

Evaluation of A Mesh Network based on LoRa Technology

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Abstract—In the last decade, the Internet of Things (IoT) technologies have brought many applications in different fields. Many communication technologies have been developed to communicate everything to each other and the Internet. Besides, the long-range power-efficient wireless technologies have emerged, such as LoRa (Long Range), which enables transmission over long distances with low energy consumption and can work within p2p, star, or mesh topologies. In this paper, we analyze a model of a mesh network based on the LoRa technology. The model considers various parameters of nodes and communication channels in the network. Based on a simulation model on OMNET++, a series of computer experiments are performed to analyze the delivery latency and packet delivery ratio (PDR) in different cases. According to the analytical results, conclusions are drawn about the possibility of using a LoRa mesh network to expand the network coverage and integrate with other short-range networks.

Keyword— IoT, LoRa, mesh network, routing method, latency, packet delivery ratio



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