MAC Protocols for GSP in Wireless Sensor Networks

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Abstract

The Gossip-based Sleep Protocol (GSP) is a routing protocol designed to save energy in Wireless Sensor Networks. This work presents two MAC protocols designed to complement the characteristics of GSP: MACGSP1 and MACGSP2 were evaluated in combination with GSP on square grids of 100, 400 and 900 simulated nodes. Both protocols show increased energy savings compared to GSP by itself. MACGSP1 provided the greatest energy savings, however MACGSP2 exhibited the best trade off between overhead, delay and packet reception probability. MACGSP2 reduces the duplicate packets generated by GSP, with no significant difference in end-to end delay and a reduced GSP packet reception probability of 10%.