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Blockchain in Cyber Security for Autonomous Vehicles

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The Autonomous Vehicles (AVs) are embedded with dozens of electronic units and sensors heavily reliant on vehicle's software systems for their secure and reliable operations. This software system must stay updated for providing a secure and uninterrupted service to AVs. While the automated OTA (Over-The-Air) software and firmware updates for AVs is essential for their safe operation, the potential system failure and cybersecurity threats remain a major concern for secure OTA update. In this regard, we introduce a blockchain-based, highly adaptable solution for keeping the autonomous vehicles OTA software systems updated while offering high level of security against possible cyber-attacks. Our proposed scheme ensures that only authorized OEM (Original Equipment Manufacturer) can upload new software and updated versions in the cloud, and only the certified vehicles download and install the updates. Our framework guarantees a faster, scalable, and multi-factor authentication system for a secure real-time software update service for AVs.