

Intelligent Predictive Maintenance System for Manufacturing Machines

Tech ID: 33699 / UC Case 2024-9AR-0

BRIEF DESCRIPTION

An innovative system designed to enhance manufacturing efficiency through predictive maintenance using machine learning.

FULL DESCRIPTION

Researchers at UCI have developed a novel method for monitoring manufacturing machines, detecting potential failures, and identifying their causes to facilitate predictive maintenance. It leverages machine learning algorithms and sensors to collect and analyze data from machines in both active and sleep modes, enabling real-time condition monitoring and anomaly detection. This approach not only anticipates failures before they occur but also provides insights into the underlying causes, significantly reducing downtime and maintenance costs.

SUGGESTED USES

- » Predictive maintenance for manufacturing industries.
- » Energy management in industrial settings.
- » Training and development for machine operators.
- » Quality assurance and process optimization.
- » Adaptation across various manufacturing machines and environments.
- » Optimization of manufacturing operation efficiency with contextual information

ADVANTAGES

- » Real-time monitoring and self-diagnosis reduce machine downtime.
- » Energy savings through optimized power management in sleep mode.
- » Personalized training for operators based on machine learning insights.
- » Continuous improvement of manufacturing processes through data integration.
- » Adaptable to a wide range of machines, ensuring broad applicability.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20250355433	11/20/2025	2024-9AR

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OTHER INFORMATION

CATEGORIZED AS

- » **Semiconductors**
- » Other
- » Testing
- » **Sensors & Instrumentation**
- » Process Control

RELATED CASES

2024-9AR-0

Additional Patent Pending

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