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THIRD INTERNATIONAL CONFERENCE ON
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IRMAS 2023

4-5 MAY 2023

Theme: Innovations for Sustainable Future

BOOK OF ABSTRACTS

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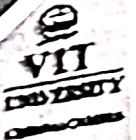SCHOOL OF MECHANICAL ENGINEERING

VELLORE INSTITUTE OF TECHNOLOGY (VIT) CHENNAI

IN ASSOCIATION WITH

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AND

DEPARTMENT OF MECHANICAL ENGINEERING

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An Enhancement of Machine Maintenance strategy through
IoT to Improve Productivity for Indian SMEs

Authors

Sanjay Lohar

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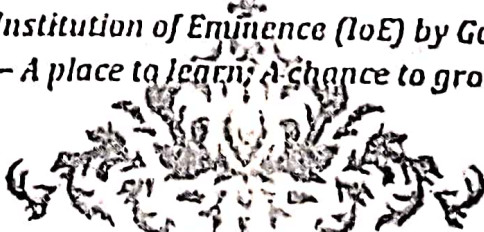
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An Enhancement of Machine Maintenance strategy through IoT to Improve Productivity for Indian SMEs

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Abstract: Industry 4.0 (I4.0) is a revolution, where in the industry can tune itself into a digital environment with the help of enabling technologies. Smart and interconnected machines are one of the distinct features of this continuous upgrading technology. The constant upgradation of existing way of working is utmost necessary to cope up with the global manufacturing challenges. In this paper, transformation of conventional method of machine monitoring and maintenance into a digital approach is shown. Also, the upgradation of the machine with the help of enabling technologies to avoid sudden breakdown and improve machine reliability is discussed. Still the fact remains that the awareness of digital technology through I4.0 is not much seen especially in Indian SMEs. The paper mainly focuses on how the use of enabling technologies like Industrial Internet of Things (IIoT) and machine learning helps in transforming and improving the reliability of machines in small and medium scale manufacturing industry.

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Selection of Suitable Material Control System for High Varity Low Volume Manufacturing System

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Abstract: Material control techniques are used in the manufacturing industry to manage the flow of materials through the manufacturing process, ensuring that the proper supplies are accessible at the right time and in the right quantities to satisfy production demands. The study presented in this manuscript investigates the applicability of material planning approaches for high diversity low volume manufacturing businesses. CONWIP (Constant Work in Progress), m-CONWIP (Multiple CONWIP), POLCA (Paired-cell overlapping Loops of cards with Authorization), and COBACABANA (Control of balance by Card based Navigation), four prominent material control strategies, were assessed under various production settings to determine the best technique using simulation models. The simulation results were studied to find the best material planning strategy in terms of Manufacturing System WIP & Material Flow time. The findings of this study offer useful insights into selecting effective material planning approaches for high diversity, low volume manufacturing businesses. The study emphasizes the significance of adopting the best appropriate material planning technique to improve the competitiveness of high diversity low volume manufacturing firms.