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RESEARCH ARTICLE

A trustworthy data collection approach from sensor nodes using trust score of mobile vehicles for smart city

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Abstract

In smart cities, a substantial amount of data is collected for analytics and a better life for the citizens. The schemes based on data collection through mobile vehicles (MV) and further verification of that data through unmanned aerial vehicles (UAV) are popular. Many trust-based schemes of the MV have been proposed recently. However, these schemes suffered from recognition accuracy, judgment trust, and collusion attack problems. In this paper, we propose a Gompertz function-based trust evaluation scheme. In this scheme, the direct trust of the MV is computed by comparing the data provided by the MV and the same reported by the UAV. Since the UAV can collect only limited data, indirect trust of the vehicle is computed by comparing the data reported by the MV and the same reported by the MV having the highest trust. We also applied the variable trust, which considers the recent Trust of the MVs. Then, combining all these trusts with significant weight, the final trust score of the MV is computed. After experimenting, our proposed scheme is more credible and removes the shortcomings of the existing methods by providing better recognition, accuracy, judgment, and trust.

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