عنوان مقاله:

Hybrid Algorithm for Efficient node and Path in Opportunistic IoT Network

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خلاصه مقاله:

Opportunistic networks in the Internet of Things (IoT) scenario, also known as OppIoT, espouse IoT devices interactions opportunistically in order to improve connectivity, the lifetime of the network, and network reliability. An increase in opportunistic utilization is fostered by IoT applications to find communication opportunities whenever possible to route and deliver data efficiently. In this opportunistic scenario, devising an efficient path for data delivery is a challenging work due to uncertainty in the connection between the nodes and the selection of intermediate forwarder nodes for data delivery towards the destination. Considering the scenario of uncertainty in device location and exploiting IoT devices opportunistically, this paper propounds a routing algorithm for OppIoT called Hybrid Multi-Copy Routing Algorithm (HMCRA). The proposed algorithm finds potential forwarder nodes by using fuzzy logic wherein residual energy, distance, and speed of the nodes are considered as input values while preparing fuzzy rules. Genetic Algorithm (GA) is considered along with fuzzy logic to select an efficient path for data delivery. In GA, the delay is taken as the fitness function to select a reliable path for data delivery. Simulation results of the proposed algorithm perform well in contrast with relative existing routing algorithms with respect to latency, overhead ratio, delivery probability, and hop count. The work uniqueness lies in the selection of potential nodes and finding path having less hop count in an opportunistic IoT network scenario.

کلمات کلیدی:

boundary, Fitness function, Fuzzy logic, Genetic Algorithm, IOT, Multi-copy routing

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