

REAL-TIME PERFORMANCE MONITORING SYSTEM PATENT

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ABSTRACT

A system and method for real-time performance monitoring of enterprise operations utilizing distributed IoT sensors, machine learning algorithms, and predictive analytics. The system comprises a network of interconnected sensors, a central processing hub, and an AI-driven analytics engine that processes operational data to generate actionable insights and automated optimization recommendations.

BACKGROUND OF THE INVENTION

Field of the Invention

[001] The present invention relates generally to enterprise performance monitoring systems, and more particularly to an integrated system for real-time operational data collection, analysis, and optimization using artificial intelligence and Internet of Things (IoT) technologies.

Description of Related Art

[002] Traditional enterprise performance monitoring systems suffer from latency issues, data silos, and limited predictive capabilities. While existing solutions may collect operational metrics, they typically lack real-time processing capabilities and intelligent optimization features necessary for modern enterprise environments.

SUMMARY OF THE INVENTION

[003] The present invention provides a comprehensive system for monitoring and optimizing enterprise operations through:

- Distributed sensor networks collecting real-time operational data
- Edge computing capabilities for immediate data processing
- Machine learning algorithms for pattern recognition and prediction
- Automated optimization recommendations based on historical and real-time data

- Integration with existing enterprise systems via standardized APIs

DETAILED DESCRIPTION

System Architecture

[004] The system comprises:

A network of IoT sensors deployed across operational environments

Edge computing nodes for local data processing

A central processing hub running proprietary machine learning algorithms

A secure cloud-based data storage and analytics platform

User interface components for data visualization and control

Data Collection Methods

[005] The system employs multiple data collection methodologies:

- Direct sensor measurements of operational parameters
- Integration with existing enterprise systems
- Manual data entry capabilities
- Automated quality control checks
- Real-time data validation protocols

Processing Algorithms

[006] The system utilizes proprietary algorithms for:

- Pattern recognition in operational data
- Predictive maintenance scheduling
- Resource optimization calculations
- Anomaly detection and alerting
- Performance trend analysis

CLAIMS

A system for real-time performance monitoring comprising:

- a. A plurality of IoT sensors configured to collect operational data
- b. Edge computing nodes for local data processing

- c. A central processing hub implementing machine learning algorithms
- d. A cloud-based storage and analytics platform
- e. User interface components for system control and visualization

The system of claim 1, wherein the machine learning algorithms are configured to:

- a. Identify operational patterns
- b. Predict maintenance requirements
- c. Generate optimization recommendations
- d. Detect anomalies in real-time
- e. Calculate performance metrics

A method for enterprise performance optimization comprising:

- a. Collecting real-time operational data from distributed sensors
- b. Processing data using edge computing nodes
- c. Analyzing data using machine learning algorithms
- d. Generating automated optimization recommendations
- e. Presenting results through user interface components

DRAWINGS

[007] The accompanying drawings illustrate various embodiments of the system:

- Figure 1: System Architecture Diagram
- Figure 2: Data Flow Schematic
- Figure 3: User Interface Components
- Figure 4: Algorithm Processing Flow
- Figure 5: Implementation Framework

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PRIORITY CLAIM

This application claims priority to U.S. Provisional Application No. 62/819,XXX filed on March 15, 2018.

The foregoing description of various embodiments of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Obvious modifications or variations are possible in light of the above teachings.