Press release from fruitcore robotics

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PLEXA OS: fruitcore robotics brings AI-driven automation from task description to robot execution

New AI-native software platform combines intelligent task planning, physics-based simulation and proven industrial robot control to simplify automation and increase flexibility.

Konstanz, [publication date] – Humanoid robots are attracting worldwide attention, but their success in industrial applications depends on more than impressive hardware capabilities. The key is intelligent, intuitive software that makes robots easy to program, reliable to operate and flexible enough to handle changing tasks. With PLEXA OS, fruitcore robotics introduces its new AI-native operating system for the industrial humanoid PLEXA One, combining artificial intelligence, physics-based simulation and proven industrial robot control in one platform.

Instead of programming every robot movement manually, users describe their automation task in natural language or provide a sketch. Specialized AI agents design the robot cell, generate the program and test it in simulation before execution on the robot. This reduces programming effort, simplifies implementation and makes it easier to adapt automation to changing production requirements.

“Industrial AI must go beyond understanding instructions. It needs to turn them into reliable actions in the physical world. With PLEXA OS, we connect AI-driven planning, simulation and industrial execution in one platform, making industrial automation easier to implement and more flexible,” says Jens Riegger, CEO of fruitcore robotics.

As product variants increase and production processes change more frequently, traditional robot applications often require extensive engineering and programming whenever requirements change. PLEXA OS addresses this challenge by simplifying the path from an automation idea to an executable robot application.

Describe. Test. Run. Three software layers in one platform.

PLEXA OS combines three interconnected software layers that cover the complete workflow from task description to industrial execution.

In the **Intelligence layer**, specialized AI agents interpret natural language instructions, sketches or CAD data, design the robot cell and generate the corresponding program. Instead of manually defining each step, users review and approve the proposed solution.

The **Simulation layer** allows robot movements and process sequences to be tested and refined in a physics-based virtual environment. Potential errors can be identified and

corrected before deployment, reducing trial and error on the physical system and accelerating implementation.

The **Execution layer**, powered by fruitcore robotics' established robot operating system, provides deterministic robot control and coordinates connected equipment. Integrated PLC functionality also enables peripheral devices to be controlled directly, eliminating the need for a separate PLC in suitable applications. Functional safety remains with the robot's embedded safety controls.

Together, these layers combine the flexibility of AI with the reliability required for industrial automation. AI supports planning, while approved programs are executed through the Execution layer.

Specialized AI agents turn instructions into robot applications

PLEXA OS combines specialized AI agents with real-world data from cameras and sensors to support flexible industrial automation. Users describe the desired outcome, while the software helps prepare, test and execute the application.

Specialized AI agents translate instructions, sketches or CAD data into robot cell designs, generate and test program logic in simulation, support diagnostics and coordinate approved actions. Operational feedback helps identify improvements, which can be evaluated in simulation and reviewed before deployment. Defined roles, permissions and approvals keep users in control.

PLEXA OS supports three ways to drive a task, and they can be combined. In **agent mode**, an AI agent receives a goal and selects from permitted capabilities, programs and tools. In **program mode**, defined logic, conditions and parameters are created or taught and tested for repeatable execution. In **streaming mode**, external systems such as teleoperation controllers or learned policies, including VLA models, can provide motion targets.

Beyond programming, PLEXA OS enables robots to interpret their environment and adapt to changing conditions. For example, robots can sort packages based on their labels without every movement being programmed manually. For suitable applications, movements can also be tested and refined through repeated attempts in simulation.

"Today, developing a new robot application often means starting another engineering and programming project. PLEXA OS changes that: users describe the task, AI agents prepare and simulate the solution, and the application is executed on the robot. This allows engineers to focus on the application rather than repetitive programming work," says Patrick Heimburger, Managing Director of fruitcore robotics.

Proven industrial control meets AI-native automation

PLEXA OS builds on the established robot operating system that already runs HORST industrial robots at manufacturing companies worldwide.

Designed for defined, repeatable processes, it combines intuitive graphical programming, guided workflows and integrated robot, peripheral and process control, enabling automation without extensive programming expertise.

PLEXA OS extends this proven foundation with AI-driven planning and simulation. On PLEXA One, conventional and AI-supported automation can run within the same software architecture, allowing users to choose between rule-based processes and more flexible, AI-driven applications.

Your AI. Your choice. Open interfaces for existing systems.

PLEXA OS gives companies flexibility in how they integrate artificial intelligence. Depending on their infrastructure and data requirements, users can connect supported cloud-based AI models or run suitable models locally.

Open interfaces, including APIs, Python and TypeScript SDKs, and Model Context Protocol (MCP), enable integration with external applications, AI tools, camera systems and existing production IT such as MES and ERP systems. Through MCP, AI agents can access defined tools to read robot status, preview motions and start approved tasks, with permissions set for each deployment.

Greater flexibility for changing industrial requirements

PLEXA OS is designed for applications where tasks, components and process sequences change, including material handling, assembly and multi-step automation processes.

Together with the industrial humanoid PLEXA One, the software combines adaptable robot hardware, specialized AI agents, physics-based simulation and proven industrial control. This enables companies to develop automation solutions more easily, reuse existing programs and configurations, and adapt them to new requirements without rebuilding the entire application from scratch.

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Availability: PLEXA OS is included with every PLEXA One, bringing AI-native automation and reliable industrial robot control together in one platform.

In a free live webinar (in German) on November 26, 2026 (11:00–11:45 a.m. CET), fruitcore robotics will present PLEXA OS and its complete software stack.
For more information about PLEXA OS and the fruitcore robotics software stack, visit: https://www.fruitcore-robotics.com/software-stack.
Full technical documentation is available at: https://developer.fruitcore-robotics.com.

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Meta description: *With PLEXA OS, fruitcore robotics introduces an AI-native operating system for the industrial humanoid PLEXA One. Specialized AI agents, physics-based simulation and proven industrial robot control make automation easier to implement and more flexible.*

Keywords: *fruitcore robotics; PLEXA OS; PLEXA One; MCP; Industrial Humanoid; AI-native operating system; AI agents; Intelligence layer; simulation; Physical AI; industrial robots; automation*

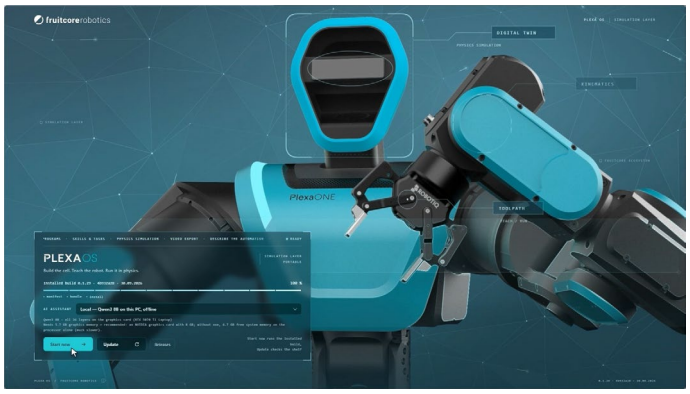
Images – higher-resolution images available on request



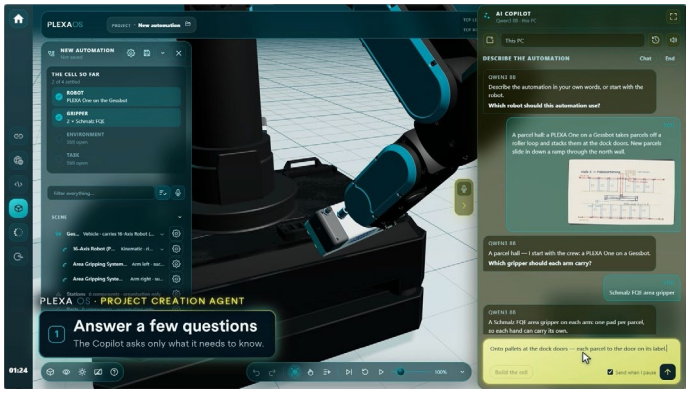
[Image 1]: PLEXA One with PLEXA OS



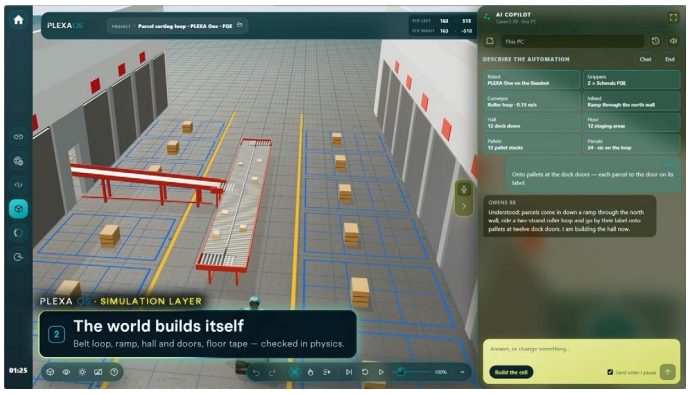
[Image 2]: HORST industrial robots with the established robot operating system that forms the Execution layer of PLEXA OS



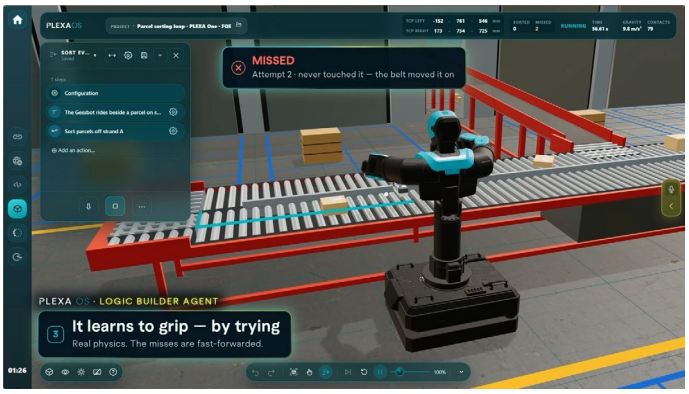
[Image 3]: PLEXA OS start screen



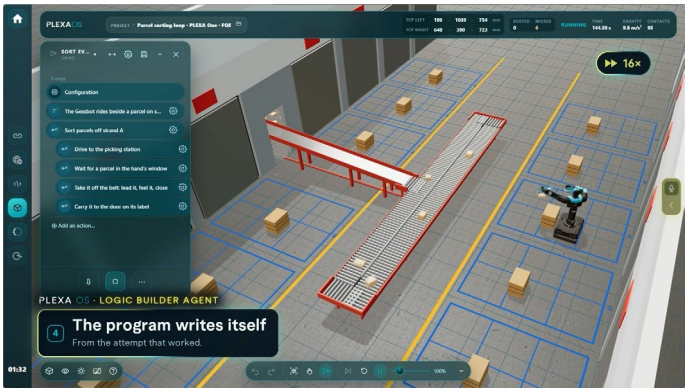
[Image 4]: PLEXA OS: users describe the automation in their own words or add a sketch – the AI assistant asks for further details where needed



[Image 5]: Simulation layer: PLEXA OS builds a described automation setup



[Image 6]: In the physics-based simulation, picking movements are tested and refined through repeated attempts on a moving conveyor



[Image 7]: Simulation-tested program logic for a parcel sorting application with PLEXA One

About fruitcore robotics

Today, every robotics installation is built from scratch. Months of dependence on third-party providers and one-off setups that cannot be replicated are typical. This is not a technology problem. It is a platform problem.

fruitcore robotics builds the Physical AI platform for industrial automation. Founded in Konstanz in 2017, the company develops the complete technology stack from a single source: robotics hardware, robot operating systems and controller technology, as well as AI-based capabilities for planning and simulation. More than 1,300 systems are running at manufacturing companies worldwide; they pay for themselves in less than six months and are backed by a six-year warranty on the drivetrain.

With this platform, fruitcore robotics makes automation configurable rather than project-based: for end customers as well as for OEM partners who use the platform to automate their own processes and machines.

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