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# Speed analysis of motorcycle's wheel drive in various road conditions

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## Abstract

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## Abstract

The usage of the motorcycle as a mode of transportation has led to increased energy consumption in the transportation sector and high emissions of greenhouse gases. Thus, the rapid development of electric motorcycles through the advancement of technology provides the possibility to address the issues of high energy consumption and the emission of pollutants. Despite its convenience in accommodating mobility in an urban area, statistical data show that road accidents involving the motorcyclist in Southeast Asian Nations (ASEAN) countries are very high. The contributing factor to the worrying situation is the failure in controlling the motorcycle speed. One of the solutions is by adjusting the motorcycle speed according to different road conditions. However, a shortcoming is identified based on the numerous studies conducted relating to the electric motorcycle where the studies exclude an analysis of electric motorcycle speed when travelling on different road conditions. Therefore, the slip ratio on the front and the rear wheel has been studied to analyze the suitable electric motorcycle speed when driven on different road conditions. An emphasis is made on two road conditions: dry and wet, and the simulation reveals the suitable speed range for the motorcycle under both road conditions. © 2022, Institute of Advanced Engineering and Science. All rights reserved.

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