Context-Aware System for Smart Manufacturing

Tech ID: 34590 / UC Case 2022-744-0

BRIEF DESCRIPTION

This technology introduces a novel context-aware system designed to enhance smart manufacturing through real- time, actionable intelligence derived from worker-machine interactions.

FULL DESCRIPTION

Researchers at UCI have developed a human-machine interaction framework that employs causality to identify normal and abnormal machine operations. By integrating power meters and cameras, the system collects and analyzes real-time data on worker-machine interactions. This technology enhances operational efficiency and enables anomaly detection in manufacturing processes.

SUGGESTED USES

- Semiconductor fabrication and other precision manufacturing environments.
- Development of auxiliary advisory tools for existing manufacturing control systems.
- Energy and material consumption optimization.
- Adaptive learning systems for object recognition and process monitoring

ADVANTAGES

- Enhances operational integrity and energy productivity.
- Improves machine prognostics and health management.
- Enables real-time actionable intelligence for factory floor workers and supervisors.
- Reduces the need for manual data labeling and model training.
- Supports dynamic adjustment of manufacturing processes for fault prevention and workflow optimization.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20230333523	10/19/2023	2022-744

RELATED MATERIALS

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OTHER INFORMATION

CATEGORIZED AS

- **Semiconductors**
- Other
- Processing and Production
- Testing

RELATED CASES

2022-744-0

» Y. Ren, G. P. Li, A contextual sensor system for non-intrusive machine status and energy monitoring, Journal of Manufacturing Systems, 2022

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