

# Automatic Toe Angle Adjustment of Vehicles: A Comprehensive Review

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**Abstract:** *The toe angle automatic adjustment system has shown up as a groundbreaking technology in automotive engineering to improve the performance, stability, and tire life of vehicles. This review integrates the advancements in dynamic toe mechanisms within modern suspension systems, autonomous vehicles, and electric platforms. Technologies that allow for real-time modification for optimal vehicle handling and fuel efficiency include sensor-based control, electromechanical actuators, and artificial intelligence. Applications include off-road systems, racing automobiles, and passenger cars. The advantages of these systems include improved cornering stability, reduced tire wear, and energy savings. Despite all these improvements, sensor calibration, cost of the system, and environmental durability are some of the persistent challenges. The paper reflects research trends such as the use of AI-driven predictive systems and adaptive controls for different terrains and highlights the gap in the study of long-term performance. Comparative analysis of the existing technologies indicates trade-offs between accuracy, cost, and implementation feasibility. A review of this nature is an insight into how automatic toe angle adjustment could be the answer to meeting the demands of modern automobiles*

**Keywords:** Dynamics of the vehicle, Real-time control, Sensor-based control, Toe Angle, Vehicle stability