Powering the Physical AI Revolution: *A System Approach to Robotics*

Impulse presentation and hands-on experience

STMicroelectronics & EBV Elektronik

April 13th, 2026

Workshop Concept & Agenda

EBV Elektronik
An Avnet Company

Powering the Physical AI Revolution
A System Approach to Robotics

Workshop concept

Workshop with hands-on lab using ST's STEVAL-ROBKIT1 mobile robotics evaluation kit

Physical AI is transforming robots from scripted machines into intelligent, embodied systems that can see, understand, and act safely in the real world. This workshop combines a broad **system and application-level perspective** with a **practical, hands-on session** using STMicroelectronics' **STEVAL-ROBKIT1** platform.

Participants will learn how **sensing, edge AI, motion control, and power** come together in real robotic systems. They will then **apply this understanding directly** by configuring, programming, and running an autonomous mobile robot, including deploying AI models on an STM32 microcontroller.

This is not just a presentation - it is a **build, flash, and run** experience that connects system concepts to working hardware.

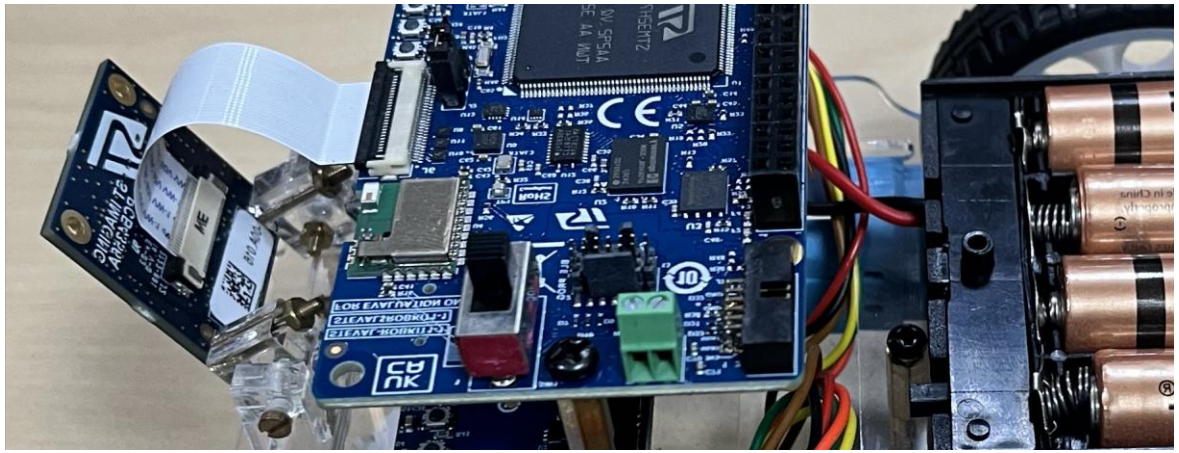
Workshop overview

Objective

- Share STs perspective on the state of **Physical AI** for mobile robots, humanoids, and drones **in practice**.
- See **concrete application examples** based on ST's system approach, including:
  - Robotic Hand (Vision – Decision – Action)
  - Robotic Joint module
  - Multimodal sensing and imaging for drones
- Gain **hands-on experience** with the **STEVAL-ROBKIT1** robotics kit, from firmware build and flashing to autonomous navigation and AI integration.
- Learn how to use the **STM32 development ecosystem** (STM32CubeMX, STM32CubeIDE, STM32CubeProgrammer, STM32Cube.AI) in a robotics context.
- Leave with a clear view of **how to leverage ST platforms** and tools to accelerate their own robotic projects and potential collaboration paths with ST.

Who should attend?

- ❑ **Robotics startups** building mobile robots, manipulators, humanoids, or drones.
- ❑ **System architects and embedded engineers** working on perception, control, or AI at the edge.
- ❑ **Technical leads and innovation managers** exploring platforms to reduce time-to-market for new robot designs.
- ❑ **Researchers and advanced students** engaged in embodied AI, motion control, or robotic systems integration.



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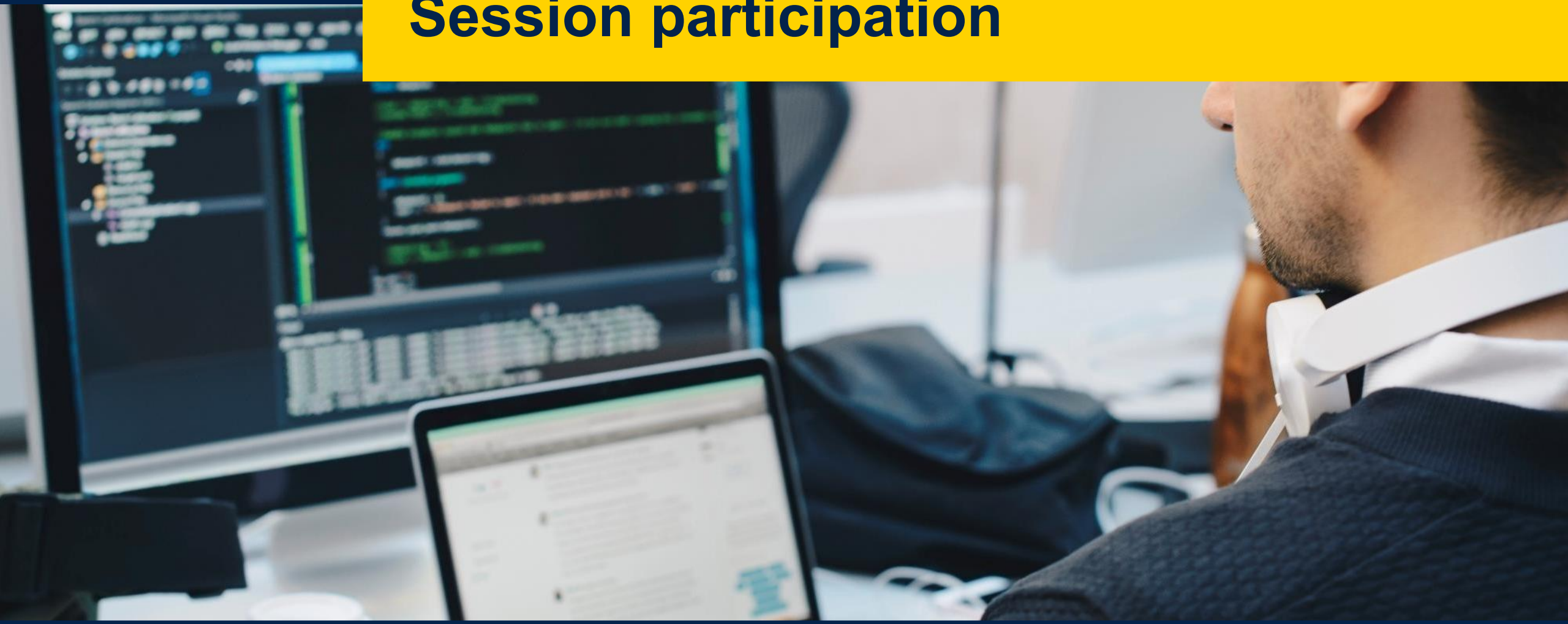
Revised Agenda Proposal

16 PAX per Session | Version as of April 7th

Time	Duration	Slot	Topic	Agenda	Notes
9:00 - 9:10	10 min	Set-up room			
9:10 - 10:20	70 min	ST-WS 1 ***Hands-on session***	**From kit to autonomous robot** - Working with STEVAL-ROBKIT1	**Platform introduction** • Hardware tour: sensors, motors, control board, connectivity • Overview of the provided firmware and software ecosystem **Programming ecosystem** • Using STM32CubeMX, STM32CubeIDE, STM32Cube.AI, … • Project structure, configuration, and build process **Guided Exercises** • AI at the Edge: Surface Detection with STM32Cube.AI+	***REMARK*** – Hands-on session requires preparation ***!!!*** See ***"Pre-requisits | Documentation | Support"*** Bus Aalborg (10:15)
10:20 - 10:30	10 min	Break	Reset room and ROBKITs		
10:30 - 11:15	45 min	ST-WS 2 ***Impulse presentation***	From Hype to Reality: **Physical AI and Humanoid robotics today**	**The Foundations of Physical AI: A system view on robots and drones** • Multimodal perception incl. MEMS, imaging, Time-of-Flight, AI • Deterministic control with edge AI, real-time control, distributed intelligence • High-efficiency actuation and power management • Connectivity & safe operations **ST solutions and concrete application examples** • Vision - Decision - Action with the Robotic Hand platform • Robotic Joint module as a scalable building block for arms and humanoids • Multimodal sensing and imaging for drones (navigation, obstacle detection) • Indoor – Outdoor positioning for robotics and drone	
11:15 - 11:25	10 min	Break	Reset room and ROBKITs		
11:25 - 12:10	45 min	ST-WS 3 ***Impulse presentation***	From Hype to Reality: **Physical AI and Humanoid robotics today**	**Repeat** of **ST-WS 2**	
12:10 - 12:20	10 min	Break	Reset room and ROBKITs		
12:20 - 1:30	70 min	ST-WS 4 ***Hands-on session***	**From kit to autonomous robot** - Working with STEVAL-ROBKIT1	**Repeat** of **ST-WS 1** ***REMARK*** – Hands-on session requires preparation ***!!!*** See ***"Pre-requisits | Documentation | Support"***	"Special Arrangement for Students" (12:15)
1:30		End			

Required preparation for Hands-on Session participation



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Pre-requisites

Required Software to be downloaded and installed*
(Recommendation at least 1 week prior to workshop)

1. STM32CubeIDE
   (https://www.st.com/en/development-tools/stm32cubeide.html)
2. STM32CubeMX
   (https://www.st.com/en/development-tools/stm32cubemx.html)
   Note: The STSW-ROBKIT1 is not supported by STM32CubeMX v6.15.0. Kindly use STM32CubeMX v6.14.1 for development.
3. STM32CubeProg
   (https://www.st.com/en/development-tools/stm32cubeprog.html)
4. STM32Cube.AI
   (https://stm32ai.st.com/stm32-cube-ai)
5. Also supported for IAR, Keil IDEs
6. STSW-ROBKIT1 SDK Downloaded
   (for workshop STSW-ROBKIT1 v1.1.0 to be used)
7. GIMP
   GIMP - Downloads

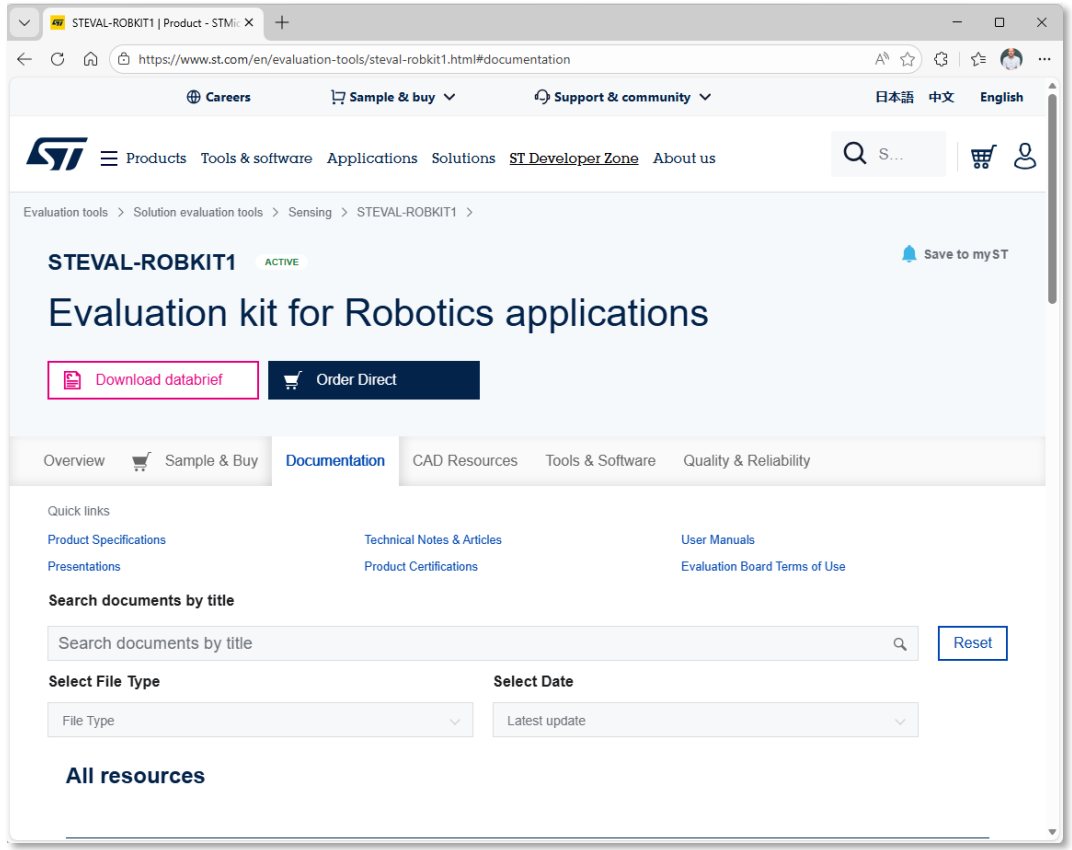
Additional requirements / pre-requisits

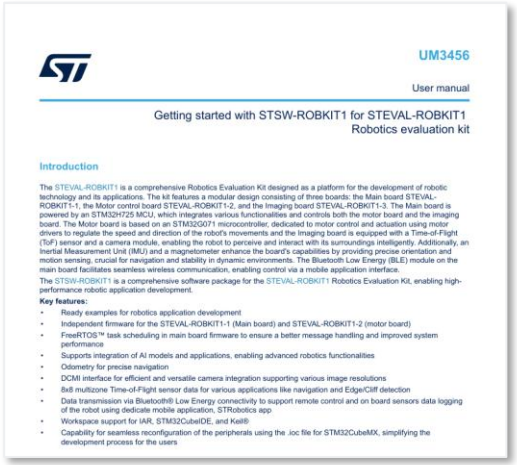
1. STLINK-V3PWR **[provided by ST on-site May 8th]**
   - 14 pin programming cable
   - USB C type cable for ST-Link
2. STEVAL-ROBKIT1 for participants use during WS, incl:
   [provided by ST on-site May 8th]
   - Pre-assembled
   - 4 x 1.5v AA Alkaline Batteries for each kit
3. WiFi connection at the venue
   [provided by event on-site May 8th]
4. Mobile phone to install the STRobotics App
   - Apple App Store for iPhone (https://apps.apple.com/us/app/st-robotics/id6739212512)
   - Android Google Play (https://play.google.com/store/apps/details?id=com.st.robotics&pcampaignid=web_share)

* Admin rights for laptop required to be able to install new software

Documentation and Support (1/2)

[STEVAL-ROBKIT1 | Product - STMicroelectronics]





[Getting started with STSW-ROBKIT1 for STEVAL-ROBKIT1 Robotics evaluation kit - User manual]

[Getting started with STEVAL-ROBKIT1 - User manual]

[steval-robkit1-evaluation-kit-for-robotics-applications.pdf]

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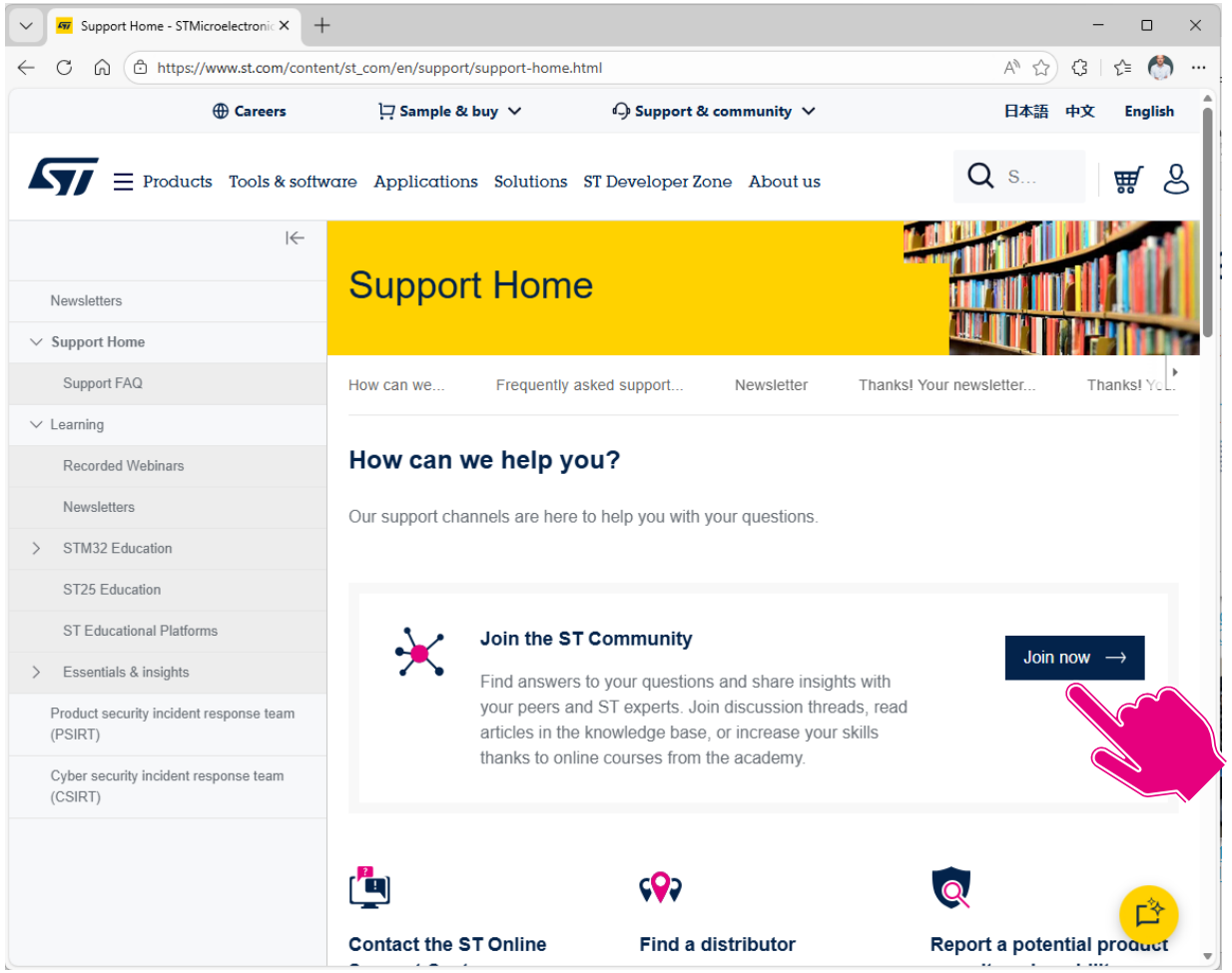
Documentation and Support (2/2)



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