1st International Conference on

Mechanical Engineering : Researches and Evolutionary Challenges

(Hybrid Mode Conference)

(ICMech-REC-2023)

June 23-25, 2023

Organised by

Department of Mechanical Engineering

National Institute of Technology Warangal
Warangal 506 004.
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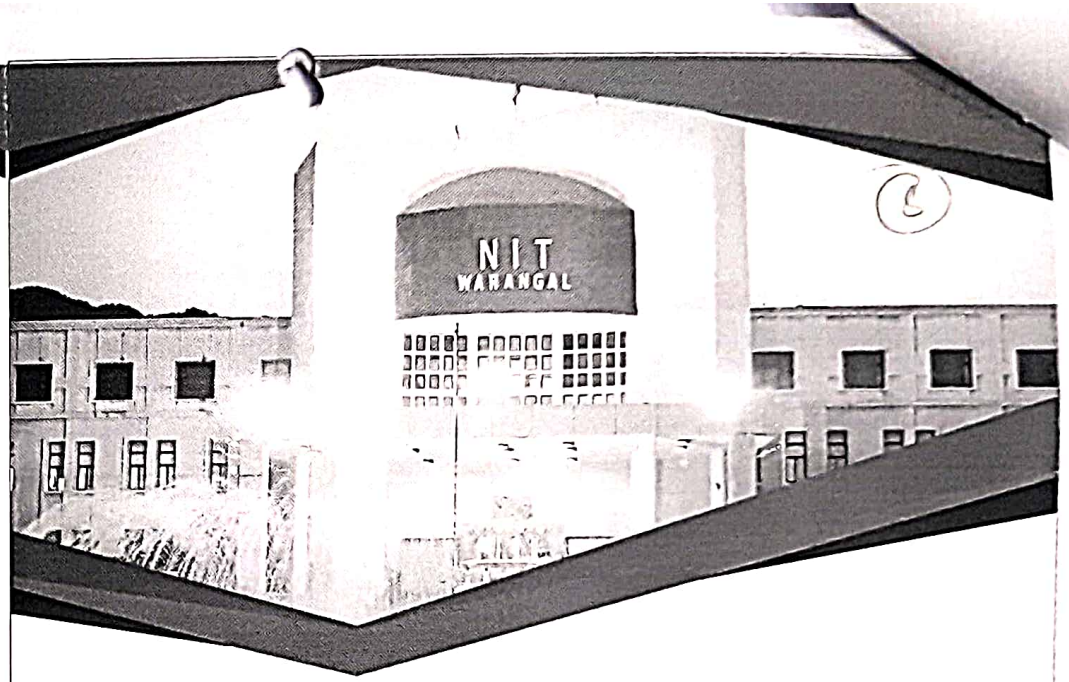

1st International Conference on Mechanical Engineering: Researches and Evolutionary Challenges (Hybrid Mode Conference)

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on 23 - 25 JUNE 2023 at NIT Warangal

Organized by:
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REAL TIME MONITORING & PRESCRIPTIVE MAINTENANCE OF REFRIGERATION SYSTEM USING MACHINE LEARNING

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ABSTRACT

This paper proposes an IOT based solution for real time monitoring of refrigeration system which exhibit a communication between electronic equipment and cloud computing. ESP-8266 is used to store the data collected from K type Thermocouple which are attached to refrigeration system and upload this data to cloud via wi-fi module. For cloud computing Arduino IDE platform is used, it allows user to restore and display the collected data from sensors. The received data of sensors are then compared with pre-calculated values that are calculated practically while performing the experiment. This allows the user to check the status of the system, whether the system is running efficiently or having any difficulty. The main goal of maintenance is to avoid sudden machine breakdown and asset failure. Prescriptive maintenance will not only detect the failure but also identify the best possible solutions. The prescriptive maintenance of the system uses the data collected to provide recommendations on the appropriate actions to take to prevent system failure or system breakdown. Based on historical data and best practices in the industry, these recommendations make sure that maintenance actions are focused and efficient. Prescriptive maintenance of system can lower maintenance costs and increase system reliability by offering focused and useful repair recommendations. The implementation of real time monitoring and prescriptive maintenance is expected to provide several benefits such as system efficiency, lower maintenance costs, and increase system reliability by monitoring the system constantly and recommending prescriptive maintenance procedures.

KEY WORDS: Cloud computing, ESP8266 Wi-Fi Module, K type Thermocouple, Machine Learning.

1. INTRODUCTION

The Industries and commercial settings face challenges in maintaining reliable and efficient refrigeration systems. Refrigeration system is a crucial part of many industries, including the food and beverage, pharmaceutical, and chemical sectors, which supports preserving sensitive materials and maintaining shelf life of perishable commodities. However, these systems are

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This is to certify that *Kshitij Singh, Sundar Chaudhary, Anjani Gupta and Kamlesh Bachkar* has presented a paper entitled as "*Real Time Monitoring & Prescriptive Maintenance Of Refrigeration System Using Machine Learning.*" in 1st International Conference on Mechanical Engineering: Researches and Evolutionary Challenges -2023 conducted by National Institute of Technology Warangal, Telangana from 23 -25 June, 2023.

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