Sleep Forecast Algorithm to Enhance Energy Consumption

Rahul Raj G

Department of Electronics and Communication Engineering,
SVSSCM College, Tamil Nadu

Abstract:

WSN is an energy constrained network whose lifetime is depending on the energy of nodes. Nodes in the network spends energy for event detection and data transmission. It is necessary for the sensor nodes to conserve energy to extent the network life time. The energy required to sense events is typically a persistent and cannot be controlled. By placing nodes to sleep when there are no events, the energy consumption of the sensor nodes can be considerablycondensed. This paper gives the review of sleep scheduling algorithm in WSN.

Keyword: Wireless Sensor Network(WSN), Energy, Sleep Scheduling Algorithm

I. Introduction:

To extend the lifetime of these energy-constrained wireless sensor networks Sleep–wake scheduling is an effective mechanism. Some of sensor nodes. The principle mechanism in sleep scheduling is nodes in network scheduled to keep subset of nodes to be awake for particular time while remaining nodes are in sleep sate[1][2]. In order to conserve battery power and to prolong the network lifetime, some sleep scheduling are employed in the networked sensor nodes.[3][4]

Sleep scheduling is a widely used and cost effective technique to save energy in WSNs. Recently, the research focus of geographic routing is centering on WSNs with duty- cycles, since duty-cycled WSNs have a natural advantage of saving energy by dynamically putting nodes to sleep and waking them according to some sleep scheduling algorithms[5][6]

Pre-Development-based K-coverage Assembly Development:

Author [7] proposed the Pre-Scheduling-based K-coverage Group Scheduling (PSKGS) to enhance network life time by detected unwanted active sensor nodes, besides Self-Organized K-coverage scheduling to keep the sensor

in active mode or in sleep mode considering the neighboring nodes for each sensor.

Geographic-distance based connected-k neighbored:

Chunsheng Zhu et.al proposed two geographic-distance based connected-k neigh- borhood (GCKN) nap scheduling processes. The initial one is the topographical- distance created connected-k district for first path1 (GCKNF) sleep arrangement system, aiming at geographic steering utilizing individual the original show path in duty-cycled movable WSNs. The subsequent one is the geographic-distance built connected-k district for all paths2 (GCKNA) sleep development algorithm, for terrestrial routing re all paths discovered in duty-cycled portable WSNs [8]

Low Power Mode Algorithm:

Nikos Pogkas et.al proposed low power mode algorithm to minimize power consumption by turning of the nodes idle during no communication in the network. Nodes cannot receive any packets during sleep state and all the nodes periodically enters into sleep state to ensure required communication[9]

Any cast packet- forwarding:

an any cast packet- forwarding structure to lessen the event-reporting interruption and to protract the generation of and engaging asynchronous sleep–wake scheduling.

Two methods are addressed by the authors are wake-up rates of the radar protuberances and distributed algorithm to minimize the probable event-reporting delay from all sensor nodes to the hand basin. Second, using a specific definition of the m to optimally control the sleep– wake scheduling policy and the any cast policy in orderto make best use of the grid lifetime focus to an upper limit on the expected end-to-end delay. The advantages are sleep/wake scheduling for low duty-cycle sensor networks, consider synchronization error, achieve given

capture probability threshold with min energy consumption.[10]

Conclusion:

Many of the researchers adapted Sleep wake up Scheduling algorithm to except sensor lump get-up-and-go to overcome liveliness conservation problem. Snooze arrangement apparatus is one of the top technique to overcome energy constrain problem in radiocommunication Sensor System.

References:

[1]   S. Mini, S. K. Udgata, and S. L. Sabat, "Sensor deployment and scheduling for target coverage problem in wireless sensor networks," *IEEE Sens. J.*, vol. 14, no. 3, pp. 636–644, 2014.

[2]   C.-C. Han, R. Kumar, R. Shea, E. Kohler, and M. Srivastava, "A dynamic operating system for sensor nodes," in *Proceedings of the 3rd international conference on Mobile systems, applications, and services. ACM, 2005.*, 2005, p. 163.

[3]   R. Umashankar M L, M.V, "Optimization Techniques in Wireless Sensor Networks," *Bonfring Int. J. Res. Commun. Eng.*, vol. 6, no. Special Issue, pp. 83–84, 2017.

[4]   D. Dong, S. Member, I. C. Society, and X. Liao, "Edge Self-Monitoring for Wireless Sensor Networks," *IEEE Trans. PARALLEL Distrib. Syst.*, vol. 22, no. 3, pp. 514–527, 2011.

[5]   K. Dhull, S. Kumar, A. Ahlawat, and S. Dahiya, "Lifetime Enhancement in Wireless Sensor Networks A Theoretical Review," *Int. J. Comput. Sci. Eng.*, vol. 6, no. 11, pp. 784–789, 2018.

[6]   J. Luo, J. Hu, D. Wu, R. Li, and S. Member, "Opportunistic Routing Algorithm for Relay Node Selection in Wireless Sensor Networks," *IEEE Trans. Ind. INFORMATICS*, vol. 11, no. 1, pp. 112–121, 2015.

[7]   I.-S, "Pre-Scheduled and Self Organized Sleep-Scheduling Algorithms for Efficient K - Coverage in Wireless Sensor Networks," *Sensors*, pp. 1–25, 2017.

[8]   C. Zhu, S. Member, L. T. Yang, and L. Shu, "Sleep Scheduling for Geographic Routing in Duty-Cycled Mobile Sensor Networks," *IEEE Trans. Inustrial Electron.*, vol. 0046, no. c, pp. 1–10, 2014.

[9]   N., Kalaiarasu, "Architecture Design and Implementation of an Ad-Hoc Network for Disaster Relief Operations," *IEEE Trans. Ind. Informatics*, vol. 3, no. 1, pp. 63–72, 2007.

[10]   R. Manirajan and K. R. Sathishkumar, "Sleep / Wake Scheduling for Target Coverage Problem in Wireless Sensor Networks," *Int. J. Adv. Res. Comput. Commun. Eng. Vol.*, vol. 4, no. 3, pp. 400–405, 2015.