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SCHEMES FOR THE ANALYSIS OF RECHARGEABLE NODES IN WIRELESS SENSOR NETWORKS

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ABSTRACT:

Wireless Sensor Networks (WSNs) are popular nowadays for applications ranging from environmental monitoring to object tracking and surveillance. But the sensors which are deployed are energy constrained. The nodes in WSNs deplete of their very limited energy over time. In this work, we consider a network of rechargeable sensors deployed in a random sensing environment. Using Markov Decision Processes (MDP), we analyze the sensor nodes having different levels of energies in the batteries, so as to maximize a generalized system performance in terms of recharge delay and the number of sensor nodes recharged. We have formulated a relationship between the residual energy level of a sensor node and the recharge delay. The simulation results establish the effectiveness of our approach in decreasing the number of passive nodes and the recharge delay in WSNs.

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