Virtually controlled production a first in Audi body shop

- **Audi and Siemens are revolutionizing factory automation with the world's first virtual programmable logic controllers with a safety function in manufacturing**
- **New automation system enables flexible, data-driven production and will initially be used in the Böllinger Höfe body shop**
- **Technology developed in partnership with Broadcom, Cisco, and Siemens**

Ingolstadt/Neckarsulm, March 27, 2025 – A world first at Böllinger Höfe: Audi is using a virtual programmable logic controller from Siemens on the Edge Cloud 4 Production (EC4P) platform in the body shop. The TÜV-certified network of virtual programmable logic controllers works with a security function specially developed by Siemens.

With this solution in the body shop, Audi is setting new standards in fully networked factory automation, having already successfully tested the local server solution EC4P in the assembly of the Audi e-tron GT. “The use of virtual programmable logic controllers in the body shop is an important productivity leap in our 360factory strategy for efficient and data-driven manufacturing,” says Audi Board Member for Production Gerd Walker. “We want to bring the local cloud for production to all plants and leverage advances in digital control systems in the process,” Walker adds. As a technology partner, Siemens is responsible for the virtual control system, which offers TÜV-certified safety functionality in production.

"Controllers are the 'brains' of machines and factories. Now we are virtualizing these brains and bringing them to the cloud. This accelerates the digital transformation at Audi and increases agility, efficiency, and security in production - for more flexible, future-proof manufacturing. Together, we are taking automotive production to a new level and significantly strengthening competitiveness”, said Cedrik Neike, CEO of Digital Industries and Member of the Managing Board of Siemens AG.

Virtual PLC replaces hardware-based control

The EC4P with virtual programmable logic controllers from Siemens is used for a Lamborghini model whose body is manufactured in the Audi Sport production facility at Böllinger Höfe. The virtual programmable logic controllers replace the previous hardware-based programmable logic controllers in the automation environment. Once again, the Böllinger Höfe facility serves as a real-world laboratory for digital technologies. With the new TÜV-certified virtual control system from Siemens, Audi is laying the foundation for flexible and data-driven production, and can control and monitor production in real time, regardless of location.

The virtual programmable logic controllers enable the rapid introduction of software and new functions that can be updated and managed centrally. With the EC4P, the efficiency and speed of production processes can be significantly increased.

Four companies as technology partners on an equal footing

Audi developed the virtual programmable logic controller for the body shop as part of a technology partnership with Broadcom, Cisco, and Siemens. “Together with our partners, we are realizing the world's first interaction between virtualization platform, network and automation technology in automobile production,” says Pascal Schirmer, Planning Technology Development. Broadcom is providing the virtualization software for the servers, with a newly developed, real-time capable “industrial virtual switch”. This is a software component and enables real-time communication with industrial protocols between the platform and the systems. In order to meet the high requirements in the field of automation technology, Cisco supplied the network infrastructure “Software-Defined Access” as part of the partnership, which was extended to the industrial network.

Following the successful introduction of the virtual programmable logic controllers in the body shop at the Böllinger Höfe, Audi is planning to introduce the technology at its Neckarsulm plant as well. Preparations for this are already underway, including the use of the technology in the body shop for the new Audi A6.

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In 2024, the Audi Group delivered 1.7 million Audi vehicles, 10,643 Bentley vehicles, 10,687 Lamborghini vehicles, and 54,495 Ducati motorcycles to customers. In the 2024 fiscal year, Audi Group achieved a total revenue of €64.5 billion and an operating profit of €3.9 billion. As of December 31, more than 88,000 people worked for the Audi Group, more than 53,000 of them at AUDI AG in Germany. With its attractive brands and numerous new models, the group is systematically pursuing its path toward becoming a provider of sustainable, fully networked premium mobility.