

Media Information

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## **"Good boy, SpOTTO": Robot dog scans and monitors manufacturing equipment at BMW Group Plant Hams Hall**

- Autonomous robotic dog SpOTTO gathers data for plant's fully connected digital twin and supports maintenance
- Precise data collection and real-time monitoring
- Virtualization, automation and artificial intelligence are important pillars of the BMW iFACTORY

**Hams Hall, UK.** A four-legged robot named "SpOTTO" recently joined the team at BMW Group Plant Hams Hall in the UK. The autonomous robotic dog scans the plant, supports maintenance and ensures production processes run smoothly. Equipped with visual, thermal and acoustic sensors, SpOTTO is deployed in a number of unique use cases: On the one hand, it collects valuable data for the plant's digital twin; on the other, it serves as a watchdog, overseeing maintenance of production facilities. "Virtualization, automation and artificial intelligence are central pillars of the BMW iFACTORY," explains Klaus von Moltke, SVP of Engine Production at BMW AG. "Bold, innovative application examples like those at Plant Hams Hall showcase the full range of possibilities."

### **Fully connected digital twin: Big data on three levels**

SpOTTO plays a pivotal role in creating and refining the plant's fully connected digital twin. The digital twin operates on three levels: On the first level, 3D representations of the entire plant are generated. The second level comprises a large data layer into which the autonomous robot dog, production facilities and IT systems at the plant feed all relevant information. On the third level – the application level – dedicated programmes sort the data collected into comprehensible and traceable units. It is the combination of these three levels that makes the fully connected digital twin unique. Using apps, experts at Plant Hams Hall can now evaluate and utilise this data. Application examples include quality assurance and production planning.

Dirk Dreher, Director of BMW Group Plant Hams Hall, is delighted: "Thanks to the digital twin, we have an enormous quantity of precise data and evaluations, as well as a real-time picture of production processes. The project team at Plant Hams Hall has created unique use cases for our four-legged friend and integrated him perfectly into our processes."

**A reliable maintenance watchdog**

Thanks to its visual, thermal and acoustic sensors, SpOTTO is able to perform numerous maintenance tasks. For instance, he monitors the temperature of manufacturing equipment and immediately recognises if an installation is running too hot – an early sign of potential failure. At BMW Group Plant Hams Hall, SpOTTO also specialises in identifying leaks in the compressed-air lines used in production. Given that compressed air requires a substantial amount of energy, detecting leaks quickly can lower energy consumption.

SpOTTO was created by Boston Dynamics with the product name "Spot." It is a nimble robot small enough to use indoors, that climbs stairs and traverses rough terrain with ease. "Spot" was renamed SpOTTO at Plant Hams Hall – paying tribute to the heritage of the British engine plant. Gustav Otto was one of the founders of BMW and son of Nicolaus Otto, inventor of the four-stroke internal combustion engine. In 2023, more than 400,000 engines were produced at Plant Hams Hall, which, alongside SpOTTO, also employs about 1,600 people. Before SpOTTO's introduction at the plant, a dedicated team tested which activities the robot dog would be suitable for in a one-year development process. Other potential uses are currently being trialled in the plant's Technical Basement: These include reading analogue operating controls or performing complex sequences of movements that make the four-legged robot even better at accessing hard-to-reach areas of production. In addition to Hams Hall, other BMW Group plants are also currently testing the use of robotic dogs.

**Working with trusted partners**

Marco da Silva, Head of Spot Product Development at Boston Dynamics explains:

"The working environment at Plant Hams Hall is well suited for industrial inspections using a quadruped robot like SpOTTO. The robot can easily take over the completion of numerous, repeatable monitoring tasks so the plant's maintenance team can focus on maintenance. We are proud of the way the robot has been integrated into the plant."

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In 2023, the BMW Group sold over 2.55 million passenger vehicles and more than 209,000 motorcycles worldwide. The profit before tax in the financial year 2023 was € 17.1 billion on revenues amounting to € 155.5 billion. As of 31 December 2023, the BMW Group had a workforce of 154,950 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. The company set the course for the future at an early stage and consistently makes sustainability and efficient resource management central to its strategic direction, from the supply chain through production to the end of the use phase of all products.



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