# Reputation Framework for VANETs from Blockchain Structure

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## Abstract

This paper presents a reputation framework for Vehicular Ad-hoc NETworks (VANETs). VANETs enable vehicles to share sensitive data, including position, speed, and steep-curves warnings, in real-time, with other vehicles to avoid potential dangers and deliver a comfortable drive. VANETs need to establish a secured environment for the users to communicate trusted information between trusted network entities to achieve these goals. Thus trust management in VANETs is a prominent research topic. VANETs with a reputation framework is one of the solutions to resolve the trustworthiness problem [1, 2]. The state of the art includes two types of solutions; entity-based and event-based. Recently, Tian et al. [3] merged them to a single framework. However, existing reputation frameworks still barricade users trusting them due to the centralization. We answer this single point of failure problem by adapting the blockchain structure. Decentralization, distributed ledger system, and smart contract mechanism of blockchain improve the trust level of VANETs. We propose a reputation framework without a man in the middle by employing blockchain technology. We enable vehicles to accept messages based on the messages' and senders' reputation levels. On the other hand, VANETs' nodes can assign reputation value to the received messages and the senders. The blockchain architecture ensures the visibility of reputation updates and their immutability.

## References

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