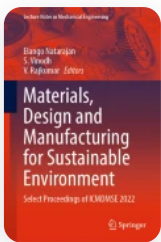


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Start/Stop Behavior of Indian Two-Wheeler Commuters in Traffic Signals: Repercussions and Propositions

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Abstract

The study was aimed at analyzing the start/stop behavior of two-wheel riders in Indian road signals and their implications on the vehicle fuel consumption and

environmental pollution. The behavior was studied with the help of record of response from the two-wheel riders to the questionnaire developed. The responses were obtained by means of household interviews and Google survey from Coimbatore, Tamil Nadu, India. The minimum sample size was obtained using Cochran formula, and responses of 388 people (confidence level 95%, margin of error 5%) were recorded. The study revealed only 54.13% of the Indian public sample switch off their engine during wait time in signals. The reasons behind their start/stop response were received and analyzed. The wait time in signals at which the people respond is also recorded. Then experimentation was carried out recording the fuel consumption and CO₂ emission. It showed lower, moderate, and high-engine capacity bikes save fuel when the engine is switched off on signal timer 21.34 s, 8.34 s, and 6.08 s, respectively. When the suggested break-even time was followed, it resulted in reduction of fuel consumption and environmental pollution as much as 3.82 ml and 7.90 g, respectively, per minute of wait time in traffic signals. It was found only 8.74% of respondents have start/stop response as suggested by the study. The study revealed the people's understanding of start/stop response to the traffic signals needs major revision. The better response may lead to economic and environmental benefit to oneself and the society.

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