

**DEVELOPMENT AND ANALYSIS IMPLEMENTATION OF REAL-TIME
MONITORING TEMPERATURE VHMS DASHBOARD TO REDUCE
COMPONENT UNSCHEDULED BREAKDOWN WITH TEMPERATURE
LIMITS FOR KOMATSU EQUIPMENT**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

DEVELOPMENT AND ANALYSIS IMPLEMENTATION OF REAL-TIME MONITORING TEMPERATURE VHMS DASHBOARD WITH TEMPERATURE LIMITS TO REDUCE COMPONENT UNSCHEDULED BREAKDOWN FOR KOMATSU EQUIPMENT

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The coal mining industry relies on heavy equipment like excavators and bulldozers, whose efficiency is critical for productivity. This thesis addresses the issue of unscheduled breakdowns due to high operational temperatures, impacting equipment availability and maintenance costs. The existing Vehicle Health Monitoring System (VHMS) by Komatsu lacks real-time data, delaying temperature issue identification and rectification. This study proposes a real-time monitoring dashboard for the VHMS to track and manage Komatsu equipment temperature limits. Upgrading to a system that records data every second instead of every 20 hours, the dashboard aims to provide a comprehensive analysis of equipment conditions. This allows for quicker identification of abnormal temperature trends, leading to timely maintenance and prevention of failures. The research highlights the current VHMS limitations, such as inadequate data granularity and delayed reporting, which impede predictive maintenance. The new dashboard system provides immediate access to detailed temperature data, facilitating prompt decision-making. It also involves setting new temperature limits to prevent overheating and extend component lifetimes. Implementing a real-time temperature monitoring dashboard is expected to improve equipment availability, reduce breakdowns, optimize maintenance schedules, and lower operational costs in the coal mining industry.

Keywords: VHMS, Component unschedule, Komatsu, Temperature analysis, Real-time monitoring.

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DEDICATION

I dedicate this works for Allah SWT., Prophet Muhammad SAW., my parents, sisters,
grandparents, all my family and all human kind.

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I have found my coursework throughout the Curriculum and Instruction program to be stimulating and thoughtful, providing me with the tools with which to explore both past and present ideas and issues.

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