عنوان مقاله:

Binary particle swarm optimization routing using spanning tree in Vehicular Ad hoc Network

محل انتشار:

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خلاصه مقاله:

Strong routs in which all nodes are connected to each other are required to perform a reliable and efficient routing in Vanet. Classical algorithms in graphic theory can only find one optimal spanning tree in Vanet. Swarm intelligence examples are capable of achieving several alternatives for the minimum spanning tree, which is helpful in improving the reliability of Vanet. To cope with the problem of building a spanning tree, this paper proposes a particle swarm optimization algorithm encoded with a binary system. The proposed algorithm is used for coping with the roadside communications with the vehicle.The success rate and the average runtime of this algorithm to find the minimum spanning tree are analyzed by MATLAB simulator. We realize that the binary particle swarm optimization algorithm is very likely to find the minimum spanning tree. Although in terms of the computational time, this algorithm performs slower than Kruskal algorithm, the binary particle swarm optimization algorithm can achieve multiple optimal spanning trees at once. This indicates that this algorithm will be useful in situations where without changing the network topology, the routes of the tree must be continuously rebuilt in a short period. In this paper, we could enhance the Delivery Ratio, Available ST, Computational Time, and Average Computational Time.

کلمات کلیدی:

VANET (Vehicular ad hoc network), Minimum Spanning Tree, Particle Swarm Optimization Algorithm, Binary Optimization Algorithm

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