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(57) Abstract :
The present invention introduces a system for Internet of Vehicles (IoV) authentication and communication. The system comprises blockchain-enabled Roadside Units (RSUs) responsible for performing authentication. Layer 1 devices equipped with Physically Unclonable Functions (PUFs) engage in lower-level authentication utilizing a challenge-response pair gaming technique. Controller nodes, including specialized RSUs or high-end traffic control stations, communicate via a local blockchain and employ a duel game technique for layer 2 and layer 3 authentications. The system further leverages cloud storage to enhance cross-trusted authority authentication and overall efficiency. By combining these elements, the system enables efficient and secure authentication, providing a comprehensive solution for IoV authentication and communication needs.

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