Efficient Routing in Zigbee Wireless Network using Shortcut Tree Routing

Abstract

Zigbee Tree Routing, which doesn’t need any routing table/route discovery overhead is used in several resource limited devices and applications. ZTR has a basic limitation regarding providing of optimal routing path as it follows tree topology, hence an optimal routing path can’t be achieved. In this paper, we proposed a protocol stated as Shortcut Tree Routing (STR) similar to ZTR’s entities, such as low memory consumption, no route discovery overhead, providing nearest optimal routing path using hierarchical addressing scheme and calculating the remaining hops from source to destination. The specifications are unaltered, as STR uses just the addressing scheme and neighbor table in association with the Zigbee standards. The research process illustrates the 1-Hop neighbor communication representation upgrades the overall network performance execution by splitting up of the traffic load concentrated on the tree links. The performance evaluation indicates, STR accomplishes the performances of AODV and ZTR in certain conditions of it, such as network density, configurations and network traffic patterns.

References
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Routing in ZigBee Wireless Networks; IEEE Transactions on Parallel and Distributed systems, vol. 25, no. 3, March 2014.

Index Terms

Computer Science Networks

Keywords

ZTR- Zigbee Tree Routing STR- Shortcut Tree Routing neighbor table MANET

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