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MODIFIED PHYSICALLY CHALLENGED TWO WHEELER

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ABSTRACT

Elaborated shapes of many two wheeler component are the reason for which the use of casting techniques to fabricate them is a solution well-founded from the economical point of view. Currently applicable regulatory requirements concerning emission of exhaust fumes force the two wheeler makers to reduce the overall weight of their products, as this is a basic precondition for reducing fuel consumption. As a result, newly launched two wheeler models contain a continuously increasing share of thin-walled castings made of materials which ensure a satisfactory level of service properties. At the same time, developing new technological processes allowing extending the service life of individual components by means of surface improving becomes more and more important.

I.INTRODUCTION

Decision on selection of materials from which individual automobile two wheeler components are to be fabricated are made not only in view of the given part operating conditions, but also with economic realities taken into account. Further, requirements concerning environment protection must be also met, and two wheeler makers are under constant pressure to reduce fuel consumption in their vehicles in order to cut down harmful emission and to use recyclable materials to a largest possible extend. Mini handicapped bike are also called as pocket bike. They run like a real bike but small in size they powered by various fuels like petrol, electrical and gas. These bikes are mostly 40 to 60 cc for safety purpose. These bikes are mostly adopted for physically challenged persons children and adults.

On the other hand, two wheeler user demand increased driving comfort and safety and continuously expect launching new model that should be therefore manufacturing in short series. Meeting all these requirement is a

challenging task as some of them are mutually exclusive. To improve driving comfort, it is necessary to install additional insulation materials allowing reducing noise level, introducing many new components and devices such as, power operated tailgates and other movable components. Improvement of driving safety involves the necessity to reinforce the two wheeler body, the breaking system, and the suspension system. As a consequence, the motor bike becomes more sophisticate, but its weight inevitably increases which in turn leads to higher fuel consumption and more emission of exhaust fumes.

II.LITERATURE SURVEY

C.H. Neeraja a C. R. Sireesha and D. Jawaharlal have modelled a suspension frame used in two-wheeler. Modelling is done in Pro/Engineer. They have done structural and modal analysis on suspension frame using four materials Steel, Aluminium Alloy A360, Magnesium and carbon fibre reinforced polymer to validate our design. By observing the results, for all the materials the stress values are less than their respective permissible yield stress values. So the design was safe, by conclusion. By comparing the results for four materials, stress obtained is same and displacement is less for carbon fibre reinforced polymer than other three materials. So for design considered, CFRP is better material for suspension frame.CicekKaraoglu and N. SefaKuralay did the finite element analysis of a truck chassis. The analysis showed that increasing the side member thickness can reduce stresses on the joint areas, but it is important to realize that the overall weight of the chassis frame increases. Using local plates only in the joint area can also increase side member thickness. Therefore, excessive weight of the chassis frame is prevented. In November 2008 MohamadTarmizi Bin Arbain uses 3D model for finite element analysis issues regarding the experimental analysis of car chassis is addressed. The modelling approach is investigated extensively using both of computational and compared it to experimental modal analysis.A comparison of the modal parameters from both experiment and simulation shows the validity of the proposed approach. Then perform the computational stress analysis with linear material type analysis to find the stress concentration point in the car chassis.Karaoglu and Kura lay investigated stress analysis of a truck chassis with riveted joints using FEM. Numerical results showed that stresses on the side member can be reduced by increasing the side member thickness locally.Fermer et al investigated the fatigue life of Volvo S80 Bi-Fuel using MSC/Fatigue Colne and Chu did research about fatigue analysis and the local stress strain approach in complex vehicular structures.Structural optimization of automotive components applied to durability problems has been investigated by Ferreira et al FilhoEt. al. have investigated and optimized a chassis design for an off road vehicle with the appropriate dynamic and structural behaviour.

III.METHODOLOGY

Component used in Handicapped Vehicle

Specification of Engine

Displacement	60 cc
Cylinders	1
Max power	3.50 bhp @ 5000 r.p.m
Maximum torque	5 Nm @ 375 r.p.m
Fuel delivery system	Carburettor
Fuel type	Petrol
Ignition	Fly wheel magneto 12V,50W electronic ignition
Spark plugs	1 Per cylinder
Cooling system	Air cooled
Transmission type	Chain drive
Clutch	Centrifugal wet type

Specification of Wheel and Brake

Brake type	Drum
Front&Rear disc/drum size	80 mm
Wheel size	10 inches
Front tyre	3.00 X 10 inches
Alloy wheels	yes
Front suspension	Telescopic Spring Type
Front suspension	Telescopic Spring Type

Specification of Vehicle

Overall weight	50 kg
Overall length	870 mm
Overall height	580 mm

Chassis Design Analysis

Stress Distribution

Displacement

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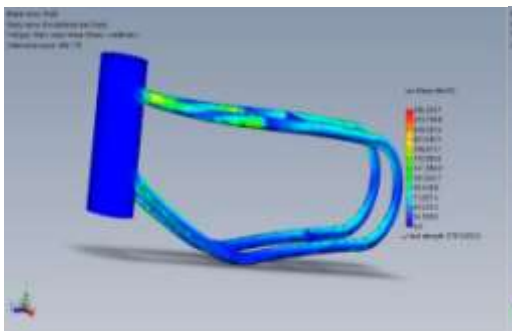

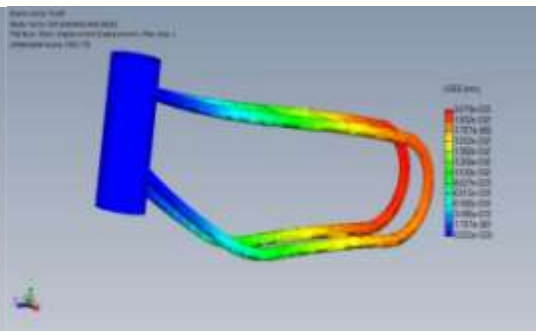

Name :von mises stress Name :Resultant Displacement

Load :3000N Load :3000N

Maximum stress:0.0358196N/m^2 Maximum stress:0mm

Maximum stress:295310N/m^2Maximum stress:0.0207289mm

Side view of the mini bike

IV.WORKING

The gear is fixed on input shaft planet carrier is fixed on input shaft using sliding sleeve to make planet gear fix so that there is no relative motion between planet and ring gear. Now gear, planet and ring gear will rotate as single entry. Thus the vehicle will get forward motion. The motion of direction of vehicle is controlled by handle. The device operated by to and forward motion of steering which help to rotate the wheel, the turning action takes place by tilting the handle forward and backward direction.

V.SUSPENSION SYSTEM

It is a collection of spring and shock absorves. It can be of two types: front suspension and rear suspension. It insulated both the rider and the vehicle from road shocks and also keeps the wheels in the closest possible contact with the ground and gives controle of the vehicle of the rider.

VI.CONCLUSION

Light weighting becomes an important issues for energy efficiency in automotive. It arise the need for developing a novel generation of materials that will combine both weight reduction and safety issues.

Throughout this work, the applicability of Grapheme-based polymer composite materials is discussed regards to the fulfilment of these requirement. In this projectis to make the miniature bike and understand the design of bike. And these objectives are fulfilled in this project. We get more experience while doing this project we get opportunities to work with various machines like welding machine, bending machine, drilling machine, lathe machine so it gave various knowledge about the machines we have search various chassis design for this project and finally we have designed new chassis and we analysed this chassis design in ANSYS. This design good load withstands capacity and this withstand 300 kg load without any difficulties and we have got better experience in welding the object while doing chassis welding.

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