

Design of Electric Scooter for Aging Population in India



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Abstract:

The coming decades will see the ageing of generations accustomed with travel intensive lifestyle. It is expected that people will try to maintain their high mobility levels in future. The older people can be very active and fit. In this regard the aging populations confront various issues in their day to day life, out of which one of the major topics is their travel needs. In this project work, the needs and expectations are identified for elderly person's mobility. Considering the safety and comfort as a prime focus of the design, an electric scooter was constructed which is best suitable for Indian elderly persons.

The elders living arrangements, age related constraints, and mobility behavior patterns are referred from journals, technical papers and magazines. A literature review on electric vehicles, safety and comfort features offered in existing vehicles were done. A user survey was conducted to collect inputs for the aged person's needs, Market study was done with four major vehicles used by these segment persons. The quality function deployment was created to transform the customer voices into technical voices and importance rating were made to set the priorities characteristics. The product design specification was devised with the collected data to define the vehicle concept. Three different concepts were made to bring out different possible solutions. Finally with the weighted ranking method, one concept was detailed with CAD software.

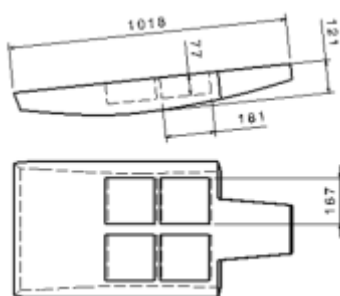
A 1:10 mock model was created to visualise the final concept. The safety and comfort features were defined in the concept considering aged person driving abilities. The battery size calculation and detailed ergonomically study were carried out with the reference of technical papers.



Elderly persons - Scooter model



Different concepts for elders mobility – Ergonomic study



Battery packaging



Mockup model