Abstract

In Wireless Sensor Networks (WSNs), congestion plays an important role in degrading the performance of the network. Under idle condition, the network load is very low whereas when an event is detected the network load becomes high which leads to congestion. Due to congestion the overall performance of the network degrades. Hence it is necessary to detect and control congestion. In this paper an efficient technique to detect and control congestion has been proposed. The congestion is detected by calculating a metric called Congestion Degree (Cd). It is the ratio between packet inter arrival time and packet inter service time. Once the congestion is detected, it is notified using Implicit Congestion Notification (ICN) signaling. On receiving the congestion notification signal, the transmission rate is controlled in order to reduce congestion. Further congestion control is implemented using Fuzzy Logic Controller. The performance of the network is measured for delivery ratio with different transmission rate and the PDR is compared with CODA.

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IFCCDC: A Fuzzy Control based Congestion Detection and Control in Wireless Sensor Networks


Index Terms

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Keywords

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