ERGONOMIC ASPECTS IN DESIGNING PEDAL CAR

by

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DECLARATION

This Dissertation paper contains no material which has been accepted for the award of any other degree or diploma in any University or equivalent institution in Sri Lanka or abroad, and that to the best of my knowledge and belief, contains no material previously published or written by any other person, except where due reference is made in the text of this Dissertation.

I carried out the work described in this Dissertation under the supervision of Dr.M.A.R.V. Fernanado.

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Abstract

Transportation has become one of the key issues currently we face in Sri Lanka. Situation has become more complex with soaring fuel price. further petroleum fuel powered vehicle causes enormous environmental problems particularly in urban areas. On the other hand being a poor nation, Automobile is a luxury for the average person. Therefore the use of Human Powered Vehicle (HPV) for day to day transportation becomes worth investigation and promotion.

The simplest and oldest HPV, Pedal-cycle (*Push bike*) is being widely used both in village and urban areas for their day-to-day work especially for short distance traveling. However this has several drawbacks, some of which are (1).*Rider is not protected from sun and rain.* (2). *encounters poor balancing while moving* (3) *Rider often ends up with severe injuries during an accidents.* (4) *Danger is more compared with other motor vehicles due to very high direct impact.* (5). *Bike is not being in fashion in Sri Lanka particularly among our younger generation.*

In countries like in Bangladesh "Rickshaw" is very popular in city areas for transporting goods and people particularly for short distances. A survey in Dhaka showed rickshaw takes the highest share, accounting for 35 percent. This is in spite that the design of these machines are with no regard to "Ergonomic" aspects. A proper Ergonomically designed human powered vehicle will be not only to work efficiently, but also to reduce the rider fatigue. Accordingly a novel HPV, a pedal car, was designed taking in to consideration ergonomic aspects and other features. One embodiment was fabricated, tested and exhibited attracting strong interest from public. This article deals with the development of Ergonomic aspects of the Pedal Car.

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