Press release

Source:
https://www.boschmediaservice.hu/en/press_release/bosch_tech_day_2024_06-413.html

06/19/2024
ID: 413

Bosch Tech Day 2024: With software as well, Bosch is making technology available that is “Invented for life”

Software as driving force behind innovations in every field

- Bosch chairman Dr. Stefan Hartung: “The software in our products is technology that is ‘Invented for life,’ improving our customers’ lives.”
- Business target: By the end of the decade, Bosch wants to generate sales running into the billions with software.
- Competent and strong team: More than 48,000 associates are involved in software engineering– 42,000 of them in the Mobility business sector.
- Dr. Markus Heyn: “We’re at the dawn of the era of the software-defined vehicle.”
- Essential hardware: With modern vehicle computers, Bosch has generated sales of just under 4 billion euros over the past three years alone.

Renningen, Germany – At Bosch, programming is the name of the game: the supplier of technology and services is expanding its business with software and services. By the end of the decade, Bosch wants to generate sales running into the billions with software. “For quite some time now, Bosch has also been a software company,” said Dr. Stefan Hartung, chairman of the Bosch board of management, at the Bosch Tech Day 2024 in Renningen. “Across the company, our extensive domain expertise allows us to put lines of code directly into products. The software in our products is technology that is ‘Invented for life,’ improving our customers’ lives.”

Bosch software is already to be found in many areas, including the production lines of major industrial enterprises, many car repair shops, and medical equipment. It alerts drivers to cars on the wrong side of the road, protects valuable assets, controls building technology, and has worked in outer space, on

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the ISS. All in all, 48,000 associates work as software programmers at Bosch, 42,000 of them in the Mobility business sector alone. “The triumphant march of software will fundamentally revolutionize the automotive industry,” Hartung said. “In the future, cars will be seamlessly integrated into the digital world. As a result, they will be one thing more than anything else – updateable,” added Dr. Markus Heyn, member of the board of management of Bosch and chairman of the Mobility business sector. Cars will then get new functions not by visiting a repair shop, but via a convenient software update “over the air.” To quote Markus Heyn: “Bosch technology will mean that cars grow older more slowly.” And not just cars. Trucks, motorbikes, and e-bikes will also get new safety and convenience functions via an update. Since the debut of the smart system for
e-bikes at the end of 2021, Bosch has rolled out roughly 70 new features and modifications via the eBike Flow app – from an alarm and tracking feature to new riding modes.

Exploiting the potential of software across company boundaries

Software and digital services have now become mainstays of business success at Bosch – they are the driving force and enabler of innovation across company and industry boundaries. With its broad domain knowledge and expertise in mobility, manufacturing, and building technology, Bosch is a sought-after partner for the companies that traditionally lead the IT field. “To exploit the huge potential of software and AI, we need partnerships of equals. Barely any company can manage this on its own. In this context, open-source software offers an especially useful way of pooling expertise across company boundaries, of saving costs, and of creating standardized solutions,” Hartung said.

Policymakers can also play an important part: in the field of artificial intelligence, which is becoming increasingly important for software development, companies need planning certainty. That also goes for the AI Act recently passed by the European Union. “The EU must now rapidly translate the AI Act into standards, for while regulation is necessary, it must not unnecessarily throttle the pace of technology or even prevent innovation,” Hartung continued.

The age of software-defined mobility starts here

In the automotive industry, the new trend has a name: software-defined vehicle. Software is increasingly becoming the starting point for designing and developing new vehicle models. A recent McKinsey study estimates that the global market for automotive software and electronics will reach 462 billion dollars by 2030. From 2023, the share of software in vehicles will triple. Bosch wants to be part of this growth market and to remain the go-to partner for automakers worldwide. “We’re standing at the dawn of the age of the software-defined vehicle,” Heyn said. “For Bosch, that’s good news, because we can do both: hardware and software. We are one of the few companies that are fully proficient in the interplay of automotive electronics and the cloud.” With software and service solutions such as Vehicle Health, for example, Bosch helps fleet operators avoid vehicle breakdowns and

increase efficiency. And specifically for logistics companies, the Bosch L.OS digital platform facilitates digitalization and simplifies the entire chain of operations. In addition, Bosch has developed a special software that allows cars to come to an ultra-smooth halt, completely jolt-free, as though a professional chauffeur were at the wheel. With this Bosch “eBrake to Zero” function, not only is braking in stop-and go-traffic more pleasant and relaxed, but the risk of travel sickness among occupants can also be reduced. “We can ensure jolt-free stop-and-go driving with software that brakes as smoothly as a professional chauffeur,” Heyn said.

Software-defined mobility will also go hand in hand with a changing vehicle architecture: away from a domain-specific IT and electronics architecture to one that is centralized and cross-domain, with just a few computers and sensors that are nonetheless very powerful. At present, there are roughly one hundred control units from various manufacturers at work in one car. In a future software-defined vehicle, control functions will be performed by less than one dozen vehicle computers. To achieve this, domain-specific functions will have to be combined in modern vehicle computers. In this context, Bosch and Qualcomm jointly presented a new vehicle computer at the start of the year. For the first time, it combines infotainment and driver assistance functions. For automakers, this not only means a reduction in installation space, cables, and weight, but also and more importantly lower costs. In the control units alone, the saving gained by merging infotainment and driver assistance can be as high as 30 percent. With advanced vehicle computers in general, Bosch is already on the path to success: over the past three years, the company has generated sales of just under 4 billion euros with them.

But whether they number one hundred or one dozen, the diverse computers and software packages in a car have to be networked with each other, so that they can communicate across brand boundaries. The Bosch subsidiary ETAS supplies the middleware for this – the translation software between the vehicle’s physical components and its application software, even if they are made by different suppliers. Just as there is barely any car today that does not feature a Bosch part, in the future there won’t be any cars on the road that do not feature lines of Bosch code.

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Basic information:

The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG. It is entrusted with the task of safeguarding the company's long-term existence and in particular its financial independence – in line with the mission handed down in the will of the company's founder, Robert Bosch.

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