Automobile

Deep Learning-Driven QoS Optimization in Vehicular Systems
Technology Domain: Automobile
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Technology Summary: This invention introduces an advanced system for enhancing Quality of Service (QoS) in vehicular communication networks. The core technical solution employs a deep learning model to predict QoS, optimize Roadside Unit (RSU) and drone deployment, and implement an AI-based adaptive resource allocation. Its key inventive feature is the dynamic reallocation of network resources: when an RSU or drone faces QoS degradation, available resources from neighboring RSUs are pooled into a Virtual Shared Resource Pool (VSRP) on an edge server. This server then intelligently allocates these resources to the affected entity, prioritizing critical services. This proactive, context-aware approach ensures seamless, high-quality communication by mitigating interference and adapting to dynamic network conditions. The system is crucial for future 5G+ vehicular networks, supporting autonomous driving and emergency services.