ABSTRACT

In the case of manufacturing of the most part, in the automotive industry, weight reduction, expense of engineering designing and reduction in vehicle improvement process duration are turning out to be progressively focused on. So as to handle this, Computer Aided Engineering (CAE) is prevalently being utilized to lead designing and simulations process. This is more proficient than simply utilizing CAE as a verification tool. Beginning totally from nothing, the recently established Team e wolf(As a team)must design, develop and test a race car, with all the work attempted totally by the designer (me) and my team members. A standout amongst the most essential parts of any race car is the frame, as it is the main center point that the mainstream of subdivisions are attached to. This theory sets out the work attempted to design and manufacture the Track day Car chassis frame. This project intends to outline and build up a chassis frame for a Track Day Car which is suited to the track and as well as to the road. The objectives were to design a chassis frame to meet a decided torsional stiffness and weight reduction, and in addition to meet a cost target as well. Should these objectives be accomplished, the result would be a chassis frame that is, at any rate, prepared for production and use, if not already completed manufacturing. This would be a huge segment of the race car prepared for use, and would make the development of different parts of the car, for example, suspension, Motor Controlling system, steering System or Bodywork much less demanding.

The initial phase in the process was an analysis on the significant writing in the field of race car chassis systems', counting work done in the beginning of motor racing, up to work done as of late by individuals from other formula Student teams although Track Day Car is not only a formula car. The following stride was to collect as much important information relating to the dimensions of the chassis frame as could be allowed. The 2015-16 rules and regulation handbook was deeply studied to extract any dimension points of interest that could be utilized to make up an initial chassis design.

This was merged with suspension information, which permitted the locating of the suspension mounting points to be resolved. The last bit of information obtaining was to study or analysis the points of interest of the formula race cars of some groups, therefore obtaining common design features. These dimensions were at that point plotted into CAE software (solidwork) and associated together to form an essential starting chassis frame shape. This shape was then modified with contribution from team members of Team e Wolf and our supervisor. The next step was to figure out which material would be utilized as a part of the development of the chassis frame, with galvanized seamless steel being the picked material because of its cost, usability, strength and accessibility. Tailing this, three chassis frame designs were obtained, with simulation testing done to figure out which design had the most potential. The final design was subjected to further simulations utilizing solidwork Workbench, with the final results giving an exact perspective of the anticipated optimum level chassis frame characteristics.