

Improving control systems for process facilities

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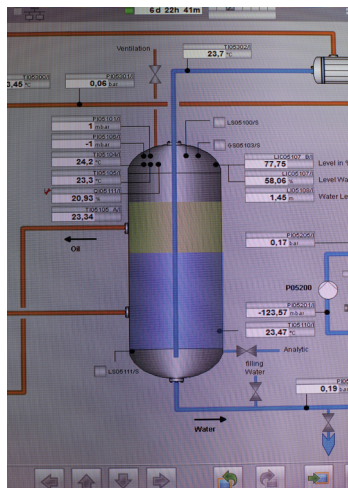
Behind many of the products we use everyday, things like nasal spray or chocolate-covered popsicles, you will find highly complex industrial facilities that churn out these wares all by themselves. These units are frequently run by a Siemens control system called PCS 7 that has been a force in the marketplace for more than 20 years now. Inventor Benjamin Lutz works constantly at Process Industries and Drives to make this system even better.

It is for this work that he has received the award in the Talent category.



Dr. Benjamin Lutz

Engineer in Karlsruhe,
Germany





Dr. Benjamin Lutz

Inventor of the Year 2017

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Lutz frequently receives ideas for new control system functions from users and customers whose factories have been using the control systems for years. In the pharmaceutical industry, for instance, these systems do such jobs as control when which active ingredients are mixed together. In the process, they open valves, start pumps and measure the temperature during the production process. “The goal is simple: The unit must operate without interruption,” Lutz says. Every stoppage means lost production and potential harm to people or the machinery. For this reason, he has to be particularly careful when he puts his ideas into action. You could say his motto goes like this: “Something has to occur, but nothing can happen.”

At Siemens’ location in Karlsruhe, Lutz works at the Center for Process, Manufacturing and Building Automation. This is also the home of the Process Automation World (PAW) that opened in 2016. The PAW is a modern showroom where visitors from around the world can experience the skills of control system technology in action. Interest in the showroom is huge, and tours through it are booked for months in advance. Everyone wants to know how to prepare his or her manufacturing processes for the future. This is the question weighing on the inventor’s mind. He enjoys solving problems and making improvements. When he visits a customer’s plant and talks with the operators, he wants to hear about the functions that are lacking or need to be improved. This is why he

conducts a continuous dialogue with the product management and the internal users in the Division Process Industries and Drives, including colleagues of customer or engineering support and the Simatic PCS 7 training team.

Lutz writes down all ideas in a notebook that he always takes with him. When an idea turns out to be good, Lutz will submit a patent registration for it as a precaution. “The nice thing about a patent is that you can apply the idea also just later without having to fight over it with your competitors,” Lutz says. The main trend today is to rapidly retrofit manufacturing systems for various individual products and product variations. “To ensure that production runs without interruption, the control system must integrate all new parameters smoothly into the operation,” Lutz says. To test them, Lutz relies on a system’s digital twin. He inputs the changes here and virtually runs the production process. A production system in a factory is not converted until everything works just right.

Dr. Benjamin Lutz (40) knew that he wanted to be an engineer when he was still in secondary school. He decided to major in electrical engineering at the Technical University of Karlsruhe, his hometown. “This also involved information technology, automotive technology, medical technology, optic design, embedded systems and microsystems,” he says. All of this knowledge pays off for him at Siemens. He earned his Ph.D. with a dissertation about the integrated development of laser scanner system firmware, in which virtual commissioning based on a digital twin and virtual environmental models play a key role. He began his career at a new, innovative company that became the market leader with a new type of 3D laser scanner. He joined Siemens in 2012. Initially, he worked in the advanced development of process automation and is now responsible for control system innovation. Lutz has already registered 169 inventions. Some of them are protected in 29 patent families. The inventor lives near Karlsruhe with his wife and two children.

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