

Media Information

20 June 2022

**Intelligent connected factory with 5G technology:
Autonomous logistics at BMW Group Plant Landshut
calculates data in the cloud****+++** Research project "Robot in the Cloud" between BMW Group and Technical University of Munich**+++** Cloud-based logistics solution piloted at BMW Group Plant Landshut supply centre**+++** Self-driving forklift trucks access data cloud

Landshut. Autonomous, connected and intelligent: As part of the two-year, 1.2-million-euro "Robot in the Cloud" research project funded by the Bavarian Ministry of Economic Affairs, the BMW Group is exploring how self-driving logistics vehicles can be used in a production setting at its component plant in Landshut in Lower Bavaria, in conjunction with the Technical University of Munich (TUM) and with the support of several partner companies. What is unique about this is that the complex calculations required for autonomous logistics runs do not take place in the vehicles themselves, but in a data cloud specially set up for this purpose.

The research project was launched in 2021 at the initiative of the BMW Group's technology and logistics development team. Following preliminary theoretical work and initial tests under laboratory conditions on the TUM campus in Garching, field testing is now underway at BMW Group Plant Landshut. "With this pilot project, BMW Group Plant Landshut is setting a new benchmark for the intelligent, connected factory. The increasing digitalisation of production also includes logistics flows," explains site manager Dr. Stefan Kasperowski. "Behind the project is the aim of fully connected production, in which autonomous transport systems, logistics robots and mobile devices seamlessly communicate with one another and with the control system."

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Specifically, the “Robot in the Cloud” research project uses self-driving forklift trucks for loading and unloading trucks and for managing a block storage facility at the BMW Group Plant Landshut supply centre. “Cameras integrated into the forklifts serve as the basis for calculating autonomous runs. They simultaneously calculate driving movements and determine coordinates with millimetre precision,” explains Ludwig Huber, responsible for integration at Plant Landshut. “The calculations are outsourced to a high-performance data cloud using 5G technology.” This means complex processors and the corresponding hardware no longer have to be installed in the vehicles themselves. Optimal control of forklifts by the cloud reduces downtimes for logistics vehicles and boosts the performance and efficiency of the entire logistics system.

5G wireless technology plays a key role in the use of the cloud-based logistics solution at Plant Landshut’s supply centre. The new mobile telecommunications standard allows large data volumes to be transferred within a very short time. 5G enables real-time connectivity between machinery and equipment. “5G, the fifth generation of mobile communications, is more than just an incremental improvement in existing standards. In addition to significantly higher data rates, it also enables billions of machines to be connected and transmit data in near real time. The ‘Robot in the Cloud’ project provides an impressive demonstration of possible 5G applications in the context of Industry 4.0,” according to Bavarian Minister of Economic Affairs Hubert Aiwanger.

Corporate Communications

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Page 3

The research consortium is made up of three further Bavarian companies, as well as representatives of the BMW Group: congiv GmbH from Munich is installing the 5G network at BMW Group Plant Landshut and provides the cloud solution. KS Control GmbH from Mintraching, outside of Regensburg, supplies the self-driving forklift trucks. Scientific monitoring for the project is provided by the Technical University of Munich.

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Plant Landshut calculates data in the cloud

Page 4

BMW Group Plant Landshut

At BMW Group Plant Landshut, around 3,500 employees produce light metal cast engine, suspension and body structure components, plastic components for the vehicle exterior, carbon body components, cockpit and equipment options, electric drive systems, special engines and drive shafts. Plant Landshut is the BMW Group's largest component plant and supplies components to all BMW Group vehicle and engine plants worldwide – and therefore for virtually every BMW, MINI and Rolls-Royce vehicle, as well as for BMW Motorrad. BMW Group Plant Landshut stands for component production characterised by digitalisation and geared towards sustainability, and is committed to responsible use of resources.

With forward-looking technologies, BMW Group Plant Landshut assumes the role of innovation driver in the technological transformation of the automotive sector and its supplier industry. At the Lightweight Construction and Technology Centre (LuTZ) adjacent to the plant, specialists from a wide range of disciplines are brought into development processes for new vehicles in the early stages and help actively drive sustainable development of future vehicle models. BMW Group Plant Landshut is a socially responsible, innovative and attractive employer for the region of Landshut and Lower Bavaria.

www.bmw-werk-landshut.de