SIEMENS

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Siemens advances autonomous production with new AI and robotics capabilities for automated guided vehicles

- **Operations Copilot to interact with physical AI agents**
- **Vision: Multi-agent systems with physical and virtual AI agents for autonomous transport systems and mobile robots**
- **New software-based safety solution Safe Velocity**

At automatica, the leading trade show for automation and robotics, Siemens is announcing plans to integrate its Operations Copilot into driverless transport systems and mobile robots. The Operations Copilot is an industrial copilot for machine operation and maintenance. As mobile transport robots increasingly operate as autonomous physical agents powered by artificial intelligence (AI), the Operations Copilot will serve as a user interface for humans. Through this agent-based interface, users will be able to configure autonomous mobile robots (AMRs) and automated guided vehicles (AGVs), assigning them tasks like transporting materials and goods across the shop floor. This is yet another building block for automating automation in a factory with the help of generative AI.

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Expansion of the Operations Copilot with AI agents for autonomous transport systems (Source: Siemens)

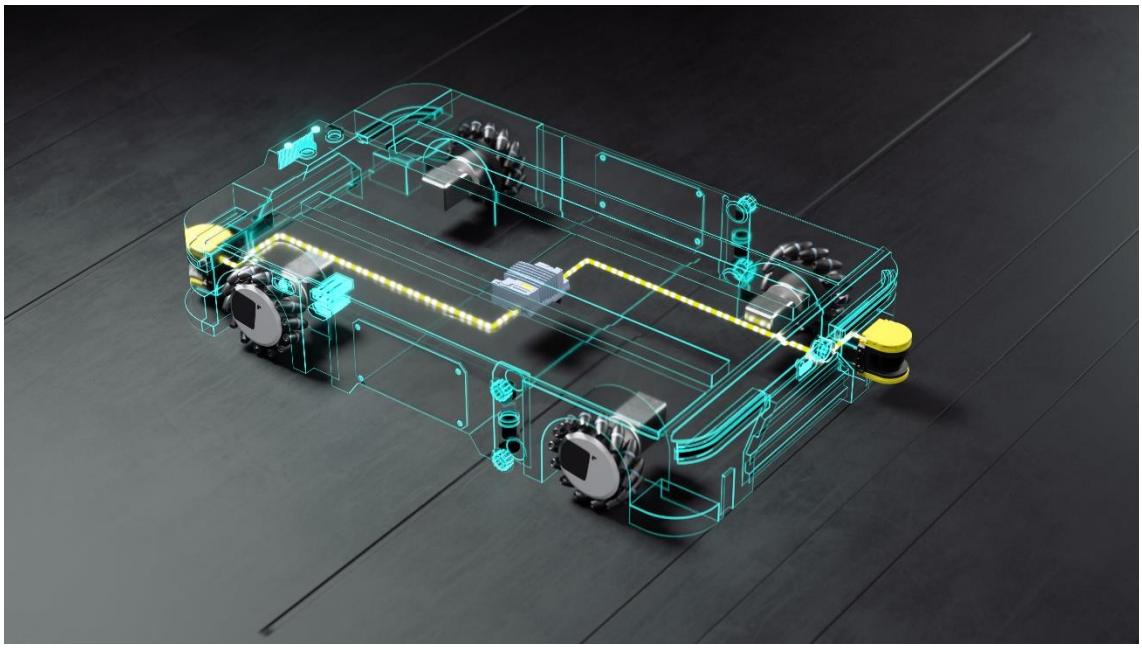
Operations Copilot will be enhanced with agents for AMRs and AGVs

In a next step, Siemens plans to expand the capabilities of the Operations Copilot by introducing AI agents specifically developed for use with AMRs and AGVs. These agents support both the commissioning and operation of individual vehicles and entire fleets. Commissioning in particular is a complex and time-intensive process: AGVs need to be integrated into the factory's existing IT and OT infrastructure and configured for specific conditions like routes and transfer stations. To streamline this task, engineers can rely on the Operations Copilot: It leverages AGV sensors and cameras to generate a detailed understanding of their environment. The Operations Copilot can access all relevant technical documentation of the installed components and retrieve real-time system data through its agent interface. This enables commissioning engineers and operators to work more efficiently, resolve issues faster, and ensure rapid deployment.

"By integrating both physical and virtual AI agents into our Operations Copilot, we're unlocking a new dimension of interaction between humans, robotics, and AI," said Rainer Brehm, CEO of Factory Automation at Siemens. "This enables our customers to deploy autonomous transport systems more quickly, operate them efficiently, and enhance safety – bringing us one step closer to a fully autonomous factory."

New Safe Velocity software enhances safety on the shop floor

AGVs are equipped with navigation and sensor technologies, that allow them to move safely and reliably through production and intralogistics environments – with no direct human intervention. When people or objects appear in their path, AGVs automatically slow down, stop, or navigate around these obstacles. Siemens' new software solution, Safe Velocity, enables the fail-safe monitoring of vehicle speed, which permits the protective fields of safety laser scanners to be dynamically adjusted in real time. The TÜV-certified software is compatible with the hardware and software from a variety of AGV manufacturers and enhances existing safety systems to meet stringent industrial safety standards. Safe Velocity reduces the need for additional safety hardware. This simplifies system architecture, saves valuable vehicle space, lowers engineering complexity, and minimizes cabling requirements – without compromising functional safety.



Safe Velocity software enables fail-safe speed monitoring of autonomous vehicles (Source: Siemens)

In the future, the Operations Copilot will interact with AI agents such as Safe Velocity to analyze targeted data from safety laser scanners and monitor the speed of AGVs. The virtual Safe Velocity agent supervises autonomous vehicles and can cooperate with other agents designed for AGV and AMR applications. This way, Siemens is building a

multi-agent system where the Operations Copilot orchestrates both physical and virtual AI agents, enabling seamless interactions and deeper integration between the real and the digital worlds.

Siemens will showcase how AI and robotics are already transforming automation – and offer a glimpse into future developments – at automatica in Munich from June 24 to 27, 2025.

This press release and press images are available at https://sie.ag/6YZE7K

Further information on Siemens at automatica 2025 at www.siemens.com/automatica

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In fiscal 2024, which ended on September 30, 2024, the Siemens Group generated revenue of €75.9 billion and net income of €9.0 billion. As of September 30, 2024, the company employed around 312,000 people worldwide on the basis of continuing operations. Further information is available on the Internet at www.siemens.com.