

REFERENCES

- [1] K. N. Swaroop, K. Chandu, R. Gorrepotu, and S. Deb, “A health monitoring system for vital signs using IoT,” *Internet of Things*, vol. 5, pp. 116–129, 2019.
- [2] Y. Lu, K. Jiang, D. Chen, and G. Shen, “Wearable sweat monitoring system with integrated micro-supercapacitors,” *Nano Energy*, vol. 58, pp. 624–632, 2019.
- [3] E. Jovanov, A. Milenkovic, C. Otto, and P. C. de Groen, “A wireless body area network of intelligent motion sensors for computer assisted physical rehabilitation,” *J. Neuroeng. Rehabil.*, vol. 2, no. 1, p. 6, Mar. 2005.
- [4] H. P. Chen, *Structural Health Monitoring of Large Civil Engineering Structures*. Wiley, 2018.
- [5] S. Alokita *et al.*, “4 - Recent advances and trends in structural health monitoring,” in *Structural Health Monitoring of Biocomposites, Fibre-Reinforced Composites and Hybrid Composites*, M. Jawaid, M. Thariq, and N. Saba, Eds. Woodhead Publishing, 2019, pp. 53–73.
- [6] D. Balageas, “Introduction to Structural Health Monitoring,” ISTE editors, 2006, pp. 13–43.
- [7] S. Zeadally and O. Bello, “Harnessing the Power of Internet of Things based Connectivity to Improve Healthcare,” *Internet of Things*, pp.100-174, 2019.
- [8] A. B. Noel, A. Abdaoui, T. Elfouly, M. H. Ahmed, A. Badawy, and M. S. Shehata, “Structural Health Monitoring Using Wireless Sensor Networks: A Comprehensive Survey,” *IEEE Commun. Surv. Tutorials*, vol. 19, no. 3, pp. 1403–1423, 2017.
- [9] F. Zhao and L. J. Guibas, “3 - Networking Sensors,” in *Wireless Sensor Networks*, F. Zhao and L. J. Guibas, Eds. San Francisco: Morgan Kaufmann, 2004, pp. 63–102.

- [10] K. Skiadopoulos *et al.*, “Synchronization of data measurements in wireless sensor networks for IoT applications,” *Ad Hoc Networks*, vol. 89, pp. 47–57, 2019.
- [11] D. Galar and U. Kumar, “Chapter 1 - Sensors and Data Acquisition,” in *eMaintenance*, D. Galar and U. Kumar, Eds. Academic Press, 2017, pp. 1–72.
- [12] I. J. Dilworth, “Chapter 14 - Bluetooth,” in *The Cable and Telecommunications Professionals’ Reference (Third Edition)*, Third Edit., G. Hill, Ed. Boston: Focal Press, 2007, pp. 311–333.
- [13] P. Papcun, I. Zolotova, and K. Tafsi, “Control and Teleoperation of Robot Khepera via Android Mobile Device through Bluetooth and WiFi,” *IFAC-PapersOnLine*, vol. 49, no. 25, pp. 188–193, 2016.
- [14] J. Chen, H. Chen, and X. Luo, “Collecting building occupancy data of high resolution based on WiFi and BLE network,” *Autom. Constr.*, vol. 102, pp. 183–194, 2019.
- [15] O. P. Bodunde, U. C. Adie, O. M. Ikumapayi, J. O. Akinyoola, and A. A. Aderoba, “Architectural design and performance evaluation of a ZigBee technology based adaptive sprinkler irrigation robot,” *Comput. Electron. Agric.*, vol. 160, pp. 168–178, 2019.
- [16] J. Mu and L. Han, “Performance analysis of the ZigBee networks in 5G environment and the nearest access routing for improvement,” *Ad Hoc Networks*, vol. 56, pp. 1–12, 2017.
- [17] M. A. Moridi, Y. Kawamura, M. Sharifzadeh, E. K. Chanda, M. Wagner, and H. Okawa, “Performance analysis of ZigBee network topologies for underground space monitoring and communication systems,” *Tunn. Undergr. Sp. Technol.*, vol. 71, pp. 201–209, 2018.
- [18] S. Beskhyroun and Q. Ma, “Low-Cost Accelerometers for Experimental Modal Analysis,” in *World Conference on Earthquake Engineering, Lisbon, Portugal*, 2012, pp. 1–10.

- [19] T. H. Khan and K. A. Wahid, "A portable wireless body sensor data logger and its application in video capsule endoscopy," *Microprocess. Microsyst.*, vol. 38, no. 1, pp. 42–52, 2014.
- [20] H. A. Dalton, B. J. Wood, J. P. Dickey, and S. Torrey, "Validation of HOBO Pendant® data loggers for automated step detection in two age classes of male turkeys: growers and finishers," *Appl. Anim. Behav. Sci.*, vol. 176, pp. 63–69, 2016.
- [21] A. Carre and T. Williamson, "Design and validation of a low cost indoor environment quality data logger," *Energy Build.*, vol. 158, pp. 1751–1761, 2018.
- [22] H. Han, J. Wang, X. Meng, and H. Liu, "Analysis of the dynamic response of a long span bridge using GPS / accelerometer / anemometer under typhoon loading," *Eng. Struct.*, vol. 122, pp. 238–250, 2016.
- [23] T. Shany, S. J. Redmond, M. R. Narayanan, and N. H. Lovell, "Sensors-based wearable systems for monitoring of human movement and falls," *IEEE Sens. J.*, vol. 12, no. 3, pp. 658–670, 2012.
- [24] T. Shany, S. Redmond, M. R. Narayanan, and N. Lovell, "Sensors-Based Wearable Systems for Monitoring of Human Movement and Falls," *Sensors Journal, IEEE*, vol. 12, pp. 658–670, 2012.
- [25] Y. Wang *et al.*, "Wearable and Highly Sensitive Graphene Strain Sensors for Human Motion Monitoring," *Adv. Funct. Mater.*, vol. 24, no. 29, pp. 4666–4670, 2014.
- [26] S. Kim, G. Fenves, and S. Glaser, "Health Monitoring of Civil Infrastructures Using Wireless Sensor Networks," in *Proceedings of the 6th International Conference on Information Processing in Sensor Networks*, 2007, pp. 254–263.
- [27] L. Zhu, Y. Fu, R. Chow, B. F. Spencer, J. W. Park, and K. Mechitov, *Development of a high-sensitivity wireless accelerometer for structural health monitoring*, vol. 18, no. 1. 2018.

- [28] T. Arakawa and K. Yamamoto, "Frequencies and damping ratios of a high rise building based on microtremor measurement," *13th World Conf. Earthq. Eng.*, no. 48, p. 48, 2004.
- [29] S. Sharma, D. Kumar, and K. Kishore, "Wireless Sensor Networks - A Review on Topologies and Node Architecture," *Int. J. Comput. Sci. Eng.*, vol. 1, no. 2, pp. 19–25, 2013.
- [30] S. Santha Meena and J. Manikandan, "Study and evaluation of different topologies in wireless sensor network," *Proc. 2017 Int. Conf. Wirel. Commun. Signal Process. Networking, WiSPNET 2017*, vol. 2018–Janua, pp. 107–111, 2018.
- [31] M. Elhoseny, A. Farouk, N. Zhou, M. M. Wang, S. Abdalla, and J. Batle, "Dynamic Multi-hop Clustering in a Wireless Sensor Network: Performance Improvement," *Wirel. Pers. Commun.*, vol. 95, no. 4, pp. 3733–3753, 2017.
- [32] A. E. Fawzy, M. Shokair, and W. Saad, "Balanced and energy-efficient multi-hop techniques for routing in wireless sensor networks," *IET Networks*, vol. 7, no. 1, pp. 33–43, 2017.
- [33] M. Andrejašič, "Accelerometers," *Electronics and Power*, vol. 11, no. 11, p. 385, 2008.
- [34] A. B. Noel *et al.*, "Networks: A Comprehensive Survey," *IEEE Commun. Surv. y Tutorials*, vol. 19, no. 3, pp. 1403–1423, 2017.
- [35] *An Introduction to MEMS (Micro-electromechanical Systems)*, Loughborough University, 2002.
- [36] J. L. Aldridge, "Serial communication protocol for medical device," pp. 1–103, 2016.
- [37] E. F. Kececi, "Signal Processing," *Mechatron. Components*, pp. 175–185, 2019.
- [38] A. Subero and A. Subero, *USART, SPI, and I2C: Serial Communication Protocols*. 2017.

- [39] F. Leens, “An introduction to I²C and SPI protocols,” *IEEE Instrum. Meas. Mag.*, vol. 12, no. 1, pp. 8–13, 2009.
- [40] U. Nanda and S. K. Pattnaik, “Universal Asynchronous Receiver and Transmitter (UART),” *ICACCS 2016 - 3rd Int. Conf. Adv. Comput. Commun. Syst. Bringing to Table, Futur. Technol. from Around Globe*, no. January 2016, 2016.
- [41] J. P. Lynch, *Decentralization Of Wireless Monitoring And Control Technologies*, Stanford University, 2002.
- [42] P. Batista, C. Silvestre, P. Oliveira, and B. Cardeira, “Accelerometer calibration and dynamic bias and gravity estimation: Analysis, design, and experimental evaluation,” *IEEE Trans. Control Syst. Technol.*, vol. 19, no. 5, pp. 1128–1137, 2011.
- [43] P. N. Zanjani and A. Abraham, “A method for calibrating micro electro mechanical systems accelerometer for use as a tilt and seismograph sensor,” *UKSim2010 - UKSim 12th Int. Conf. Comput. Model. Simul.*, no. January, pp. 637–641, 2010.
- [44] S. Levy, A. E. McPherson, and E. V. Hobbs, “Calibration of accelerometers,” *J. Res. Natl. Bur. Stand. (1934)*, vol. 41, no. 5, p. 359, 2012.
- [45] S. M. Lasassmeh and J. M. Conrad, “Time synchronization in wireless sensor networks: A survey,” *Conf. Proc. - IEEE SOUTHEASTCON*, pp. 242–245, 2010.
- [46] F. Ferrari, M. Zimmerling, L. Thiele, and O. Saukh, “Efficient network flooding and time synchronization with Glossy,” *Proc. 10th Int. Conf. Inf. Process. Sens. Networks - IPSN '11*, no. May, pp. 73–84, 2011.
- [47] M. Ad and H. Networks, “An Overview of Mobile Ad Hoc Networks : Applications and In the past few years , we have seen a rapid expansion,” *Dep. Inf. Technol.*, no. Ghent University – IMEC vzw, pp. 60–66, 2005.

- [48] A. H. Levesque, "General Packet Radio Service," *Handb. Comput. Networks*, vol. 2, pp. 658–674, 2011.
- [49] P. Zerfos, X. Meng, S. H. . Wong, V. Samanta, and S. Lu, "A study of the short message service of a nationwide cellular network," p. 263, 2007.
- [50] R. Singh and R. Chauhan, "A Review Paper : Voice over Internet Protocol," *Int. J. Enhanc. Res. Manag. Comput. Appl.*, vol. 3, no.1, pp. 15–23, 2014.
- [51] Y. Ji and H. Yang, "Comparison of LoRa and NB-IoT," *Netw. Commun. Technol.*, vol. 4, no. 1, p. 13, 2019.
- [52] Z. Qin, Y. Liu, G. Y. Li, and J. A. McCann, "Performance Analysis of Clustered LoRa Networks," no.4. June, 2019.
- [53] F. Masi, P. Kamiyabhusain, and K. A. Masi, "Smart automation based on IoT and GSM module Smart automation based on IoT and GSM module," no.4 February, pp. 2–6, 2019.
- [54] D. Peng, L. Cao, and W. Xu, "Using JSON for Data Exchanging in Web Service Applications," vol. 7, 2011.
- [55] A. Simec and M. Maglicic, "Comparison of JSON and XML data formats," *Cent. Eur. Conf. Inf. Intell. Syst.*, no.5, December, p. 272, 2014.
- [56] M. Dave, "International Journal of Advanced Research in SQL and NoSQL Databases," no.5, June, 2016.
- [57] S. Sampath and Q. Mary, "surendersampath Reviews on electronics and modules or general thoughts . xD," no.4, October, 2018.
- [58] H. S. Oluwatosin, "Client-Server Model," *IOSR J. Comput. Eng.*, vol. 16, no. 1, pp. 57–71, 2014.
- [59] S. R. Singh and S. Kumar, "An Overview of World Wide Web Protocol (Hypertext Transfer Protocol and Hypertext Transfer Protocol Secure)," *Int. J. Adv. Res. Comput. Sci. Softw. Eng.*, vol. 6, no. 5, p. 2277, 2016.
- [60] M. David, *HTML5: Designing Rich Internet Applications*. Focal Press, 2010.

- [61] M. David, “Project 2 - Applying CSS3 to your Web Design,” in *HTML5*, M. David, Ed. Boston: Focal Press, 2010, pp. 99–127.
- [62] J. Duckett, *JavaScript and JQuery: Interactive Front-End Web Development*. Wiley, 2014.
- [63] M. David, “Project 5 - Working with JavaScript,” in *HTML5*, M. David, Ed. Boston: Focal Press, 2010, pp. 241–273.
- [64] J. Spurlock, *Bootstrap: Responsive Web Development*. O’Reilly Media, 2013.
- [65] M. Meng, S. Steinhardt, and A. Schubert, “Application Programming Interface Documentation: What Do Software Developers Want?,” *J. Tech. Writ. Commun.*, vol. 48, pp. 295–330, 2018.
- [66] C. Reas and B. Fry, *Processing: A Programming Handbook for Visual Designers and Artists*. 2007.
- [67] osama moselhi Mojtaba Valinejadshoubi, Ashutosh Bagchi, “Structural Health Monitoring of Buildings and Infrastructure,” *J. civil, Environ. Struct. Constr. Archit. Eng.*, vol. 10, no. 6, pp. 694–701, 2016.
- [68] D. Inaudi, “Overview of 40 Bridge Structural Health Monitoring Projects,” *Int. Bridg. Conf. IBC 09-45*, 2010.
- [69] J. P. Lynch, “A Summary Review of Wireless Sensors and Sensor Networks for Structural Health Monitoring,” *Shock Vib. Dig.*, vol. 38, no.2, pp. 91–128, 2006.
- [70] E. G. Straser, A. S. Kiremidjian, T. H. Meng, and L. Redlefsen, “Modular, wireless network platform for monitoring structures,” *Comput. Stand. Interfaces*, vol. 21, no.2, p. 117, 2004.
- [71] R. Bennett, B. Hayes-Gill, J. Crowe, and R. Armitage, “Wireless monitoring of highways,” *Proc. Smart Syst. Bridg. Struct. Highw. Conf.*, vol. 3671, no. March, pp. 173–182, 1999.

- [72] J. P. Lynch, K. H. Law, A. S. Kiremidjian, T. W. Kenny, E. Carryer, and A. Partridge, “The design of a wireless sensing unit for structural health monitoring,” *Proc. 3rd Int. Work. Struct. Heal. Monit.*, p.145-286 , 2001.
- [73] J. P. Lynch, K. H. Law, A. Kiremidjian, T. Kenny, and E. Carryer, “A wireless modular monitoring system for civil structures,” *Proc. 20th Int. Modal Anal. Conf. Struct. Dyn. Vols I II*, vol. 4753, pp. 1–6, 2002.
- [74] W. Song, S. Liang, J. Song, L. Zou, and G. Hu, “Investigation on wind-induced aero-elastic effects of tall buildings by wind tunnel test using a bi-axial forced vibration device,” *Eng. Struct.*, vol. 195, pp. 414–424, 2019.
- [75] C.W.Bert, “Material damping: An Introductory Review of Mathematical Measure and Experimental Technique.,” *J. Sound Vib.*, vol. 29, pp. 129–153, 1973.
- [76] Vinod Hosur, *Earthquake Resistant Design of Building Structures*. Wiley publication, 2013.
- [77] A. Kareem and K. Gurley, “Damping in structures: its evaluation and treatment of uncertainty,” *J. Wind Eng. Ind. Aerodyn.*, vol. 59, no.2, pp. 131–157, 1996.
- [78] S. S. Gómez, C. P. W. Geurts, And A. Metrikine, “On The Importance Of Soil Damping For Tall Buildings Loaded By Wind,” *Eng. Struct.*, Vol. 163, Pp. 426–435, 2018.
- [79] J. S. Love, T. C. Haskett, And B. Morava, “Effectiveness Of Dynamic Vibration Absorbers Implemented In Tall Buildings,” *Eng. Struct.*, Vol. 176, Pp. 776–784, 2018.
- [80] Mircea Rades, *Mechanical Vibrations Ii-Structural Dynamic Modelling*. Editura Printech, 2010.
- [81] K. Ukanwa, N. Mohamad, and J. B. P. Lim, “Computational Finite Element Modelling of Structural Behaviours of Precast Sandwiched Foamed Concrete Slab,” no4. June, pp. 220–227, 2015.

- [82] B. Corley, D. Huston, M. Schaefer, and D. Witkowski, "Evaluation of RF Network Testing An Industry review of techniques and procedures," no.6, May, pp. 3–11, 2019.
- [83] M. Pastor and M. Binda, "Modal Assurance Criterion," in *Procedia Engineering journal*, 2012, vol. 48, pp. 543–548,2014.
- [84] S. K. Au and F. L. Zhang, "Fast Bayesian Ambient Modal Identification Incorporating Multiple Setups," *J. Eng. Mech.*, vol. 138, no.7, pp. 800–815, 2012.