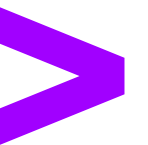
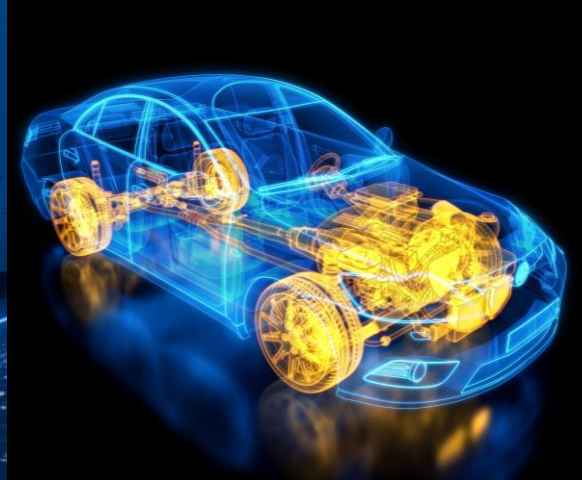
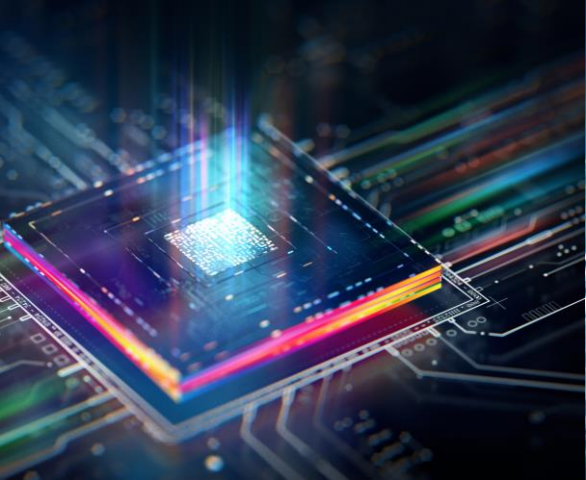


October 2023

Innovate

Trends and innovations that matter





Know more about the latest announcements impacting industry, from a new consortium to manufacture semiconductors in Europe, an electronic vehicle control system promising a new era of responsiveness and stability, the conversational AI program developed for plant and construction sectors, and more.



**Industrial is
a front-runner
in combining
human ingenuity
with technology
and innovation.**

Thomas Rinn

**Senior Managing Director,
Global Industrial Lead, Accenture**



Consortium to boost microchip production for European industrial and automotive sectors

Taiwan Semiconductor Manufacturing Company, Robert Bosch, Infineon and NXP Semiconductors are partnering to set up a new firm, European Semiconductor Manufacturing Company (ESMC), which will build an almost \$11 billion manufacturing facility in Dresden, Germany. The plant, which will use TSMC's advanced technology and create 2,000 new high-tech jobs, will have the capacity to produce 40,000 300mm and 16/12nm silicon wafers a month. This investment aims to strengthen Europe's semiconductor manufacturing industry and support the needs of growing automotive and industrial sectors. The project is planned under the framework of the European Chips Act and final decision depends on public funding. Construction of the new facility will begin in H2 2024 and production is due to start in 2027.

Grundfos's new water pumps support the drive to net-zero buildings

The world's largest pump manufacturer, Grundfos, has launched a new range of long-coupled end-suction pumps that use advanced technology to improve energy efficiency and support the shift to low-emission buildings, in addition to offering ease of use and connectivity. The NK and NKE range all meet the IE3 efficiency standard, with premium models operating up to the highest IE5 level due to their ability to detect and adjust water pressure and flow automatically. With intelligent components built directly into the solution, NKE removes the need to install external components such as controllers. The intelligent components together with cloud connectivity, enable maintenance crews to monitor, schedule and control the pump systems from their smartphones. These and other features deliver not only industry-leading efficiency but also improved hydraulics, noise reduction, easier maintenance and compliance with building regulations.

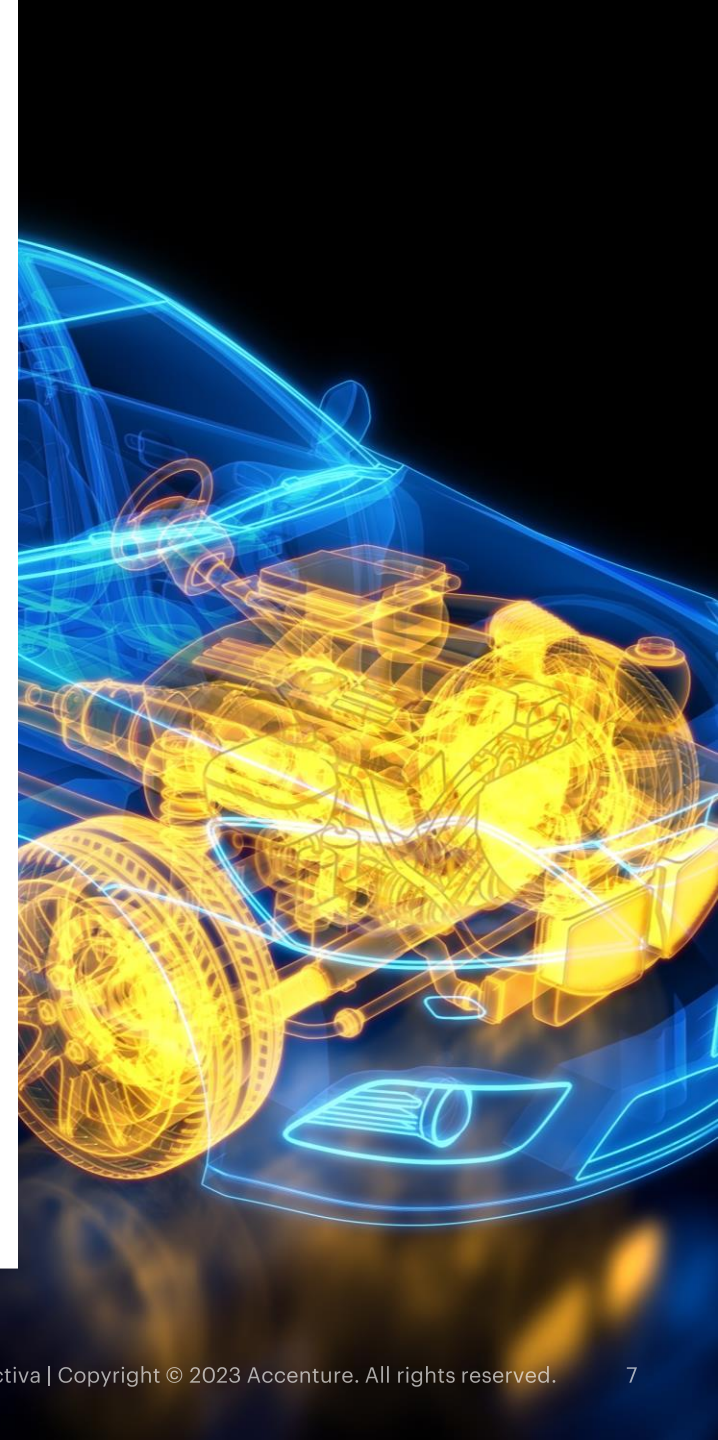
Toyota Gosei uses AI to optimize truck loading efficiency

Toyota Gosei, a Japanese automotive components supplier, has developed an AI solution that automates the calculation of truck load volumes, enhancing transport efficiency during product delivery. This system is projected to eliminate around 4,400 shipments annually, which in turn will reduce CO2 emissions by about 140 tons. Previously, operators manually assessed cargo space and calculated load volumes, leading to inconsistencies and limited capacity for checks. Now, the AI solution operates 24/7, utilizing AI image analysis to film and instantly calculate load volumes, to optimize truck capacity. Initially implemented at the Miyoshi Distribution Center and later at the Ichinomiya Distribution Center from fall 2023, Toyota Gosei aims not only to improve efficiency and sustainability but also to ease the impact of the shortage of truck drivers in Japan.

ZF Group launches by-wire tech for 'a new era of vehicle control'

The ZF Group has launched a range of by-wire technologies that enable the purely electronic control of software-reliant vehicles' steering, braking and suspension systems. These chassis products eliminate the need for mechanical connections and system fluids, and "open the door to a new era of vehicle control": shorter braking distances, more steering flexibility and greater stability at high speed. The company says they also increase the range and efficiency of the vehicles. The combination of these technologies leads to networked chassis systems that can be coordinated holistically through use of the cubiX software.

ZF has also presented its future 800-volt drive EVSys800, an ultra-compact modular powertrain consisting of an electric motor, gearbox and silicon carbide-based power electric system. Despite weighing 30% less than ZF's current 800V powertrain, the EVSys800 delivers 206 and 275 kilowatts of continuous and peak power respectively, and a maximum torque of 5,200 Newton meters to the rear axle.



Schaeffler's next-gen fuel cell plates boost power density by 20%

In a move that demonstrates the company's capabilities in hydrogen-powered mobility, Schaeffler has developed a new generation of metallic bipolar plates for its fuel cell drives. The plates have a novel design and an innovative coating system that allow the stacks to achieve a power density approximately 20% greater than that of previous generations, as well as a longer fuel cell life. Schaeffler's plates are optimized for large-scale production and are already manufactured for vehicle manufacturers to use in prototype and small-series production at its pilot plant in Herzogenaurach, Germany. The automated facility is part of Schaeffler's hydrogen center of excellence, which houses also advanced testing equipment. It is not only capable of producing the new plates but also has the flexibility to manufacture larger plates for electrolyzers.



Hella Gutmann Solutions uses AI to take guesswork out of vehicle repairs

Hella Gutmann Solutions has automated vehicle diagnostics by combining artificial intelligence with system diagnostics experience and data. The innovative Automatic Diagnostics feature is included free with the company's latest software update. It uses the vehicle's VIN number, retrieves stored failure codes and utilizes various test options, compares actual data with target data, and draws on a vast database of 30 years of stored vehicle diagnostics to provide a probability-based recommendation for identifying the faulty component. That takes about 5 minutes, after which the technician can confirm and fix the fault. The company says the diagnostic tool is currently about 80% accurate and expects that machine learning will steadily improve its performance.



Schindler turns to the cloud and IoT to digitally connect its elevators

Schindler Group is offering a connected elevator service powered by the cloud and the internet of things (IoT). Schindler's Remote Monitoring Platform allows the company's technical operation centers (TOCs) to monitor performance in great detail, anticipate and diagnose problems, and either pre-empt or rapidly respond to them. Data flows constantly from sensors in every connected elevator and is monitored and analyzed around the clock by the TOC teams. Relevant data is also sent to customers' digital dashboards, allowing them too to keep track of statistics, activities and performance. Additionally, the data gathered helps shape the company's future products and services.

Hyundai Engineering develops conversational AI for plant and construction sectors

Hyundai Engineering is partnering with an artificial intelligence (AI) solution developer, Jenti AI to develop a conversational AI program for use in the plant and construction sectors. The program will utilize a large language model (LLM) specialized for these fields, enabling it to process and generate human-like languages. By simply entering a question, this technology will allow users to obtain refined data and documents. The collaboration involves Hyundai Engineering providing data and knowledge information, while Jenti AI handles the research and development of AI language models. The joint effort aims to develop applications for corporate use of the completed LLM. The potential benefits of implementing this technology in the workplace include increased productivity through faster information searches, improved work efficiency with automatic report generation, establishing a work support system for risk analysis and decision-making, and facilitating employee training.



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