

**A MIXED TRANSMISSION STRATEGY TO ACHIEVE
ENERGY
BALANCING IN WIRELESS SENSOR NETWORKS**

MICANS INFOTECH

ABSTRACT

- In this paper, we investigate the problem of energy balanced data collection in wireless sensor networks, aiming to balance energy consumption among all sensor nodes during the data propagation process. Energy balanced data collection can potentially save energy consumption and prolong network lifetime, and hence it has many practical implications for sensor network design and deployment.
- The traditional hop-by-hop transmission model allows a sensor node to propagate its packets in a hop-by-hop manner towards the sink, resulting in poor energy balancing for the entire network. To address the problem, we apply a slice-based energy model, and divide the problem into inter-slice and intra-slice energy balancing problems.



CONT...

- We then propose a probabilitybased strategy named Inter-slice Mixed Transmission protocol and an Intra-slice Forwarding technique to address each of the problems. We propose an Energy-balanced Transmission Protocol by combining both techniques to achieve total energy balancing.
- In addition, we study the condition of switching between inter-slice transmission and intra-slice transmission, and the limitation of hops in intraslice transmission. Through our extensive simulation studies, we demonstrate that the proposed protocols achieve energy balancing, prolong network lifespan, and decrease network delay, compared with the hop-by-hop transmission and a cluster-based routing protocol under various parameter settings.



EXISTING SYSTEM

- The energy balancing problem in wireless sensor networks was first introduced, which studies the energy balancing property and proposed an energy-balanced algorithm for sorting in wireless sensor networks.
- Inspired by this work, several works extend to study the energy balance problem in data propagation, based on the slice-based network model as same as our work. Proposed a slice-based transmission protocol with two strategies: nodes send data directly to the sink, and nodes forward data to the next slice.

MICANS INFORMATICS



PROPOSED SYSTEM

- To evaluate the performance of our proposed protocols, we compare with the hop-by-hop transmission and a cluster-based routing algorithm through comprehensive simulations.
- Several different metrics are used to measure the performance, including network lifespan, energy balance, delivery delay and energy efficiency. The results show that our proposed protocols perform better than the compared algorithms in all aspects.



HARDWARE REQUIREMENTS

- Processor - Pentium-IV
- Speed - 1.1 Ghz
- RAM - 256MB(min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

MICANS INFOTECH



SOFTWARE REQUIREMENTS

- Tool - Network Simulator-2
- Operating system - LINUX
- Front end - OTCL (Object Oriented Tool Command Language)

MICANS INFOTECH



REFERENCES

- [1] I. Stojmenovic, Handbook of sensor networks: algorithms and architectures. John Wiley & Sons, 2005, vol. 49.
- [2] A. Mainwaring, D. Culler, J. Polastre, R. Szewczyk, and J. Anderson, “Wireless sensor networks for habitat monitoring,” in Proceedings of the 1st ACM international workshop on Wireless sensor networks and applications, ser. WSNA '02. New York, NY, USA: ACM, 2002, pp. 88–97.
- [3] K. Lu, Y. Qian, D. Rodríguez, W. Rivera, and M. Rodríguez, “Wireless sensor networks for environmental monitoring applications: A design framework,” in GLOBECOM, 2007, pp. 1108–1112.

MICANS INTECH

