DAFTAR PUSTAKA

[1] Pinky Devi Dama Istianti, Satrio Yudo Prawiro, Nyoman Bogi Aditya Karna, Ibnu Ali NurSafa, "Analisis Performansi Teknologi Akses LPWAN LoRa Antares Untuk Komunikasi Data End Node," *Fakultas Teknik Elektro, Universitas Telkom,* pp. 22-26, 2019.

[2] Aloÿs Augustin, Jiazi Yi, Thomas Clausen, William Mark Townsley, "A Study of LoRa: Long Range & Low Power Networks for the Internet of Things," *www.mdpi.com/journal/sensors,* 2016.

[3] Mery Diana,Refdinal Nazir,Arief Rufiyanto, "Harvesting RF Ambient Energy dari End Device LoRa (Long Range Access)," *JURNAL INFOTEL,* 2017.

[4] M. Liandana, "PENERAPAN TEKNOLOGI LoRa PADA PURWARUPA AWAL WEARABLE DEVICE," *Journal of Computer, information system, & technology management,* vol. 2, pp. 40-46, 2019.

[5] Claire Goursaud, Jean-Marie Gorce, "Dedicated networks for IoT : PHY / MAC state of the art and challenges," *Univ Lyon, INSA Lyon, Inria, CITI, F-69621 Villeurbanne, France,* vol. 1, no. 1, pp. 1-12, 2015.

[6] Haidar Arijuddin, Adhitya Bhawiyuga, Kasyful Amron, "Pengembangan Sistem Perantara Pengiriman Data Menggunakan Modul Komunikasi LoRa dan Protokol MQTT Pada Wireless Sensor Network," *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer,* vol. 3, no. 2, pp. 1655-1659, 2019.

[7] Syah Alam, Irtanto Wijaya, "PERANCANGAN ANTENA MIKROSTRIP *array* 2X2 FREKUENSI 2,4 GHZ UNTUK KOMUNIKASI IoT," *jurnal kajian teknik elektro,* vol. 3, no. 1, pp. 1-78, 2018.

[8] Balanis, Constantine A,, "Antenna Theory Analysis and Design, Third Edition,Wiley-Interscience," *United States of America,* 2005.

[9] S. M. I. Ega Aulia Sarfina, "Analisis Perancangan Antena Mikrostrip Patch Segitiga *array* untuk Aplikasi WLAN 2,4 GHz," *jurnal online teknik eleketro,* vol. 2, no. 2, pp. 6-14, 2017.

[10] R. F. N. Syah Alam, "PERANCANGAN ANTENA MIKROSTRIP array 2x1 UNTUK MENINGKATKAN GAIN UNTUK APLIKASI LTE PADA FREKUENSI 2300 MHz," jurnal ilmiah elektrokrisna, vol. 6, no. 3, pp. 167-178, 2018.

[11] Balanis, Constantine A, "Antenna Theory Analysis and Design, Third

Edition. Amerika ,Wiley-Interscience,," *jurnal explore,* 2006.

[12] A.S, Sudi Mariyanto, dkk., "Design and Realization of Microstrip Antenna for GPS Application using Proximity Coupled Techniques," *IEEE Xplore Digital Library,* vol. 2, no. 1, p. 2, 2017.

[13] Garg, R., dkk.,, "Mikrostrip Antenna Design Handbook, Artech House Inc,," *jurnal explore,* vol. 1, p. 2, 2001.

[14] R. .. U. A. 2. Julianti, "Perancangan dan Simulasi Antena Mikrostrip Rectangular Linear *array* untuk Aplikasi Antena Repeater pada Pita Frekuensi Uplink 3G," in *Tugas Akhir*, 1, Universitas Andalas, 2015, p. 1.

[15] A. A. Nahian, "Design and Performance Analysis of U-Slot, Y-Slot, and U-Y Slot Microstrip Patch Antenna for Wireless Applications," *Daffodil International University, ,* vol. 2, no. 1, p. 5, 2016.

[16] Julardi, Neronzie, Universitas Sumatera Utara, 2013., "Rancang Bangun Antena Mikrostrip Patch *circular* (2,45 GHz) dengan Teknik Planar *array* sebagai Penguat Sinyal WI-FI,," in *Tugas Akhir,*, Sumatera Utara, Universitas Sumatera Utara, 2013.

[17] M. a. S. J. Jain, "Designing Micro-strip Patch Antenna for LTE Mobile Application, College of Technology and Engineering," *jurnal explore,* vol. 1, no. 12, p. 2, 2015.

[18] Thiele., W. L. Stutzman and G. A., "Antenna Theory and Design, Edition. New York.," vol. 2, no. 3, p. 1, 1998.

[19] J. Singh, "Inset Feed Microstrip Antenna," *International Journal of Computer Science and Mobile Computing,* vol. 5, no. 2, pp. 324-329, 2016.

[20] D. Pasaribu, dan A. H. Rambe,, "Rancang Bangun Antena Mikrostrip Patch Segiempat pada Frekuensi 2,4 GHz dengan Metode Pencatuan Inset," *Jurnal Singuda Ensikom, 7(1),* vol. 4, no. 2, p. 10, 2014.

[21] Faisal, Y. Natali dan Z., "Rancang Bangun Antena Mikrostrip Patch Sirkular dengan Metode Inset Feeding untuk Aplikasi LTE di Frekuensi 2600 MHz," *Akademi Telkom Shandy Putra Jakarta,* 2016.

[22] A. Firdausi, "Antena Mikrostrip Double-Layer untuk Aplikasi WLAN 802.11ac," *Incomtech Jurnal Telekomunikasi dan Komputer 8(1),* vol. 2, no. 3, p. 43, 2017.

[23] M. Fahrazal, "Rancang Bangun Antena Mikrostrip TripleBand Linear *array* 4 Elemen untuk Aplikasi WIMAX," *Tesis. Depok: Universitas Indonesia.,* vol. 2, no. 1, p. 21, 2008.

[24] Dahlan, Erfan Achmad, Dwi Fadila, dan Robie Tawakal., "Rancang Bangun Antena Mikrostrip *circular array* Four Element 2,4 GHz dengan Polaradiasi Bidirectional," *jurnal explore,* p. 10, 2008.

[25] R. Julianti, "Perancangan dan Simulasi Antena Mikrostrip Rectangular Linear *array* Untuk Aplikasi Antena Repeater Pada Pita Frekuensi Uplink 3G," in *Tugas Akhir*, Padang, Universitas Andalas, 2015, p. 100.

[26] Fitri, Iskandar., "Studi Karakteristik Pancaran Antena Mikrostrip Slot *array* dengan Pencatuan Model Garpu untuk Memperlebar Bandwidth.," Depok, Universitas Indonesia, 2008.

[27] M. Liandana, "PENERAPAN TEKNOLOGI LoRa PADA PURWARUPA AWAL WEARABLE DEVICE," *Journal of Computer, information system, & technology management,* vol. 2, no. 2, pp. 40-46, 2019.

[28] Tri Istiana, R. Yudha Mardyansyah, G.S. Budhi Dharmawan, "Kajian Pemanfaatan IoT Berbasis LPWAN Untuk Jaringan Akuisisi Data ARG," *Elektron Jurnal Ilmiah,* vol. 12, no. 1, pp. 1-6, 2020.

[29] A. CORPORATION, "User's Guide – High Frequency Structure," *Simulator. Pittsburgh: Ansoft Corporation,* 2005.

[30] Eko Didik Widianto, Al Arthur Faizal, Dania Eridani, Richard Dwi Olympus Augustinus, Michael SM Pakpahan, "Simple LoRa Protocol: LoRa Communication Protocol for Multisensor Monitoring Systems," *Departemen Teknik Komputer Fakultas Teknik Universitas Diponegoro,* vol. 5, no. 2, pp. 83-92, 2009.