Abstract

The geographical routing for IEEE 802.15.4a standard is targeted towards providing an infrastructure for ultra-low complexity, ultra-low cost, ultra-low power consumption, and low data rate wireless connectivity among inexpensive devices. Existing interference aware graphical routing methods have shown to reduce energy consumption with increase in data delivery ratio. This paper presents a modification in interference aware energy efficient graphical routing for IEEE 802.15.4a networks. Using localized update policy, the number of computations required is reduced for finding the optimal energy efficient route to destination. Simulation results show that the proposed scheme can achieve same performance as the existing topology in terms of route length and delivery ratio. Due to reduction in number of computations the overall energy consumption of the network is reduced. Reduction in complexity, computations and energy consumption make the proposed scheme useful for achieving low-power consumption, low cost solutions for IEEE 802.15.4a networks.

References

- ZigBee Alliance, "ZigBee Specification", online at http://www.zigbee.org,
Reducing Computation Complexity in Interference-aware Energy-efficient Geographical Routing for Low Rate Wireless Personal Area Networks


Index Terms

Computer Science

Wireless Networks

Keywords

Energy efficient topology  Geographical routing  Interference  IEEE 802.15.4a
Reducing Computation Complexity in Interference-aware Energy-efficient Geographical Routing for Low Rate Wireless Personal Area Networks