

Adaptive Routing Protocol for Reliable Sensor Network Applications

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Abstract- The existing routing protocol for sensor networking can be divided into proactive routing protocol, reactive routing protocol and hybrid routing protocol. Each routing protocol has its merits and shortcomings. The lifetime will end when the working routing protocol can no longer support the whole wireless sensor network. An adaptive method based on redundancy node and dual routing protocol was proposed in the study. Redundancy node, when wireless sensor network is being deployed, can divide the wireless sensor network into operating and sleeping modes, and can use the different routing protocol. Dual routing protocol individually designs two kinds of different routing protocols in the sensor node, using the merits of these two different kinds of routing protocols to accomplish the mission of sending the data. The scenario set up is when the wireless sensor network has been used for a long time; the power kept in these sensor nodes is different. It is possible that some sensor nodes contain lower power because the heavy load of work, and some with more power because of less work load. After we send a query to the source node and unfortunately find out there is more than one wireless sensor in the routing path, and if there is power shortage, we can only query a message to send the sink to the source node. At the meantime, the source node will judge the storing condition of the power in all the sensor nodes when sending the query from the sink to the source node. Then the target wireless sensor will send a broadcast to all the neighbors. If there is a sleeping node in the neighbor and run a second kind of routing protocol, the sleeping wireless sensor will wake up. The woken sensor node will build up a path to ensure the data get sent from the source to the sink. Simulation results showed that the proposed mechanism is about 44% of packet delivery ratio can be increased compared to existing proactive/reactive routing protocol.