Vedanta Aluminium Accelerates Operational Excellence with Advanced Machine Learning-Based Technologies

Jharsuguda, 12th November(B.News): Vedanta Aluminium, India's largest aluminium producer, is leveraging rapid advancements in artificial intelligence and machine learning to deploy innovative, cutting-edge technologies at its mega aluminium plant in Jharsuguda, Odisha. At the world's largest aluminium smelter, these Industry 4.0 technologies have been instrumental in enabling new benchmarks in safer, sustainable and more efficient operations.In collaboration withInfinite Uptime, a leading provider of predictive maintenance and plant reliability solutions, Vedanta Aluminiumhas launched a transformational digital initiative to revolutionize plant processesthroughdynamic AI insights that offer optimizedmaintenance solutions, energy efficiency, and operational excellence. As part of this collaboration, IoT-based sensors have been integrated with AI-driven analytics to monitor over 2,000 critical equipment points across 16 operational zones.Encompassing nearly 600 machines and pieces of equipment in areas that are not easily accessible, this initiative is helping ensure increased operational safety and boosting efficiency across the plant.The IoT sensors capture several essential parameters such as triaxial vibrations, temperature, total acceleration, and other key indicators in real-time, enabling early detection of potential faults. Common anomalies such as misalignment, bearing wear, gear issues, and electrical irregularities are automatically identified, with maintenance teams receiving instant alerts and actionable recommendations. The project follows a structured Plan-Do-Check-Act (PDCA) methodology to ensure systematic implementation and continuous improvement.Since deployment, it has successfully preempted critical machinery faults and unplanned downtime.Mr. C Chandru, CEO, Vedanta Jharsuguda, said, "Our collaboration with Infinite Uptime demonstrates how digital and AI-based technologies can redefine industrial operations for a rapidly emerging world. This initiative equips our teams with real-time insights, improves reliability, and further reinforces our commitment to safe, sustainable, and world-class manufacturing. We are committed to scaling up this effort and exploring several more avenues to integrate technology and build world-class operations."Mr. Raunak Bhinge, CEO, Infinite Uptime, added, "Partnering with Vedanta Aluminium to deploy our AI-powered predictive maintenance solutions at the company's Jharsuguda plant highlights the transformative impact that technology can have in modern industrial operations. Together, we are setting new benchmarks for efficiency, safety, and reliability."Vedanta Aluminium plans to expand this initiative further by incorporating additional technologies such as thermography, oil analysis, and centralized diagnostic platforms. This program exemplifies the company's vision of leveraging technology and innovation to drive operational excellence, sustainability, and long-term value creation at the Jharsuguda plant. Beyond this, the company has also integrated Industrial Internet of Things (IIoT)-based devices into the stacks at its thermal power plants in Jharsuguda to optimise emissions control. These systems ensure that the fabric filters operate with precision, enhancing the ability to capture emissions at the source. With the continued deployment of both emerging and established technologies, itaims to remain at the forefront of industrial innovation, building operations are future-proof and capable of delivering unmatched and all-round efficiency.Vedanta Aluminium, a business of Vedanta Limited, is India's largest producer of aluminium, manufacturing more than half of India's aluminium i.e., 2.42 million tonnes in FY25. It is a leader in value-added aluminium products that find critical applications in core industries. Vedanta Aluminium ranks 2nd in the S&P Global Corporate Sustainability Assessment 2024 world rankings for the aluminium industry, a reflection of its leading sustainable development practices. With its world-class aluminium smelters, alumina refinery and power plants in India, the company fulfils its mission of spurring emerging applications of aluminium as the 'Metal of the Future' for a greener tomorrow.