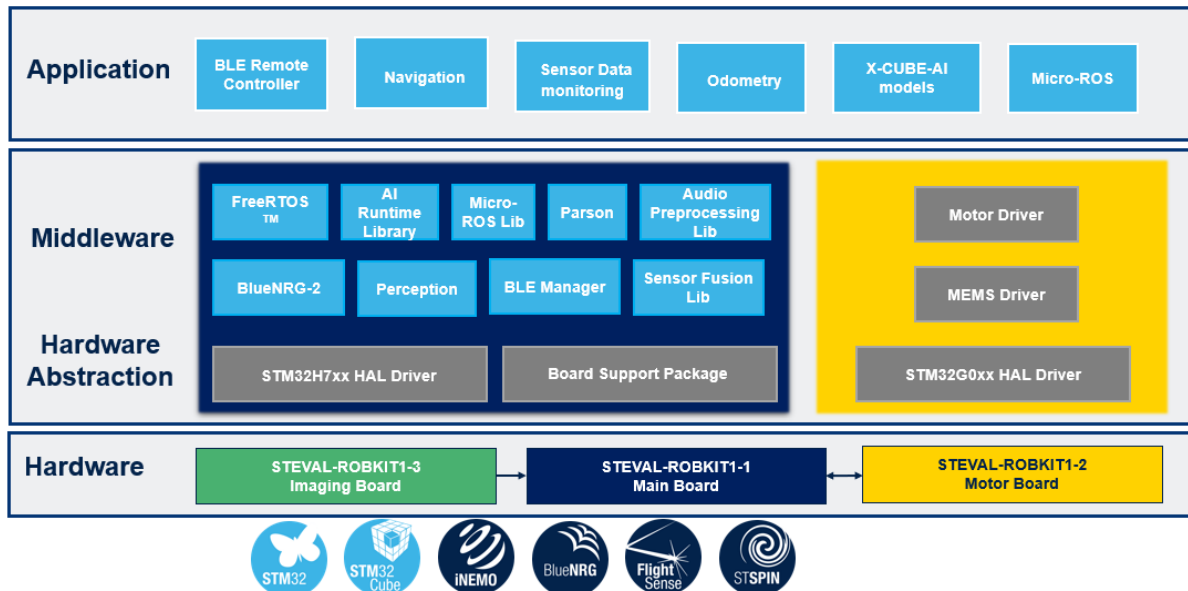


Firmware for STEVAL-ROBKIT1 evaluation board for Robotics applications



Product status link

[STSW-ROBKIT1](#)

Features

- Ready examples for robotics application development
- Independent firmware for the STEVAL-ROBKIT1-1 (Main board) and STEVAL-ROBKIT1-2 (motor board)
- FreeRTOS™ task scheduling to ensure a better message handling and improved system performance
- Supports integration of AI models and applications, enabling advanced robotics functionalities
- Support for Micro-ROS to handle communication with ROS nodes, enabling interoperability with ROS-based systems
- Odometry for precise navigation
- Real-time magnetic heading value based on MEMS sensor fusion library
- DCMI interface for efficient and versatile camera integration supporting various image resolutions
- 8x8 multizone Time-of-Flight sensor data for various applications like navigation and edge/cliff detection
- Data transmission via Bluetooth® LE connectivity to support remote control and on-board sensors data logging of the robot using mobile application, STRobotics app
- Workspace support for IAR, STM32CubeIDE, and Keil®
- Capability for seamless reconfiguration of the peripherals using the .ioc file for STM32CubeMX, simplifying the development process for the users

Description

The STSW-ROBKIT1 is a comprehensive software package designed for STEVAL-ROBKIT1 robotics evaluation kit. This ready-to-use programmable platform for the development of robotic applications.

The STSW-ROBKIT1 software package includes two modular firmware components. One is designed for the main board, which operates at a CPU clock frequency of up to 550 MHz, enabling high-performance processing and operates using FreeRTOS™ task scheduling to ensure a better message handling and improved system performance. The other is tailored for the motor control board, ensuring motor control applications.

The firmware fully utilizes the kit capabilities by leveraging data from high-quality motion sensors, including a 6-axis accelerometer and gyroscope, a 3-axis magnetometer, a digital microphone, a FlightSense sensor, and a monochrome camera, all integrated for robotic applications.

The DCMI mode is employed for the monochrome camera, allowing efficient image capture and processing.

The kit connectivity is enhanced using the STRobotics app, which interfaces with the kit through a Bluetooth® LE processor module. The user application interfaces directly to the host layer of the Bluetooth® LE protocol stack, ensuring seamless communication.

Precise control of the kit movement is achieved using PWM and encoder signals, enabling accurate and reliable motion control.

Revision history

Table 1. Document revision history

Date	Revision	Changes
05-Dec-2024	1	Initial release.
24-Jul-2025	2	Updated cover image, Section Features and Section Description.
22-Sep-2025	3	Updated Section Cover image, Section Features and Section Description.
15-Dec-2025	4	Updated Cover image and Features.

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