Design of a Narrow Track Car for Indian Market

Student’s Name | B. Jithin Krishnan | APD (FT-2011)
--- | --- | ---
Academic Supervisor(s) | Pathan Ramjan Rashid and Vignesh Ravichandran
Industrial Supervisor(s) | B. Jithin Krishnan
jithi666@gmail.com
Ph. No: 0 80952 39509

Keywords: Narrow Track Car, Aesthetics, Design Inspired by Nature

Abstract:

Automobile industry in India is a fast growing market in terms of manufacturing quantity and number of buyers. As compared to the earlier decades, number of people using vehicles has increased substantially. The vehicles were considered to be luxury items by the earlier generation because of their high prices and limited quantity of production. Today, with the help of new manufacturing technologies, the prices of vehicles have reduced and they can be mass produced. These vehicles run on fossil fuel powered engines, which causes air and noise pollution. Moreover, this also leads to heavy traffic in urban area. To overcome this, a narrow track electric car design has been considered in this project.

Design process started with a research on the need for narrow track car in the Indian market. Data collection was carried out by adopting methodologies such as literature review, product study, market study and user study. The car holders were interviewed to understand their needs and expectations in narrow track car design. Quality Function Deployment (QFD) and Product Design Specifications (PDS) were generated based upon data analysis. Four concepts were generated with respect to the derived PDS by form exploration form nature. One final concept was shortlisted by participatory method. The aesthetic requirements, identified through data collection, were addressed in the developed concepts. A final concept was selected by a weighted ranking method. Ergonomic study was done using CATIA V5 software to understand the seating position and packaging.

It was observed from the user feedback that a majority of the users needed improved aesthetics and ergonomics. Therefore these two factors were given importance in the final design. The final concept of the narrow track car was built on a scale of 1:10 mock-up model using wood. This mockup model was taken to users for validation. A positive response was found for the design and detailing.