Abstract

Energy conservation is a very critical issue in wireless sensor networks. Energy consumption in WSN occurs in three domains: sensing, data processing, and communications. Among these, radio communication consumes more energy. MAC protocols play a vital role in controlling the energy consumption in a WSN. It tells the network when and how to access the medium. In this paper a TDMA based MAC protocol is used to conserve the energy in wireless sensor networks.
which is used in an irrigation system. Here the base station is collecting the moisture level and temperature of the soil in a particular area of the fields using the sensor nodes which are deployed over there. Each node is assigned with a unique address and the sink/base station will decide which node to send the data (temperature and moisture level of the soil) at a particular interval of time by sending the address of that node. Only the addressed node is sending data during that allotted time and all other nodes will be in an idle state. Based on the data collected from each node the sink/base station will inform the controller by setting the corresponding bit in it. In this paper two algorithms based on TDMA scheduling is used. First one is a single hop method. Second method uses data aggregation method in which a considerable amount of energy can be saved. From the analysis and simulation it is observed that aggregation method is saving more amount of energy compared to the single-hop method.

Reference

- Nikolaos A. Pantazis a,d, Dimitrios J. Vergados b, Dimitrios D. Vergados a,c,* , Christos Douligeris “Energy efficiency in WSN using sleep mode TDMA scheduling” in science direct Ad Hoc Networks 7 (2009) 322–343
49–53.

Index Terms

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tDMA scheduling
wireless sensor networks
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