

**PREDICTIVE MAINTENANCE OF MINING EQUIPMENT IN  
INDONESIA LEADING HEAVY EQUIPMENT COMPANY**

By

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21952023

MASTER'S DEGREE  
in

MASTER OF MECHANICAL ENGINEERING – ENGINEERING  
MANAGEMENT  
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

Revision after Thesis Defense on February 2nd, 2021

SWISS GERMAN UNIVERSITY



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February 2021

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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**

**PREDICTIVE MAINTENANCE OF MINING EQUIPMENT IN  
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The use of heavy equipment in a production process, especially coal mining, is very dominant and is the main work tool. Therefore, the productivity of mining is very dependent on the performance of the heavy equipment used. In maintaining the performance of today's machines, it is not enough only with preventive and corrective maintenance, but also with predictive maintenance (PdM). Through PdM, it is expected that heavy equipment performance can be maintained properly because it can reduce the unscheduled breakdowns.

PdM in this research aims to help prioritize heavy equipment routine service management, so that more urgent heavy equipment conditions will get priority for maintenance first so as to prevent unscheduled breakdowns compared to current service management which still uses time based as the only maintenance priority tool. PdM will focus on finding warnings and indicators that can be used to determine the remaining useful life (RUL) of engine components by using data from telemetry, oil analysis, historical component lifetime and other maintenance data. In this research, we get the predictive maintenance results in the form of 2 types of warnings and also the RUL prediction with a mean absolute error of 91 hours compared to the actual RUL.

*Keywords: Coal Mining, Heavy Equipment, Predictive Maintenance, Early Warning, Monitoring System.*



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## **DEDICATION**

I dedicated this research for My Family and My Company – PT United Tractors Tbk.



## ACKNOWLEDGEMENTS

I would like to thanks to Mr. Dena Hendriana, B.Sc., M.Sc., Ph. D. and Mr. Dr. Eka Budiarto, S.T., M.Sc. and all lecturers who have guided me while studying in Swiss German University. And also, to Mr. Edhie Sarwono and the management of PT United Tractors Tbk. who gave me the opportunity to take a master's degree.



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