



**STUDY OF WINDBLAST INTERFACE ELEMENT  
WITH POSTURA MOTERGO™ TEST RIG**

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JULY 2015**

“ I declared 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 candidature of any degree. ”

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## ABSTRACT

Global motorcycle road accident statistics has shown increment in the past decade. As part of the actions taken in minimizing this issue, motorcycle simulators were developed in order to conduct studies on motorcycling. An example of such simulators is the revolutionary motorcycle test rig named Postura Motergo<sup>TM</sup>, an adjustable and custom made motorcycle test rig developed by Motorcycle Engineering Technology Lab (METAL) of Faculty of Mechanical Engineering, Universiti Teknologi MARA (UiTM), Malaysia. Uniquely, Postura Motergo<sup>TM</sup> is integrated with Human Machine Environment Interface (HMEI) attributes to give a better fidelity and more near to real riding experience. However, the currently integrated windblast element is yet to be capable to truly replicate real world riding experience. Though, could be regulated via the twist of the motorcycle's throttle, the wind speed generated via this mechanism could not be accurately measured. The aim of this study was to establish a novel interface system for generating and regulating the windblast element for Postura Motergo<sup>TM</sup>, named as the Windblast Interface System (The WIS). In achieving this, an integration of data acquisition system (DAQ) was used, consisting of sensors, DAQ measurement hardware and a computer with programmable software. For this study, an anemometer, analog-to-digital converter and compatible LABVIEW software were used to establish the interface. As a result from this novel system, a relationship between the dynamic changes of the windblast element can now be determined and accurately controlled. From this system interface, a validation process via distributing a set of questionnaire to 10 respondents was done. Conclusively, this study successfully improved the windblast element,

hence provides a more immersive simulation experience to the test subjects in utilizing the Postura Motergo™.

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