

## Analysis of the Suspension Rocker of Formula SAE Prototype by Finite Element Method

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**Abstract :** This work aims to study the rocker. This is a device of the suspension of Formula SAE vehicle that receives efforts from the motion scrolling of the vehicle and transmits them to the chassis frame minimized by a momentum ratio and smoothed by the set spring - damper. A review of parameters used in vehicle dynamics and a geometric analysis of the forces and stresses caused by such was carried out. The main function of the rocker is to reduce the force transmitted to the frame due to movement of rolling and subsequent application of the suspension. This functions is taken as satisfactory, since the force applied to the wheel and which would be transmitted to the chassis is reduced from 3833.9N to 3496.48N. From these values can be further more detailed simulations using the finite element method aimed at mass reduction or even rocker manufacturing feasibility aluminum. Then, the analysis by the finite element method was applied. This analysis uses the theory of discretization of systems and examines the strength of the component based on the distortion energy, determining the maximum straining experienced by the component and the region of higher demand.

**Keywords :** rocker, suspension, the finite element method, mechatronics engineering

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