



Bosch accelerates software development for automated driving with acquisition of Five Europe's leading startup for self-driving cars to become part of Bosch

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- ▶ Markus Heyn: "Five will give an extra boost to our work in software development for safe automated driving."
- ▶ Five employs 140 associates at six locations in the United Kingdom.
- ▶ The software building blocks in Bosch and Five's toolchain engineering environments complement each other.

Stuttgart, Germany – The development of self-driving cars is regarded as the ultimate discipline for automakers. As one of the world's biggest mobility providers, Bosch is a driving force behind the progress being made in this discipline. Now, it's strengthening its hand by acquiring Five, Europe's leading startup in the field of automated driving. At six locations in the United Kingdom, its roughly 140 associates are working on the vision of safe, self-driving vehicles. Five gave preference to Bosch over other takeover bidders. The two companies share a common vision of automated driving and of safe automated driving systems. The agreements with Five were signed at the beginning of April. It has been agreed that the financial details will not be disclosed. The acquisition is still subject to approval by the antitrust authorities.

"Automated driving is set to make road traffic safer. We want Five to give an extra boost to our work in software development for safe automated driving, and offer our customers European-made technology," says Dr. Markus Heyn, member of the Bosch board of management and chairman of the Mobility Solutions business sector. Headquartered in Cambridge, U.K., Five is to be part of the Bosch Cross-Domain Computing Solutions division. "Scale matters in building automated driving technology. Bosch is a global leader in driving assistance technologies, with core technologies and vast data lakes that will be essential in bringing safe self-driving systems to market. We're excited for Five to

become part of Europe's most powerful SAE Level 4 player and to be a part of Bosch's future success," says Stan Boland, the CEO of Five.

Simulation environment allows software to be tested and validated

Since it was set up in 2016, Five has built a team of experts in cloud software, safety assurance, robotics and machine learning, and has placed itself at the forefront of developing state-of-the-art software and artificial intelligence-based solutions for autonomous driving, through SAE Level 4. The startup now focuses primarily on a cloud-based development and testing platform for the software used in self-driving cars. This offers engineers the programs they need to create automated driving software at pace, and to test it before and during its deployment in test vehicles. The platform is able to analyze real data from a fleet of test vehicles, create advanced testing scenarios, and build a simulation environment that makes it possible to assess and validate system behavior at hyper-scale.

Agile collaboration between Bosch and Five teams

At Bosch, Five will strengthen the company's agile project structure for the development of self-driving cars. The two teams' software engineering environments complement each other very well, and will be merged to form a single solution. "Five is the perfect fit for our engineering activities – not least due to its associates' mindset and agile approach. This brings us closer to our aim of getting safe automated driving onto our roads," says Dr. Mathias Pillin, president of the Bosch Cross-Domain Computing Solutions division. For Bosch, moreover, the acquisition is a further step toward consolidating its market position in software and automated driving. Only recently, the company extended its portfolio by acquiring Atlatec GmbH, a specialist in the field of high-resolution digital maps. This means Bosch will be the only company that can offer its customers all the necessary building blocks of automated driving from a single source – from actuators, sensors, and maps to software and the engineering environment.

Bosch is working on all levels of automated driving

For Bosch, automated driving is and will remain a strategic business field. The company is the innovation leader in this area. With its driver assistance systems and the requisite sensor technology, it laid the foundation for all automation levels at an early stage. Bosch is taking a two-pronged approach. On the one hand, with the aim of making driving safer and more relaxed, it is developing solutions for private vehicles with a focus on driver assistance and on partially and conditionally automated systems (SAE Levels 1 to 3). On the other hand, the team is also working on solutions for higher levels of automation, with a focus on fleet vehicles and new operating models. In the logistics sector in particular,

Bosch sees attractive applications and business potential for SAE Level 4 automated driving systems. Moreover, Bosch has already developed automated valet parking, the first production-ready driving function not to require a driver.

Press photos: #e02b9dd0, #7ce20876, #20d8a194

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Mobility Solutions is the largest Bosch Group business sector. According to preliminary figures, it generated sales of 45.4 billion euros in 2021, and thus contributed 58 percent of total sales from operations. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector pursues a vision of mobility that is safe, sustainable, and exciting, and combines the group's expertise in the domains of personalization, automation, electrification, and connectivity. For its customers, the outcome is integrated mobility solutions. The business sector's main areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, vehicle safety systems, driver-assistance and automated functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP anti-skid system, and common-rail diesel technology.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 401,300 associates worldwide (as of December 31, 2021). According to preliminary figures, the company generated sales of 78.8 billion euros in 2021. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 128 locations across the globe, Bosch employs some 76,300 associates in research and development, of which more than 38,000 are software engineers.

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