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| GP1001 | Design and Fabrication of a 2 Seater Car for Office Commute | | |
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A 2 Seater car for office commute needs to have optimum size and track width to maneuver through city traffic and park in tight parking spots. That was the governing rule while designing and fabricating the vehicle, along with satisfactory performance (pick up, efficiency etc).

Few benchmark vehicles such as Mahindra E20, Aston Martin Cygnet etc. with similar qualities were selected for the design of the chassis of the car. A survey was carried out to determine the quality function deployment in which it was observed that people prefer interior comfort and storage space in modern small cars. Several concept designs were developed based on various parameters and the most suitable one was chosen according to the fabrication abilities and the time constraint. Unigraphics was used to develop the initial 3D drawings of the chassis and to check for the blind spots for the driver. Analysis was carried out for the selected design where the chassis was tested for static loading (bending) and torsional loading. Modal analysis was also carried out for the different modes of vibration and it was observed that the structure passed all the analysis checks. All the analysis was done in Ansys and the chassis was meshed in Hypermesh. Each individual component was labeled and part drawings of each were made for fabrication after the analysis of the structure. Special butterfly doors and dashboard was fabricated to improve the visual appeal of the vehicle. Fabrication mostly included gas welding and cutting along with arc welding. The engine, transmission, steering system, suspension, engine mounts and suspension mounts were taken from a stock Maruti 800.



Development stages of 2 Seater Car: Virtual model and its construction