Abstract

The design of energy harvesting device is main part of MAC design. Recently the efficient method for energy harvesting (EH) device design for MAC protocols of WSN is studied. Practically this method proven its efficient in terms of delivery ratio as well as energy consumption. This approach is focused on system-level considerations for networks operating with EH devices, by addressing the analysis and design of medium access control (MAC) protocols for single-hop wireless sensor networks, where a fusion center (FC) collect the data from sensors in its surrounding. Specifically, we investigate how performance and design of MAC protocols routinely used in WSNs, such as TDMA, framed-ALOHA (FA) and dynamic-FA (DFA). The energy efficiency is improved by using this MAC protocol with energy harvesting. However we can still further improve this method of energy harvesting with MAC protocol by introducing the use of energy efficient routing protocols along with link adaptation technique. Efficient routing algorithm can save a significant amount of energy in a network where routing occurs frequently. In WSN, routing protocols also plays important part for efficient energy utilization. In this paper we are further extending this energy efficient design of EH device for MAC protocols by adding dynamic link adaptation technique and the energy efficient routing protocol to it.
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