



**DESIGN AND ANALYSIS OF SLIDING WEAR MECHANISM IN ELECTRIC
TRAIN APPLICATION**

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DECLARATION BY THE CANDIDATE

“I declare that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any degree.”

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ABSTRACT

Wear has been known as one of the major factors limiting the life and performance of engineering component and engineering system. Wear control has become the most need for the advanced and reliable technology of the future. Investigating wear rate in sliding wear mechanism to solve a wear problem is a challenging task because its involve deformation of material on surface contact. There are an issues of sliding wear that happen in electric train mechanism that occur between current collector and conductor rail. However, until now there no available literature that study on sliding wear by using different configuration of material (current collector) acting on rail at electric train application. Besides, the experimental setup does not accurately mimic the real operating condition of train mechanism (rotation movement instead of linear movement). This study involved in designing the experimental setup and analysis in detail design before fabrication stage. The project methodology for designing requires several engineering tools to achieve goals and meet specific requirement. The tools that being used is Benchmarking and Systematic Design Step (SDS). Functional Analysis System Technique (FAST) was used to clarify problem before convert into functional requirement. To choose the best design that fulfil the criteria the decision matrix has been produce before proceed to detail design stage. From the method that being used, a working drawing, a manufacturing process planning and assembly steps has been produces as a result for the design project. In addition, the tolerance analysis has been carried out to determine the face clearance needed between the critical part of conducting rail and wheel of train.

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