

Hanover, April 23, 2018

Hannover Messe 2018, Hall 9, Booth D35

## Automotive: The digital twin goes electric too

“Automotive” showcase on the Siemens Booth at Hannover Messe 2018



The dynamic development in the automotive industry is continuously on the increase and confronts companies with new challenges. Worldwide demand for electric cars is on the rise, while the driving public – also those of us unwilling to make the move away from conventional drive systems – dreams of ever more individually designed cars. Which is why the automotive industry is searching for new opportunities to increase its efficiency in vehicle design and production – and digitalization offers exactly that. From car design through production planning to actual construction and the subsequent services, an integrated database makes it possible to continuously analyze and optimize all workflows and processes. This applies equally to new production facilities and to existing plants – and especially to the expansion of the portfolio to include electric and hybrid vehicles.

All this is made possible by Siemens thanks to a unique portfolio consisting of world

leading automation solutions and the Digital Enterprise Suite, an innovative software offering for digital transformation. At Hannover Messe 2018, Siemens will be demonstrating from April 23 to 27 how the automotive industry can improve its efficiency on a sustainable basis by using solutions from Siemens. The “Automotive” showcase uses interactive exhibits to highlight the essential steps used in auto production, using the example of an electric car. As early as the design phase, the NX software suite is used to create a digital twin of the new vehicle. This virtual copy of the product can then be simulated and tested in a completely virtual environment. Simulations include airflow around the vehicle, driving properties, heat generation during operation, battery, and all electrical components. With no need to build actual prototypes, designers can now locate possible problem areas during this early development stage and can selectively optimize them.

Siemens supports production planning with Tecnomatix and paves the way for detailed simulation of robot cells and production lines before they are built. Thanks to the integrated database, automation engineering and robot programming can begin in parallel with production planning. As a leading supplier of automation solutions for the automotive industry, high-performance controllers from Siemens increase production flexibility and efficiency. With Totally Integrated Automation (TIA) and the TIA Portal, Siemens is making engineering faster and easier – both in existing production lines for conventional combustion engines and also for new electric car lines. The Automation Designer, for instance, can be used to automatically generate the PLC code, while the SiVarc visualization tool enables standardized visualization at HMIs (Human Machine Interfaces). This ultimately creates a digital twin of the production which provides new insights based on simulation data, and helps prevent bottlenecks and optimize workflows and throughput. It also enables virtual commissioning, including validation of the PLC code, which reduces the time and effort associated with actual commissioning.

The data generated during actual production is used to create the digital twin of product and production performance, enabling continuous monitoring of the production equipment. The findings from the digital twin can be used for ongoing optimizations and can be fed back into all areas, including the design, creating a closed optimization cycle. MindSphere, the open, cloud-based IoT operating system, takes charge of secure data acquisition and analysis. The MindApps transform the

analysis results into valuable knowledge that can be used for predictive maintenance of machines or to increase energy efficiency. Siemens will be presenting many other in-depth examples of the innovative use of data from machines, plants, and products in the MindSphere Lounge located right next to the Automotive showcase.

At the Siemens booth, visitors to the fair will be able to experience how solutions from Siemens are making a difference to every field of automotive manufacturing. Using the example of an electric motor, the company will also be demonstrating how automatic guided vehicle systems are integrated into production flexibilization processes on the basis of systems from Siemens. This also includes the smooth integration of electric motors and battery packs into the production processes.

This holistic approach doesn't end with the production of cars: As a complete charging infrastructure solution provider, Siemens will be showcasing its e-mobility technology portfolio at the Integrated Energy Plaza in Hall 27: from feeding energy to the grid through to the local charging station. At the same time the battery is being recharged, updates for the vehicle's electronic system can be simultaneously downloaded and installed.

More information on Siemens at the Hannover Messe 2018 is available at [www.siemens.com/press/hm18](http://www.siemens.com/press/hm18) and [www.siemens.com/hannovermesse](http://www.siemens.com/hannovermesse)

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