

DESIGN AND ANALYSIS OF CAR CRASH ELEMENT

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report "DESIGN AND ANALYSIS OF CAR CRASH ELEMENT" is the bonafide work of "M. ATHIQHUR RAHMAN (112818114005), D. MOULI CHANDRU (112818114028), P. RAJESH (112818114035), M. MOHAMMED ALTHAF (112818114701)", who carried out the project work under my supervision.


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ABSTRACT

Today occupant safety is of a prime concern to every car manufacturer. New standards are being set for the safety of the occupant in different crash scenarios like frontal head on collision, angle impacts, side impacts, rear impacts and rollover.

In the contemporary world, fuel consumption also poses a serious issue that has to be considered. With these constraints in consideration, a lighter and stronger composite material is used in car front rail than steel. Using this material would help in reducing the fuel efficiency without sacrificing the safety of the vehicle.

In this project, the conventional material used for front sub frame rails in car, steel is replaced with the composite materials Carbon Epoxy and Glass Carbon. 3D model of the sub frame rail is done in CATIA v5. Impact analysis is done in Ansys workbench for all the materials to compare the displacements and stresses at different speeds 80km/hr., 100km/hr. and 120km/hr.




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