

Media Information

7 May 2024

“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’ has 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, including collecting valuable data for the plant’s digital twin and serving as a watchdog and overseeing maintenance of production facilities.

“Virtualization, automation and artificial intelligence are central pillars of the BMW iFACTORY,” explains Klaus von Moltke, Senior Vice President 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 plants fully connected digital twin. The digital twin operates on three levels; on the first, 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 and on the third level – the application level – dedicated programmes sort the data that’s been collected into comprehensible and traceable units.

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It is the combination of these three levels that makes the fully connected digital twin unique. Using apps, experts at Plant Hams Hall then evaluate and utilise this data for 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 including monitoring the temperature of manufacturing equipment and recognising if an installation is running too hot – an early sign of potential component 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 can climb stairs and traverse rough terrain with ease. The robot was renamed SpOTTO by Plant Hams Hall, paying tribute to Gustav Otto - 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, employs around 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 yearlong development process.

Other potential uses are currently being trialled in the plant's Technical Basement, including reading analogue operating controls or performing complex sequences of movements for 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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With its four brands BMW, MINI, Rolls-Royce and BMW Motorrad, the BMW Group is the world's leading premium manufacturer of automobiles and motorcycles and also provides premium financial and mobility services. The BMW Group production network comprises over 30 production sites worldwide; the company has a global sales network in more than 140 countries.

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

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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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