

DAFTAR PUSTAKA

- [1] R. Frank, *Understanding Smart Sensors*, 2nd ed. Boston: Artech House sensor library, 2000.
- [2] R. Martin, "Sensor Basics : Types , Functions and Applications," *EDN Network*, Sep-2013.
- [3] Y. Tian, Y. Wang, R. Song, and H. Song, "Accurate Vehicle detection and counting algorithm for traffic data collection," *2015 Int. Conf. Connect. Veh. Expo, ICCVE 2015 - Proc.*, pp. 285–290, 2016.
- [4] M. Kraft, M. Jakusch, and B. Mizaikoff, "A miniaturised Fourier-transform infrared spectrometer for seawater monitoring," *IEEE Ocean. Eng. Soc. Ocean. Conf. Proc. (Cat. No.98CH36259)*, vol. 3, p. 726378, 1998.
- [5] J. Yick, B. Mukherjee, and D. Ghosal, "Wireless sensor network survey," *Comput. Networks*, vol. 52, no. 12, pp. 2292–2330, 2008.
- [6] J. Zheng and A. Jamalipour, *Wireless Sensor Networks: A Networking Perspective*. Piscataway, New York, 2008.
- [7] D. J. Cook and S. K. Das, "Wireless Sensor Networks," in *Smart Environments: Technologies, Protocols, and Applications*, vol. 1, no. 2, Hoboken, New Jersey: John Wiley & Sons, 2005, pp. 13–46.
- [8] J. N. Al-Karaki and A. E. Kamal, "Routing Techniques in Wireless Sensor Networks: A Survey," *IEEE Wirel. Commun.*, vol. 11, no. 6, pp. 6–28, 2004.
- [9] S. K. Singh, M. P. Singh, and D. K. Singh, "Routing protocols in wireless sensor networks -A Survey," *Int. J. Comput. Sci. Eng. Surv.*, vol. 1, no. 2, pp. 63–83, 2010.
- [10] R. S. Bisht and S. K. Budhani, "Performance Analysis of Hierarchical and Nonhierarchical Routing techniques in Wireless Sensor Networks," *Soft Comput. Tech. Eng. Technol. (ICSCCTET), 2014 Int. Conf.*, pp. 1–8, 2014.
- [11] W. R. Heinzelman, A. Chandrakasan, and H. Balakrishnan, "Energy-efficient communication protocol for wireless microsensor networks," *Proc. 33rd Annu. Hawaii Int. Conf. Syst. Sci.*, vol. 0, no. c, pp. 1–10, 2000.
- [12] S. Lindsey and C. Raghavendra, "PEGASIS: Power efficient Gathering in sensor information systems," *Proceeding IEEE Aerosp. Conf.*, vol. 3, pp. 1125–1130, 2002.
- [13] O. Younis and F. Sonia, "HEED: A Hybrid, Energy-Efficient, Distributed

- clustering approach for ad hoc sensor networks,” *IEEE Trans. Mob. Comput.*, vol. 3, no. 4, pp. 366–379, 2004.
- [14] P. Divya and S. Shivkumar, “Comparison of GSTEB, HEED and PEGASIS Protocols,” in *Proceedings of the 2016 IEEE International Conference on Wireless Communications, Signal Processing and Networking, WiSPNET 2016*, 2016, pp. 1935–1939.
- [15] D. Aj and R. Mishra, “Review Paper on Hierarchal Energy- Efficient Protocols in Wireless Sensor Networks,” *Int. J. Adv. Res. Comput. Sci. Softw. Eng.*, vol. 4, no. 6, pp. 262–266, 2014.
- [16] H. Junping, J. Yuhui, and D. Liang, “A time-based cluster-head selection algorithm for LEACH,” *Proc. - IEEE Symp. Comput. Commun.*, pp. 1172–1176, 2008.
- [17] Z. Liu and Z. Liu, “A Dynamic Clustering Protocol for Wireless Sensor Networks,” *2011 Int. Conf. Comput. Inf. Sci.*, no. 1, pp. 777–779, 2011.
- [18] H.-W. Ferng, R. Tendean, and A. Kurniawan, “Energy-Efficient Routing Protocol for Wireless Sensor Networks with Static Clustering and Dynamic Structure,” *Wirel. Pers. Commun.*, vol. 65, no. 2, pp. 347–367, 2012.
- [19] R. K. Kodali and N. Kumar Aravapalli, “Multi-level LEACH Protocol model using NS-3,” *2014 IEEE Int. Adv. Comput. Conf.*, pp. 375–380, 2014.
- [20] X. H. Li, L. Xiao, and D. Wang, “Dynamic cooperative clustering based power assignment: Network capacity and lifetime efficient topology control in cooperative ad hoc networks,” *Sci. World J.*, vol. 2014, 2014.
- [21] M. Jouhari, K. Ibrahim, and M. Benattou, “Topology Control Through Depth Adjustment and Transmission Power Control for UWSN Routing Protocols,” *2015 Int. Conf. Wirel. Networks Mob. Commun.*, 2015.
- [22] L. Y. Barai, M. . Gaikwad, and A. . Boke, “A LEACH Protocol for Wireless Sensor Network: A Review,” *Int. Conf. Qual. Up-gradation Eng. Sci. Technol.*, vol. 1, no. 6, pp. 141–145, 2014.
- [23] W. B. Heinzelman, A. P. Chandrakasan, and H. Balakrishnan, “An application-specific protocol architecture for wireless microsensor networks,” *IEEE Trans. Wirel. Commun.*, vol. 1, no. 4, pp. 660–670, 2002.
- [24] P. Bansal, P. Kundu, and P. Kaur, “Comparison of LEACH and PEGASIS Hierarchical Routing Protocols in Wireless Sensor Networks,” *Int. J. Recent Trends Eng. Technol.*, vol. 11, no. June, pp. 139–144, 2014.
- [25] N. Rathi, J. Saraswat, and P. P. Bhattacharya, “A Review on Routing Protocols for Application in Wireless Sensor Networks,” *Int. J. Distrib.*

Parallel Syst., vol. 3, no. 5, pp. 39–58, 2012.

- [26] M. Garcia, D. Bri, S. Sendra, and J. Lloret, “Practical Deployments of Wireless Sensor Networks : a Survey,” *Int. J. Adv. Networks Serv.*, vol. 3, no. 1, pp. 170–185, 2010.
- [27] A. H. F. Navid and H. H. S. Javadi, “ICLEAR: Energy aware routing protocol for WSN using irregular cellular learning automata,” *2009 IEEE Symp. Ind. Electron. Appl. ISIEA 2009 - Proc.*, vol. 1, no. Isiea, pp. 463–468, 2009.
- [28] C. Antonopoulos, A. Prayati, T. Stoyanova, C. Koulamas, and G. Papadopoulos, “Experimental evaluation of a WSN platform power consumption,” in *IPDPS 2009 - Proceedings of the 2009 IEEE International Parallel and Distributed Processing Symposium*, 2009.
- [29] M. Sharma and K. Sharma, “An energy efficient extended LEACH (EEE LEACH),” *Proc. - Int. Conf. Commun. Syst. Netw. Technol. CSNT 2012*, pp. 377–382, 2012.
- [30] J. Yunjie, L. Ming, Z. Song, and D. Pengtao, “A clustering routing algorithm based on energy and distance in WSN,” *2012 Int. Conf. Comput. Distrib. Control Intell. Enviromental Monit.*, pp. 9–12, 2012.
- [31] M. Cardei, J. Wu, and S. H. Yang, “Topology control in ad hoc wireless networks using cooperative communication,” *Ieee Trans. Mob. Comput.*, vol. 5, no. 6, pp. 711–724, 2006.
- [32] H. Karl and A. Willig, *Protocols and Architectures for Wireless Sensor Networks*. 2006.
- [33] A. A. A. Alkhatib and G. S. Baicher, “Wireless sensor network architecture,” *Int. Conf. Comput. Networks Commun. Syst.*, vol. 35, no. Cncs, pp. 11–15, 2012.
- [34] W. Pawgasame, “A survey in adaptive hybrid wireless Sensor Network for military operations,” *2016 Second Asian Conf. Def. Technol.*, pp. 78–83, 2016.
- [35] M. U. H. Al Rasyid, W. Yuwono, S. Al Muharom, and A. H. Alasiry, “Building platform application big sensor data for e-health wireless body area network,” *2016 Int. Electron. Symp.*, pp. 409–413, 2016.
- [36] L. Liu and Y. Zhang, “Design of Greenhouse Environment Monitoring System Based on Wireless Sensor Network,” *Int. Conf. Control. Autom. Robot. Des.*, vol. 3rd, no. 17, pp. 463–466, 2017.
- [37] M. A. Mahmood, W. K. G. Seah, and I. Welch, “Reliability in wireless sensor networks: A survey and challenges ahead,” *Comput. Networks*, vol. 79, pp.

166–187, 2015.

- [38] Y. Zhou and M. R. Lyu, “PORT: A Price-Oriented Reliable Transport Protocol for Wireless Sensor Networks Yangfan,” *Proc. 16th IEEE Int. Symp. Softw. Reliab. Eng.*, pp. 440–445, 2008.
- [39] Y. G. Iyer, S. Gandham, and S. Venkatesan, “STCP: a generic transport layer protocol for wireless sensor networks,” *Comput. Commun. Networks, 2005. ICCCN 2005. Proceedings. 14th Int. Conf.*, vol. 5, pp. 449–454, 2005.
- [40] C. Y. Wan, A. T. Campbell, and L. Krishnamurthy, “Pump-Slowly, Fetch-Quickly (PSFQ): A reliable transport protocol for sensor networks,” *IEEE J. Sel. Areas Commun.*, vol. 23, no. 4, pp. 862–872, 2005.
- [41] D. Yuan, S. S. Kanhere, and M. Hollick, “Instrumenting Wireless Sensor Networks - A survey on the metrics that matter,” *Pervasive Mob. Comput.*, vol. 37, pp. 45–62, 2015.
- [42] J. Govindasamy and S. Punniakody, “A comparative study of reactive, proactive and hybrid routing protocol in wireless sensor network under wormhole attack,” *J. Electr. Syst. Inform. Technol. J. Electr. Syst. Inf. Technol.*, vol. xxx, pp. 163–1, 2017.
- [43] P. Jacquet, P. Mühlenthaler, T. Clausen, A. Laouiti, A. Qayyum, and L. Viennot, “Optimized Link State Routing Protocol for Ad Hoc Networks,” *IEEE*, vol. 1, pp. 62–68, 2001.
- [44] P. C.E. and E. M. Royer, “Ad-hoc On-Demand Distance Vector Routing,” in *Mobile Computing Systems and Applications, 1999. Proceedings. WMCSA '99. Second IEEE Workshop*, 1999, no. 1, pp. 1–5.
- [45] A. Manjeshwar and D. P. Agrawal, “TEEN: A Routing Protocol for Enhanced Efficiency in Wireless Sensor Networks,” *Proc. 15th Int. Parallel Distrib. Process. Symp.*, vol. 0, no. C, pp. 2009–2015, 2001.
- [46] A. Manjeshwar and D. P. Agrawal, “APTEEN: A hybrid protocol for efficient routing and comprehensive information retrieval in wireless,” *Proc. - Int. Parallel Distrib. Process. Symp. IPDPS 2002*, pp. 195–203, 2002.
- [47] C. Cano, B. Bellalta, A. Sfairpoulou, and M. Oliver, “Low energy operation in WSNs: A survey of preamble sampling MAC protocols,” *Comput. Networks*, vol. 55, no. 15, pp. 3351–3363, 2011.
- [48] S. Lim, S. Kim, J. Cho, and S. An, “Medium access control with an energy-efficient algorithm for wireless sensor networks,” in *Proceedings of the Personal Wireless Communications*, 2006, pp. 334–343.
- [49] A. El-Hiydi and J.-D. Decotignie, “WiseMAC : An Ultra Low Power MAC

- Protocol for the Downlonk of Instructure Wireless Sensor Network,” 2004 *Proc. Comput. Commun. ISCC*, pp. 244–251, 2004.
- [50] M. Avvenuti, P. Corsini, P. Masci, and A. Vecchio, “Increasing the efficiency of preamble sampling protocols for wireless sensor networks,” 2006 *Proc. First Mob. Comput. Wirel. Commun. Int. Conf.*, pp. 117–122, 2006.
- [51] M. Syafrizal, *Pengantar Jaringan Komputer*, no. May. 2005.
- [52] A. Sarkar and T. Senthil Murugan, “Routing protocols for wireless sensor networks: What the literature says?,” *Alexandria Eng. J.*, vol. 55, no. 4, pp. 3173–3183, 2016.
- [53] D. G. Reina, S. L. Toral, F. Barrero, N. Bessis, and E. Asimakopoulou, “The Role of Ad Hoc Networks in the Internet of Things: A Case Scenario for Smart Environments,” *Internet Things Inter-cooperative Comput. Technol. SCI 460*, pp. 89–113, 2013.
- [54] D. Kim, S. Member, and Y. Wu, “Constructing Minimum Connected Dominating Sets with Bounded Diameters in Wireless Networks,” *IEEE Trans. PARALLEL Distrib. Syst.*, vol. 20, no. 2, pp. 147–157, 2009.
- [55] K. Kim and R. Karri, “Efficient Contruction of Minimal Spanning Tree Avoiding Rectilinier Directional Obtacles,” 2008 *Int. SoC Des. Conf.*, vol. I, pp. 196–199, 2008.
- [56] J. Kulik, W. Heinzelman, and H. Balakrishnan, “Negotiation-based protocols for disseminating information in wireless sensor networks,” *Wirel. Networks*, vol. 8, no. 2–3, pp. 169–185, 2002.
- [57] F. Ye, A. Chen, S. Lu, and L. Zhang, “A Scalable Solution to Minimum Cost Forwarding in Large Sensor Networks,” *Proc. - Int. Conf. Comput. Commun. Networks, ICCCN*, vol. 2001–Janua, no. 3, pp. 304–309, 2001.
- [58] M. E. Migabo, K. Djouani, A. M. Kurien, and T. O. Olwal, “Gradient-based routing for energy consumption balance in multiple sinks-based Wireless Sensor Networks,” in *Procedia Computer Science*, 2015, vol. 63, pp. 488–493.
- [59] Y. Xu, J. Heidemann, and D. Estrin, “Geography-informed Energy Conservation for Ad Hoc Routing,” *Proc. 7th ACM Int. Conf. Mob. Comput. Netw.*, 2001.
- [60] D. Yang, X. Li, R. Sawhney, and X. Wang, “Geographic and energy-aware routing in Wireless Sensor Networks,” *Int. J. Ad Hoc Ubiquitous Comput.*, vol. 4, no. 2, p. 61, 2009.

- [61] R. Prema and R. Rangarajan, "Power Aware Routing Protocol (PARP) for Wireless Sensor Networks," *Int. J. Comput. Appl.*, vol. 51, no. 17, pp. 13–18, 2012.
- [62] C. Intanagonwiwat, R. Govindan, and D. Estrin, "Directed Diffusion: A Scalable and Robust Communication Paradigm for Sensor Networks," *Proc. 6th Annu. Int. Conf. Mob. Comput. Netw. (MobiCom '00)*, pp. 56–67, 2000.
- [63] K. Sohrabi, J. Gao, V. Ailawadhi, and G. J. Pottie, "Protocols for Self-Organisation of a Wireless Sensor Network," *IEEE Pers. Commun.*, no. October 2000, pp. 16–27, 2000.
- [64] S. C. Ergen and P. Varaiya, "TDMA scheduling algorithms for wireless sensor networks," *Wirel. Networks*, vol. 16, no. 4, pp. 985–997, 2010.
- [65] P. Thulasiraman and K. A. White, "Topology control of tactical wireless sensor networks using energy efficient zone routing," *Digit. Commun. Networks*, vol. 2, no. 1, pp. 1–14, 2016.
- [66] Crossbow Technology Inc., *TelosB Mote Platform*. 2004, pp. 1–2.
- [67] T. S. Rappaport, *Wireless Communication Principles & Practice*, 1st Editio. New Jersey: Pearson, 1996.
- [68] I. O. William and S. D. Cowan, *The Truth About CB Antennas*, First Edit. Wilton: Radio Publication, 1971.
- [69] D. Buranapanichkit and Y. Andreopoulos, "Distributed Time Division Multiple Access Protocol for Multi-hop Wireless Sensor Networks," *IEEE Wirel. Commun. Lett.*, vol. 1, no. 5, pp. 440–443, 2015.
- [70] F. Kerasiotis, A. Prayati, C. Antonopoulos, C. Koulamas, and G. Papadopoulos, "Battery lifetime prediction model for a WSN platform," in *Proceedings - 4th International Conference on Sensor Technologies and Applications, SENSORCOMM 2010*, 2010, pp. 525–530.
- [71] A. Moschitta and I. Neri, "Power consumption Assessment in Wireless Sensor Networks," in *ICT - Energy - Concepts Towards Zero - Power Information and Communication Technology*, G. Fagas, L. Gammaitoni, D. Paul, and G. A. B. T.-I. C. T.-E.-C. T. Z.-P. I. and C. T. Berini, Eds. Rijeka: InTech, 2014, p. Ch. 09.
- [72] H. Tao and H. Zhang, "Forest Monitoring Application Systems Based on Wireless Sensor Networks," *IEEE Comput. Soc. Int. Symp. Intell. Inf. Technol. Appl. Work. For.*, pp. 227–230, 2009.

- [73] M. W. Tobler, R. L. Pitman, R. Mares, and G. Powell, “An evaluation of camera traps for inventorying large- and medium-sized terrestrial rainforest mammals,” *ZSL-Animal Conserv.*, vol. 11, pp. 169–178, 2008.