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Patent Search

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Abstract:

IoT-based automation for the purpose of monitoring temperature and vibration in processes and preventing accidents ABSTRACT: The notion of the Internet of Thing proven to be highly advantageous in various domains, enhancing the quality of our daily lives. Undoubtedly, condition monitoring is among the facilities offered in th contrast to routine maintenance, Internet of Things (IoT) systems that engage in ongoing control operations offer significant benefits to companies by providing adva potential critical failures. It is of utmost importance to detect faulty bearings in power generating and power-consuming equipment before they reach a severe level c malfunction. In order to maintain a competitive edge within the contemporary market landscape, manufacturing enterprises are compelled to not only generate item quality, but also execute this process within designated timeframes to avoid any disruptions within supply chains and prevent customer dissatisfaction. Regrettably, e production encounters a substantial likelihood of equipment malfunction and unanticipated periods of inactivity, resulting in the inability to meet production and del deadlines. Nevertheless, manufacturers have the ability to mitigate or completely eradicate unforeseen periods of inactivity through the utilization of condition monit methodologies and Internet of Things (IoT) technologies.

Complete Specification

Description:DESCRIPTIONS

The occurrence of abrupt malfunctions and the resulting equipment downtime can be attributed to the absence of consistent condition monitoring of machinery, h rendering the anticipation and mitigation of system failures unfeasible. A significant number of organizations continue to operate in a traditional manner, wherein c are made reactively, specifically in response to incidents or failures that have already occurred. However, there exist methodologies that enable individuals to adopt proactive approach, namely, to initiate actions beforehand with the intention of averting such a breakdown. The notion of proactivity in manufacturing organization rooted in the systematic gathering and analysis of data. This approach forms the foundation for condition monitoring and predictive maintenance, which are highly prevalent in contemporary manufacturing practices. These methodologies exhibit similarities since they both include the monitoring of machine health and replace components. Nevertheless, there exist certain distinctions. The process of condition monitoring necessitates the acquisition of precise and uninterrupted input data diverse range of sensors and parameters in real-time. This technique encompasses the monitoring of several equipment parameters, such as temperature, vibratio rotation, among others, with the objective of identifying any deviations from pre-established control ranges. Subsequently, operators are notified when repair activi need to be carried out. The primary focus of predictive maintenance is to identify problems in a timely manner by the observation of indirect indicators, such as unexpected spikes or atypical combinations of data, even if these indicators fall within the range of normal operating conditions. The feasibility of this outcome is at to the utilization of machine learning algorithms, which are capable of discerning potential hardware behavior patterns by analyzing the provided performance data manner, predictive maintenance systems possess the capability to anticipate and predict the maintenance needs of equipment within a proximate timeframe, such month ahead. Consequently, organizations are able to efficiently plan and execute maintenance operations, thereby mitigating the occurrence of unforeseen perio

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