Hindustan Zinc deploys AI-powered surveillance to enhance workplace safety and efficiency

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Detect AI integrates with Hindustan Zinc's existing IoT-enabled surveillance infrastructure.

[Hindustan Zinc](#) Limited, a subsidiary of Vedanta Limited, has implemented an AI-powered camera surveillance system called Detect AI across its operations to enhance workplace safety, improve operational efficiency, and monitor compliance.

This system utilises advanced technologies like computer vision and machine learning to automatically detect unsafe practices and trigger alerts, reducing manual intervention and providing data-driven insights.

The company claims that it has seen a significant increase in operational efficiency and a reduction in manual intervention since deploying the technology across its mining sites in Rajasthan.

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By implementing these technologies across its Rajasthan mining sites, including Rampura Agucha, Sindesar Khurd, Rajpura Dariba, Zawar, and Kayad, Hindustan Zinc has reported a 20-30 per cent increase in operational efficiency. They have also achieved a nearly 50 per cent reduction in the need for manual intervention.

Digital integration

Detect AI, which is integrated with with Hindustan Zinc's existing IoT-enabled surveillance infrastructure, uses real-time image and video analytics, deep learning models, and edge computing to identify unsafe practices. Examples include non-compliance with protective equipment guidelines, unauthorised personnel access, and violations of work-at-height protocols.

"At Hindustan Zinc, we have embedded technological excellence and automation into our operations to power ahead on the path of sustainable and responsible growth. It is our vision to eliminate manual intervention and automate our processes with advanced technologies such AI/ML, IIoT, computer vision," said Arun Misra, CEO of Hindustan Zinc Limited.

The system categorises these non-compliances using predictive analytics and sends automated alerts via cloud-based AI inference engines. This provides comprehensive data-driven insights that contribute to proactive risk mitigation.

Implementation of a technologies

Hindustan Zinc is leveraging several other technologies in addition to AI and machine learning. These include computer vision, drone technology, the Internet of Things (IoT), and Augmented Reality/Virtual Reality (AR/VR). These initiatives focus on process optimization, improved metal recovery, asset reliability, increased productivity, and sustainability efforts.

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