February 2023

Innovate

Trends and innovations that matter

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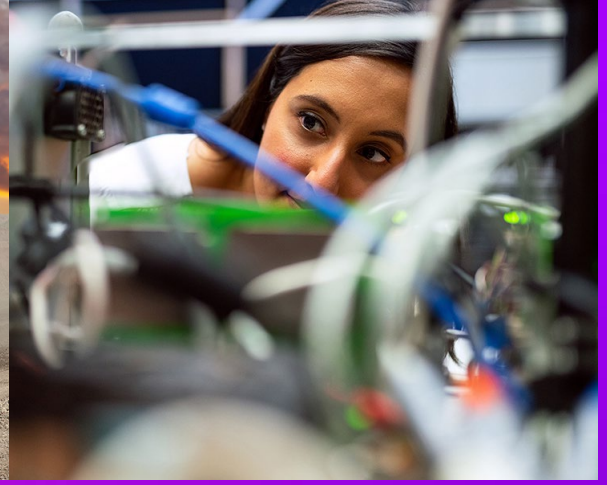
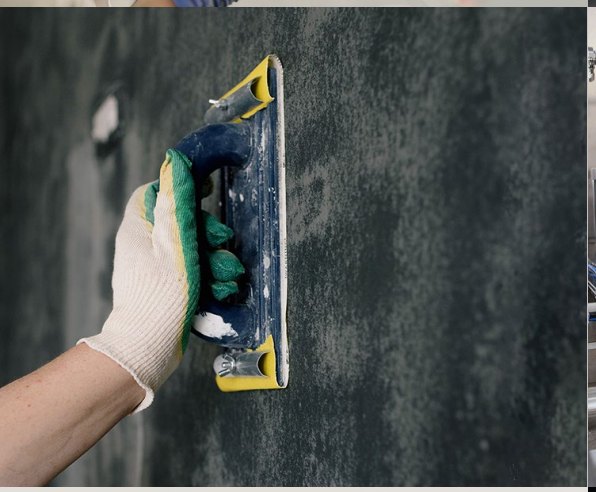




Know more about the latest announcements impacting industry, from quadruped construction robots to pioneering new sustainable materials.

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

Thomas Rinn

Senior Managing Director,
Global Industrial Sector Lead, Accenture

01

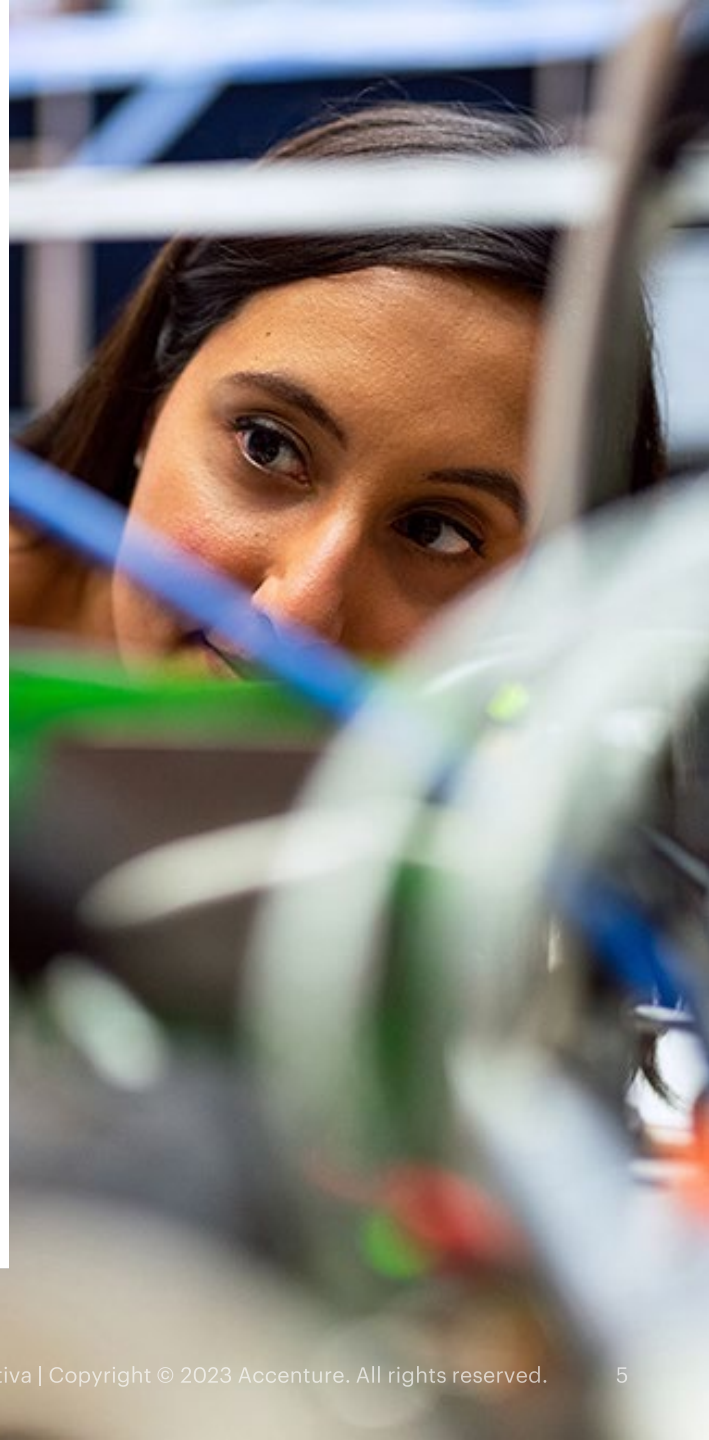
Hyundai Mobis reveals infotainment gesture control

The world's sixth-largest automotive supplier informs they have developed industry-first technology that enables drivers to control in-vehicle infotainment displays with gestures. Part of Hyundai Motor Group, the company's Quick Menu Selection pop-up display technology uses sensors to detect the movement of nearby objects. The technology, which has already been demonstrated, will allow drivers to find frequently used functions on-screen with gestures only, then make a final selection with one touch. Hyundai Mobis says Quick Menu Selection will ensure users can better concentrate on driving, therefore enhancing safety. The company recently showcased Mobis Infotainment System (MIS), an infotainment platform developed with Luxift that can control six displays.

02

Bosch and IBM partner to advance material science

The strategic quantum computing partnership will see the two companies collaborate on projects related to material science for fuel cells, electric engines or advanced sensor materials. Bosch will join the IBM Quantum Network, made up of more than 200 companies, research centers and educational institutions, which researches how quantum will impact and benefit multiple industries. IBM will benefit from Bosch's experience in materials simulation in industrial environments, while Bosch will gain access to IBM's quantum technology and Qiskit Runtime as a service. Together, they aim to develop quantum algorithms to help improve energy efficiency and reduce consumption of natural resources in industrial applications.



03

Valmet unveils intelligent, sustainable valve controller

The global technology supplier for the pulp, paper and energy industries has developed the modular Neles NDX 2.0 to enable more sustainable valve control for process industries, valves and applications. The company says the modular design makes it easy to install on any valve and actuator of any size. It can also work in conjunction with the most commonly used automation systems. Valmet also claims the Neles NDX 2.0 uses 80-90% less air than conventional controllers and will therefore use less energy and reduce emissions.

04

Meet ‘Spot’, Hyundai E&C’s quadruped robot

Hyundai E&C has developed an unmanned, AI-enabled robot it calls ‘Spot’, designed to increase safety at construction sites. The robot is fitted with sensors and communication equipment on its upper body, and can independently navigate stairs, narrow spaces and rough terrain, or move into blind spots to provide extra visibility. Spot has already been tested in houses and tunnels, and can take photos and record videos to provide real-time site monitoring. The robot can alert crews to dangerous areas and help manage materials and equipment using QR codes. Hyundai E&C will trial Spot at the Gimpo-Paju highway site in South Korea in 2023, as part of the government's 'Smart Construction Revitalization Plan'.

Image by Freepik

05

PORR pioneers sustainable, cement-free construction material

PORR has developed a sustainable construction material that is already being used in the Deutsche Bahn Filder Tunnel project. The annular gap mortar uses recycled granulated slag – finely ground blast-furnace slag that is a byproduct of steel manufacturing – instead of cement. This is a significant innovation, given that 8% of global greenhouse gas emissions come from cement production. The new material is less sensitive to environmental factors that cement-based concrete and can be transported for long periods before it is processed, since it needs a special activator to fully harden. Following the pilot project's success, PORR is looking for more partners to trial the material in construction projects. The company is also testing other recycled products for use as binding agents, including brick sand.

06

ICON will help NASA develop Moon infrastructure

The Texas company, which 3D prints houses, has been awarded a $57.2 million contract to research and develop construction technologies for building lunar infrastructure, including landing pads, habitats and roads. The contract is part of NASA's Artemis mission to build a permanent, sustainable human presence on the Moon by 2028, to support human missions to Mars. ICON's own Olympus construction system uses local resources for its projects, and that concept will be replicated in the lunar project where it will attempt to use Moon dust known as lunar regolith. ICON will also test its hardware and software using a lunar gravity simulation flight. ICON has already printed a 1,700-square-foot Martian habitat here on Earth – Mars Dune Alpha – which NASA astronauts will use for training and to simulate year-long stays on Mars.

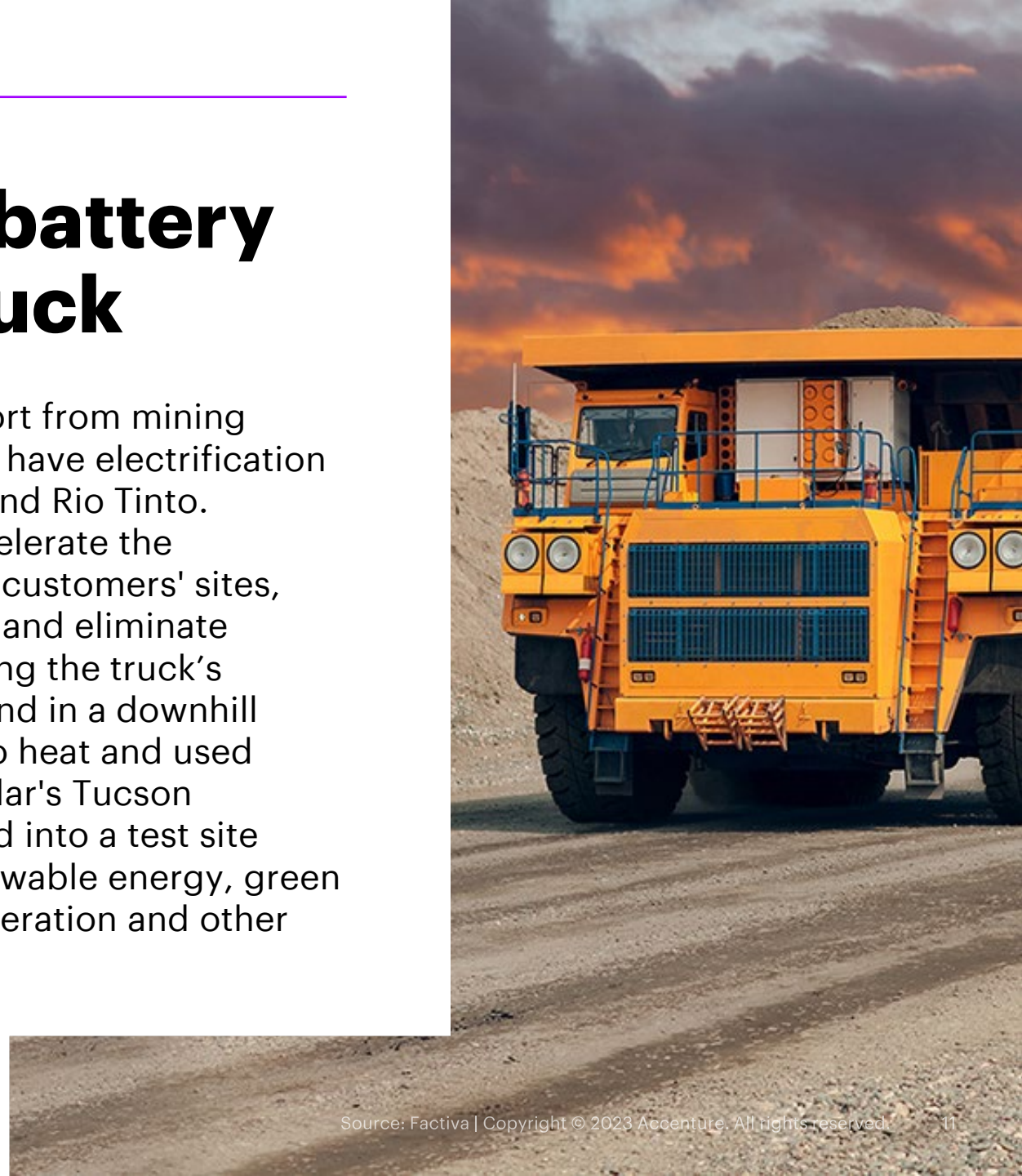
07

ExxonMobil and MHI advance carbon capture tech

ExxonMobil and Mitsubishi Heavy Industries (MHI) are collaborating on the development of next-generation carbon capture technologies, with support from Japan’s The Kansai Electric Power Co. The work will advance the KM CDR Process and Advanced KM CDR Process, a liquid amine carbon capture technology developed by MHI and KEPCO, which produces more than 1 million metric tons per year. MHI’s carbon capture technology will be used as part of ExxonMobil's carbon capture and storage solution for heavy-emitting industrial customers, with the aim of reducing the overall cost of carbon dioxide capture.

Caterpillar demos first battery electric large mining truck

The 793 large mining truck was completed with support from mining customers in Caterpillar's Early Learner program, who have electrification agreements with a host of companies including BHP and Rio Tinto. The Early Learner program was created in 2021 to accelerate the development of Caterpillar's battery electric trucks at customers' sites, and help participants achieve their pledges to reduce and eliminate greenhouse gas emissions from their operations. During the truck's live demonstration, it reached 60 km/h fully loaded, and in a downhill run captured the energy that would typically be lost to heat and used it to power the battery. The trial took place at Caterpillar's Tucson Proving Ground in Arizona, which is being transformed into a test site for the sustainable 'mine site of the future', using renewable energy, green hydrogen production, natural gas, fuel cell power generation and other sustainable technologies.



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