

### **Bosch Engineering setting the course for automated construction site with 5G campus network**

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#### **Making construction sites safer and more efficient**

- ▶ Creation of a 5G campus network at the Holzkirchen location
- ▶ Faster and more efficient data transfer enables advances in construction machinery automation
- ▶ Bosch Engineering offers development of complete 5G-based systems from a single source

Holzkirchen/Munich – 5G offers the construction industry new possibilities to make construction sites safer and more efficient in the future and to shorten construction times through mobile campus networks. The constantly evolving conditions on construction sites require flexible, high-performance networks. 5G technology allows large amounts of data to be exchanged quickly and securely between connected devices such as machinery, computers, and cloud servers. In the future, this will allow work processes to be made safer, more efficient, and more productive through partially and fully automated machinery. Construction vehicles will also be able to be controlled and monitored remotely, for example. By establishing a 5G campus network at the Holzkirchen location, Bosch Engineering has laid the foundation for the development of 5G-compatible construction machinery. “In contrast to conventional communication channels such as Wi-Fi and LTE, the wide range and low latency of the system meet all of the requirements for future automation of construction vehicles in terms of real-time capability and data transmission rates,” explains Heinz-Georg Schmitz, Director Engineering Mechatronic Solutions at Bosch Engineering.

The 5G architecture in Holzkirchen is designed as a standalone campus network and is used as a development environment for customer projects. The wireless network covers the inside of the workshop and test stand buildings as well as the commissioning area for off-highway machinery in the outdoor space. There, innovative automation functions can be tested and optimized under real-world conditions. Bosch Engineering will thus be able to offer complete development of 5G-based systems from a single source in the future, from concept development to production approval.

For commissioning and tests, an all-terrain robot controlled completely wirelessly is in use. The robot's smart sensors and actuators communicate through the 5G network with a central controller outside the machine, which receives and processes the signals in real time and controls the actuators. "In the medium term, Bosch Engineering is pursuing the vision of transferring this approach to the automation of construction machinery. A central computer could then monitor and control multiple machines, continue to learn using artificial intelligence methods, and apply the new knowledge immediately," says Schmitz. The complex processes on a construction site could then be bundled at one location and productivity and safety could be optimized further.

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