Innovate
Trends and innovations that matter
Learn more about the latest announcements impacting industry, from dam-building robots, to the tiny motors designed for electric aircraft.
Industrial is a front runner in combining human ingenuity with technology and innovation.

Thomas Rinn
Senior Managing Director,
Global Industrial Sector Lead, Accenture
GE accelerates hydrogen combustion mission

GE has been awarded two projects by the US Department of Energy (DoE) to accelerate the development of hydrogen combustion gas turbines. GE Gas Power has been tasked with creating the individual components necessary for hydrogen fuel stream and will test them using natural gas and hydrogen mixtures. GE Research will focus on developing the components needed to increase power plant efficiency, with tests taking place at its Niskayuna combustion test facility. The company recently collaborated with Long Ridge Energy Terminal to demonstrate the first advanced class hydrogen-burning power plant, which uses a GE 7HA.02 gas turbine that burns up to 20% hydrogen. The latest contracts will help progress GE’s mission to achieve 100% hydrogen combustion in its retrofitted F-class combustion systems within ten years. GE’s own DLN2.6e combustion system was developed as part of the DoE’s High Hydrogen Turbine program, and the company is developing a hydrogen-fueled aircraft engine with Airbus.
Yokogawa and Mitsubishi develop offshore AI safety system

The non-profit Nippon Foundation has chosen Yokogawa Electric Corporation and Mitsubishi Heavy Industries (MHI) to spearhead its project developing an automatic inspection system to improve safety in the offshore oil and natural gas sector. The DeepStar Joint Research and Development Program was set up to develop an automatic inspection system that uses AI-enabled robots to identify and predict hazards offshore. Yokogawa has been developing a platform that connects existing systems, and with help from MHI will build a management and communications system suited to an offshore environment. The two companies will deliver a proof-of-concept test using MHI’s explosion-proof, second-generation EX ROVR plant inspection robot, known as ASCENT, to collect images, sound data, and gas density measurements.
Wärtsilä launches decarbonization services business model

Wärtsilä has introduced a Decarbonization Services business model to support customers in their sustainability initiatives. The company estimates that its mining and industrial sector customers could save 460,000 tons of carbon per annum by optimizing their projects. Wärtsilä’s returns will be directly linked to how much the customer gains from the service, which will also support small-scale power utilities. The company will harness its own expertise in power systems modelling and energy system optimization to deliver the new service, which aims to reduce energy costs and emissions while increasing uptime and power supply reliability. Each service will be uniquely tailored to individual customers. Simulations will be used to help create a long-term roadmap, which will cover energy storage integration, renewables, fuel conversions and more.

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John Deere acquires AI tech that mimics the human eye

John Deere is advancing its journey to fully autonomous farming with the acquisition of AI startup Light’s algorithm package. The technology, used by autonomous vehicles, will advance John Deere’s existing offerings by improving the speed and safety of its equipment and reducing any need for human intervention. Light’s camera technology uses a multi-array system that is designed to mimic the human eye, capturing a 3D view with greater depth-perception than lidar. Light claims the technology can calculate the distance to every pixel seen in images. The technology should enable John Deere to use standard industry cameras, keeping overall costs low.
Yokohama Rubber remotely detects damage with RFID

The company has begun field tests of its latest safety technology, which uses built-in RFID tags to detect defects in marine hoses and conveyor belts. Any changes in internal pressure due to damage can be detected immediately, with Yokohama’s technology scanning the information from the RFID tag. Currently, human workers read the data carried by the tag, but one day this can also be automated using drones. It’s hoped the technology will lead to predictive maintenance and reduce oil leaks by catching any changes in the equipment integrity early, including wear, damage, or temperature changes.
Toyoda Gosei invests in Space Power Technologies

Toyoda Gosei has invested in the Kyoto-based wireless power start-up. The start-up, based on technology developed by Dr. Shinohara of Kyoto University, works to decrease the power loss that occurs when electricity is transmitted to electronics devices across a distance, without cables. Space Power Technologies is advancing the practical application of the game-changing technology for everyday use. Toyoda Gosei is already collaborating with Ossia on commercial projects that aim to bring wireless power to automotive interiors and smart cities, and the new investment will help accelerate that work.
DENSO and Honeywell develop tiny Lilium Jet e-motor

Mobility supplier DENSO has collaborated with Honeywell to develop an electric motor for the Lilium Jet. The e-motor includes a rotor and stator weighing around 4kg, with an output of 100 kW. The Lilium Jet—the first all-electric vertical take-off and landing jet—is being designed for urban use to transport small numbers of people. The technology must therefore be light and compact, and the e-motor will need to be carefully integrated into Lilium’s aircraft engines. Honeywell and DENSO have been working on the e-motor for almost two years, following the signing of an alliance agreement to design, develop, produce and sell electric propulsion system products for electric and hybrid-electric aircraft.
China is building a 590-ft dam using AI and robots

Chinese scientists are working on a pioneering project to build a massive dam with no human intervention, increasing safety and eliminating mistakes. The Yangqu hydropower dam is slated to open in 2024 and will be designed and erected using AI and construction robots. Located in the Tibetan plateau, the dam will be assembled in layers and will be the tallest structure ever built using 3D printing processes. Meanwhile, AI will oversee the management of the assembly line, which will involve a fleet of unmanned trucks moving materials to the unmanned bulldozers and pavers that will carry out the build. Rollers fitted with sensors will then press each layer together. Robots will send reports on the quality of each layer to the AI system. The dam, if completed, will provide an estimated 5 billion kilowatt-hours of power every year to China via a 1,500km high-voltage line.
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