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(57) Abstract :
The present invention discloses an integrated, always-on vehicle monitoring system, herein referred to as the Next-Generation Car Monitoring System (NGCMS), designed to enhance vehicular safety, security, and operational efficiency. The system comprises a unified core processing unit (U-CPU) that governs multiple AI-enabled subsystems including a 360-degree proximity monitoring module, dual-mode battery health unit, anti-theft subsystem, and driver state inference engine. The invention leverages edge AI models, IoT communication, encrypted mobile integration, and a blockchain-based data logger to enable real-time threat detection, predictive diagnostics, and ignition control. The system remains operational regardless of vehicle state—moving, idle, or parked—and provides alerts and analytics through a secure mobile application. Novel features include a passive breath analysis port, tamper-resistant architecture, and federated AI learning across vehicular networks. The invention offers a comprehensive solution for modern automotive monitoring and autonomous safety response.

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