WSN Fairness Model

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1 Introduction

This is a model of a Wireless Sensor Network(WSN) using Petri Nets. The model represents true fairness implementation in wireless sensor networks.

The WSN has 20 Nodes and a Base Station. Every Node has equal probability of becoming an cluster head hence enforcing true fairness.

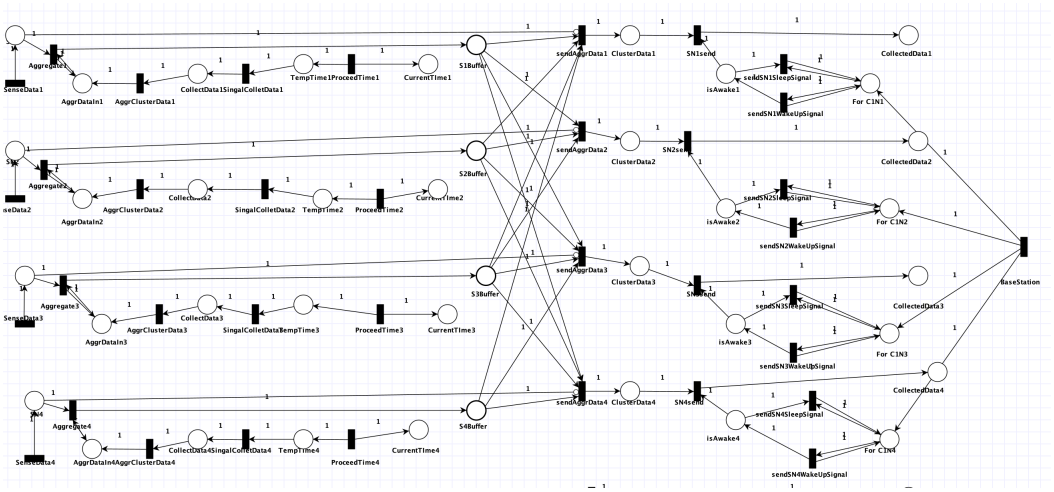

Figure 1: A Cluster

2 Implementation

"Every sensor node has the embedded capability of signalling data collection, aggregation and transmission." "The model has 5 clusters having 4 nodes each. Every Sensor node can potentially become a Cluster head in a deterministic and fair way." "The Base Staton(BS) resembles an monitoring control centre to gather statistics on the received information.

The Base Station could trigger a Aggregation cycle and could select a Cluster Head(CH) wherein the CH forwards the aggregated data.

The Aggregated data is buffered in the K-bounded Buffer(5) in the cluster before transmissions.

The Base Station collect the data as Collected-Data."

3 True-fairness

"The Base Station has the Capability of choosing a CH from each cluster. In this model each cluster has 4 nodes so the probability of a node from a cluster to become a CH is $1/4 = 0.25$. Hence enforcing True-fairness."

4 Conclusion

"Implemented Wireless Sensor Networks in Petri Nets with True Fairness" [1]

References

[1] S.Murugaanandam and V.Ganapathy Banerjee, Heerok. *BLow-EnergyAwareRout- ing Mechanism for Wireless Sensor Networks.* International Journal of Engineering Research in Computer Science Engineering (IJERCSE) 5.1 (2018): 112-117.