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ABSTRACT

To accomplish fast and location error independent and energy-efficient message delivery in wireless ad hoc and sensor networks, I propose Probabilistic Energy aware Geographic Routing (PoEGR), a simple geographic routing protocol. PoEGR is reliable routing protocol in that nodes do not need to set up or maintain routing or neighbour tables; instead, PoEGR routing via its “Angled Probabilistic Relaying” mechanism and uses the “Back off time and relay termination” mechanism to reduce contention and the number of retransmissions. One of the main features of PoEGR is a message based implicit ACK mechanism where a relayed message is used as an implicit ACK to a previous sender. Instead of the neighbour selection closest to the destination, the new architecture selects the neighbour with the best trade-off between link outlay and nearness.

We provide an algorithm and extensive analysis of PoEGR in terms of average delay, throughput, number of retransmission and path length per hop. Simulation results also show that PoEGR outperforms other protocols in terms of average delay, throughput and number of transmissions per message delivery.