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(57) Abstract :
Abstract: The Four-Wheel Non-Interaction Navigation System and Method represents a novel advancement in automotive engineering aimed at enhancing vehicle maneuverability and control. This system innovatively rotates all four wheels independently to minimize the turning radius, facilitated by integrated sensors, actuators, and an electronic control unit (ECU). By converting analog user inputs to digital signals, the ECU manages various steering modes, including two-wheel and four-wheel configurations tailored for high-speed and low-speed driving scenarios. Independent motor control enables precise steering mechanisms, offering superior navigation control. This paper outlines the system's operational phases, advantages over conventional steering systems, and its potential for cost-effective integration across diverse vehicle types, emphasizing its relevance for optimizing vehicle performance in varied driving conditions.

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