

Senior Design Chippewa Racing Formula SAE

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Abstract

Formula SAE is a student design competition that allows students to gain real work experience in the automotive industry. The Formula SAE team at Central Michigan University needed a new design for the rear suspension that is adjustable and includes anti-roll capabilities for the 2016 car. For a Formula car, the purpose of the suspension is to improve traction and dynamic vehicle performance. Design considerations include components that are lightweight, compact, and strong enough to withstand heavy forces the car will feel when on the track.

The project aimed to research and develop a rear suspension system that would perform better than last year's car by incorporating existing technologies to improve handling. The main focus is the addition of an anti-roll bar, which is used to reduce body roll during cornering.

Completion of the project has seen the design and implementation of the A-arms, cantilever and pushrods, shocks, and roll bar, which in total make up the suspension system. With the new suspension on the 2016 car, the weight distribution of the car will be more balanced and the tires will remain in contact with the road for better handling during competition.