

Performance Study of ZigBee-Based Wireless Sensor Networks

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Abstract : The IEEE 802.15.4 standard is designed for low-rate wireless personal area networks (LR-WPAN) with focus on enabling wireless sensor networks. It aims to give a low data rate, low power consumption, and low cost wireless networking on the device-level communication. The objective of this study is to investigate the performance of IEEE 802.15.4 based networks using simulation tool. In this project the network simulator 2 NS2 was used to several performance measures of wireless sensor networks. Three scenarios were considered, multi hop network with a single coordinator, star topology, and an ad hoc on demand distance vector AODV. Results such as packet delivery ratio, hop delay, and number of collisions are obtained from these scenarios.

Keywords : ZigBee, wireless sensor networks, IEEE 802.15.4, low power, low data rate

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