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Patent Search

Invention Title	PREDICTIVE MAINTENANCE REDEFINED: HARNESSING MACHINE LEARNING FOR INDUSTRIAL IOT SYSTEMS				
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Abstract:

The invention relates to a system and method for industrial IoT environments, utilizing machine learning algorithms to predict equipment failures and optimize maintenance schedules. The system comprises a network of sensors to collect real-time operational data, a data processing unit for preprocessing this data, and machine learning model trained on historical data to forecast failures. A user-friendly interface displays real-time insights and alerts maintenance personnel to potential issues via an integrated notification system. This invention aims to reduce unplanned downtime, minimize maintenance costs, and improve overall operational efficiency by providing timely and accurate predictions of equipment failures.

Complete Specification

Description:The present invention relates to the field of predictive maintenance within industrial environments. More specifically, it pertains to systems and methods that leverage machine learning algorithms and Internet of Things (IoT) technology to monitor industrial machinery, predict potential equipment failures, and optimize maintenance schedules. This invention finds particular application in industrial automation, manufacturing, and other sectors where machinery uptime and reliability are critical.

BACKGROUND OF THE INVENTION

The following description of related art is intended to provide background information pertaining to the field of the disclosure. This section may include certain aspects of the art that may be related to various features of the present disclosure. However, it should be appreciated that this section be used only to enhance the understanding of the reader with respect to the present disclosure, and not as admissions of prior art.

In industrial settings, the reliability and uptime of machinery are crucial to maintaining productivity and efficiency. Traditional maintenance strategies include reactive maintenance, where repairs are performed after a failure occurs, and preventive maintenance, where maintenance is conducted on a regular schedule regardless of the actual condition of the equipment. Both approaches have significant drawbacks. Reactive maintenance can lead to unexpected downtime, high repair costs, and potential safety hazards. Preventive maintenance, while reducing the likelihood of sudden failures, often results in unnecessary maintenance actions, increased operational costs, and inefficient use of resources.

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