

**DESIGN CLUTCH WEAR MONITORING TO PROVIDE THE
RIGHT TIME TO CHANGE THE CLUTCH AND PREVENT
UNSCHEDULED BREAKDOWN
ON HEAVY DUTY TRUCKS**

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Tangerang, Banten 15143 - Indonesia

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STATEMENT BY THE AUTHOR

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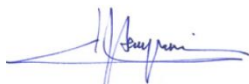
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I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other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

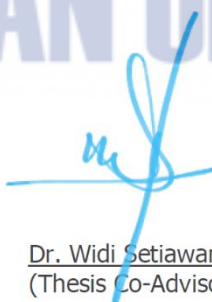


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ABSTRACT

DESIGN CLUTCH WEAR MONITORING TO PROVIDE THE RIGHT TIME TO CHANGE THE CLUTCH AND PREVENT UNSCHEDULED BREAKDOWN ON HEAVY DUTY TRUCKS

By

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Dr. Widi Setiawan

Heavy-duty trucks are a long-term investment capital in the field of heavy equipment. In fact, there are still many trucks that experience breakdowns. The most common damage is clutch damage. Based on data clutch failure occurred average at 1333 hours meter and mean clutch repair time (downtime unit) was 586 hours. This research using experimental methods to designs a clutch wear monitoring tool that can send real-time notifications (using internet of things). This device uses ultrasonic sensor to detect clutch wear and combined with SIM800L GSM Module as a data sender to the internet. Vehicle owners or foreman mechanics can monitor via Blynk application. This notification is in the form of a clutch condition that is still in a clutch normal, clutch warning and clutch limit. The accuracy of the clutch wear monitoring device when measuring the clutch limit condition is 48 mm with percentage of an inaccuracy (systematic error) 0.22% and standard deviation (statistical error) 1.27 mm. This data will be used as the basis for preparing a clutch replacement schedule, preparing a new clutch component, and preparing the working mechanic.

Keywords: Heavy-duty truck clutch, ultrasonic sensor, SIM800L, internet of things, accuracy.



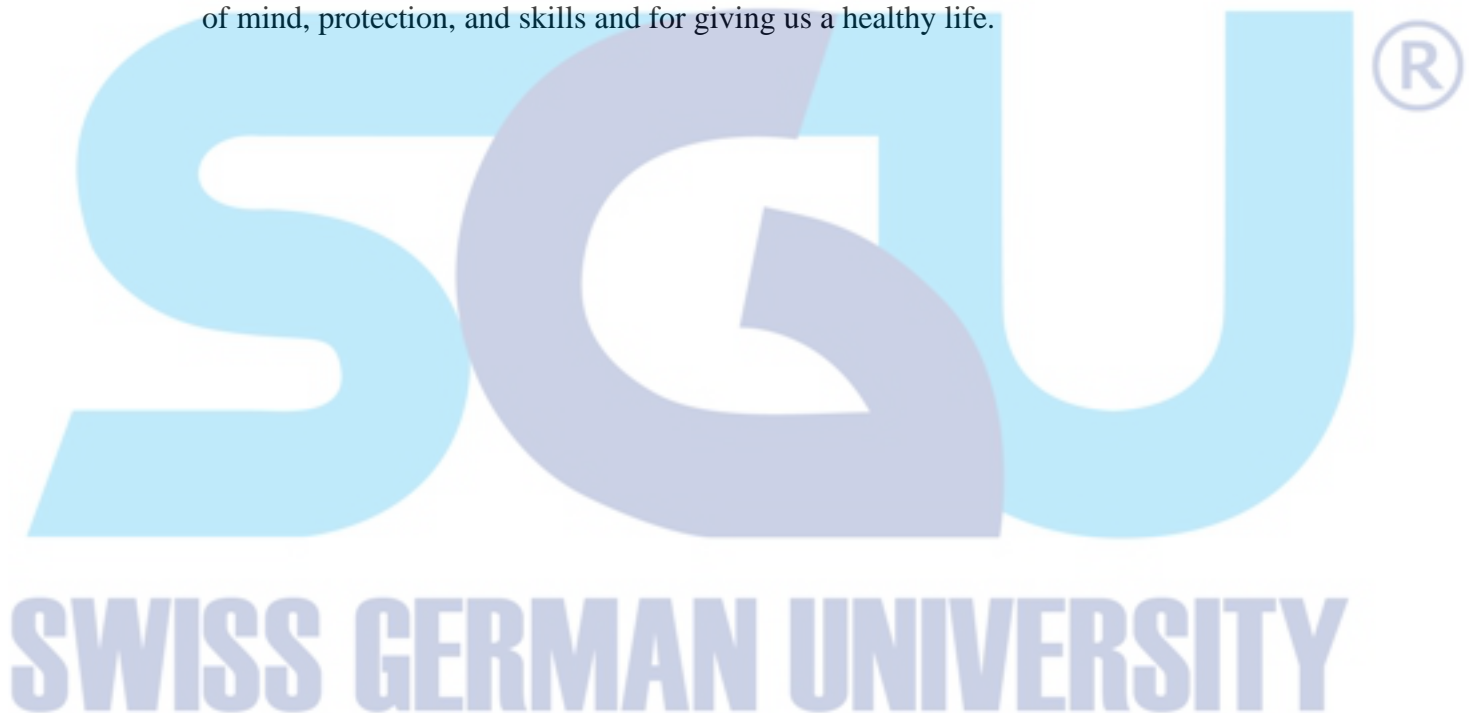
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DEDICATION

This study is wholeheartedly dedicated to my beloved wife and children, who have been our source of inspiration and gave me strength when I thought of giving up.

To UT School and PT United Tractors Tbk. who has provided funding and support during the study.

And lastly, I dedicated to the Allah SWT thank you for the guidance, strength, power of mind, protection, and skills and for giving us a healthy life.



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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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