

Comparative Review of Movable Headlight with Steering Mechanism in the Indian Auto Industry

**Dr. Keshav Arote, Sukate Bhushan Ramdas, Turkane Shantanu Anil,
Sonawane Yash Punjahari, Tanpure Viraj Vinayak**

Department of Mechanical Engineering
Amrtvahini Polytechnic, Sangamner, Maharashtra, India

Abstract: *Movable headlights integrated with steering mechanisms, also known as Adaptive Front-lighting Systems (AFS), have significantly enhanced vehicle safety and night-driving visibility. In the Indian automotive market, where infrastructure and road conditions vary widely, these systems offer critical safety improvements. This paper presents a comparative review of AFS systems deployed in Indian vehicles, focusing on technical architecture, cost-effectiveness, benefits, challenges, and manufacturer-wise implementation. The study identifies current gaps and suggests future directions for widespread integration of this safety technology. The methodology includes comparative tables, market trend reviews, manufacturer-specific feature analysis, expert interviews, and observational studies to ensure a thorough and research-driven evaluation*

Keywords: Movable Headlight, Steering Synchronization, Adaptive Lighting, Vehicle Safety, Dynamic Illumination

