DAFTAR PUSTAKA

[1] N. Qoidah and E. Widowati, "Manajemen Bencana Gunung Merapi Berbasis Masyarakat," *Higeia J. Public Heal. Res. Dev.*, vol. 4, no. Special 1, pp. 203–214, 2020.

[2] Miftahuddin, "Analisis Unsur-unsur Cuaca dan Iklim Melalui Uji Mann-Kendall Multivariat," *Mat. dan Komputasi*, vol. 13, no. 1, pp. 26–38, 2016.

[3] S. N. Khalifa, "Rancang Bangun Sistem Sensor Pemantau Cuaca dengan Sistem Daya Mandiri," Yogyakarta, 2018.

[4] A. Borunda, "Methane facts and information," *National Geographic*, 2019. https://www.nationalgeographic.com/environment/article/methane (accessed May 26, 2021).

[5] W. Sucipto, I. G. A. K. D. Djuni Hartawan, and W. Setiawan, "Rancang Bangun Perangkat Pemantau Cuaca Otomatis berbasis Mikrokontroler pada Jaringan WLAN IEEE 802.11b," *J. SPEKTRUM*, vol. 4, no. 2, p. 48, 2018, doi: 10.24843/spektrum.2017.v04.i02.p07.

[6] R. Sidqi, B. Rio Rynaldo, S. Hadi Suroso, and R. Firmansyah, "Arduino Based Weather Monitoring Telemetry System Using NRF24L01+," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 336, no. 1, 2018, doi: 10.1088/1757-899X/336/1/012024.

[7] Y. Ardiyanto and M. Y. Mustar, "Rancang Bangun Graphical User Interface Sebagai Sistem Monitoring Nirkabel Pendeteksi Hujan, Suhu Dan Kelembaban," *J. Edukasi Elektro*, vol. 4, no. 1, pp. 1–11, 2020, doi: 10.21831/jee.v4i1.30412.

[8] D. A. Pratama, Sugiono, and O. Melfazen, "Rancang bangun sistem monitoring cuaca dan pengukur curah hujan otomatis berbasis iot blynk," *Fak. Tek. Eletro Univ. Islam Malang*, vol. 3, p. 9, 2021.

[9] W. Surakusuma, "Sumber Belajar Penunjang Plpg 2017 Mata Pelajaran/paket Keahlian Teknik Produksi Hasil Hutan Bab X Cuaca Dan Iklim," Kementerian Pendidikan dan Kebudayaan Direktorat Jenderal Guru dan Tenaga Kependidikan, 2017.

[10] Mulyadi, "Ensiklopedia Sains : Atmosfer, Cahaya, Energi, Listrik, Benda & Sifatnya." ALPRIN, Semarang, p. 15, 2019.

[11] N. PLB Riwu Kaho, "Panduan Interpretasi dan Respon Informasi Iklim dan Cuaca Untuk Petani dan Nelayan," *Perkumpulan Pikul - Kupang*, Kupang, 2014.

[12] J. Fraden, *Handbook of Modern Sensors, Physics, Designs, and Applications*, 5th Editio. San Diego: Springer, 2016.

[13] A. Idris and O. Taleb, "Measurement Systems: Characteristics and Models," *Eur. Sci. J. March*, vol. 10, no. 9, pp. 1857–7881, 2014.

[14] "POWER Data Access Viewer, NASA Prediction Of Worldwide Energy Resources." https://power.larc.nasa.gov/data-access-viewer/ (accessed Jul. 10, 2021).

[15] E. Haile and J. Lepkowski, "AN895, Oscillator Circuits For RTD Temperature Sensors," Chandler, 2004.

[16] S. Indarwati, S. M. B. Respati, and D. Darmanto, "Kebutuhan Daya Pada Air Conditioner Saat Terjadi Perbedaan Suhu Dan Kelembaban," *J. Ilm. Momentum*, vol. 15, no. 1, pp. 91–95, 2019, doi: 10.36499/jim.v15i1.2666.

[17] H. Farahani, R. Wagiran, and M. N. Hamidon, *Humidity sensors principle, mechanism, and fabrication technologies: A comprehensive review*, vol. 14, no. 5. 2014.

[18] P. Nikovski, "Assessment of bias removal techniques used in case of sensor parametric modelling," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 618, no. 1, 2019, doi: 10.1088/1757-899X/618/1/012005.

[19] Sensirion, "Datasheet SHT3x-DIS," 2019. [Online]. Available: https://www.sensirion.com/fileadmin/user_upload/customers/sensirion/Dokumente/0_Datasheets/Humidity/Sensirion_Humidity_Sensors_SHT3x_Datasheet_digital.pdf.

[20] "SHT35-D (Digital) Humidity & Temperature Sensor from ClosedCube on Tindie." https://www.tindie.com/products/closedcube/sht35-d-digital-humidity-temperature-sensor/ (accessed Jul. 11, 2021).

[21] "ANEMOMETERS & WIND SENSORS DEFINITIVE GUIDE FOR 2019," 2019. https://www.weatherstation1.com/what-is-wind-sensor/#toggle-id-1 (accessed Jul. 21, 2021).

[22] "What Is a Cup Anemometer? (with picture)." https://www.wise-geek.com/what-is-a-cup-anemometer.htm (accessed Jul. 21, 2021).

[23] V. Akpan, R. Osakwe, S. E.- Atmosphere, and U. 2016, "A Hypothetical Database-Driven Web-Based Meteorological Weather Station with Dynamic Datalogger System," *J. Inf. Eng. Appl.*, vol. 6, no. February, pp. 13–39, 2016, [Online]. Available: https://www.iiste.org/Journals/index.php/JIEA/article/view/28197/28944.

[24] D. Ehhalt and M. Prather, "Atmospheric Chemistry and Greenhouse Gases," 2001. [Online]. Available: https://www.ipcc.ch/report/ar3/wg1/chapter-4-atmospheric-chemistry-and-greenhouse-gases/.

[25] "Global Monitoring Laboratory - Carbon Cycle Greenhouse Gases." https://gml.noaa.gov/ccgg/trends_ch4/ (accessed Jul. 12, 2021).

[26] G. Korotcenkov, *Handbook of Gas Sensor Materials*, 1st ed., vol. 2.

Gwangju: Springer, 2014.

[27] M. V. Nikolic, V. Milovanovic, Z. Z. Vasiljevic, and Z. Stamenkovic, "Semiconductor gas sensors: Materials, technology, design, and application," *Sensors (Switzerland)*, vol. 20, no. 22, pp. 1–31, 2020, doi: 10.3390/s20226694.

[28] M. Borecki, M. Gęca, M. Duk, and M. L. Korwin-Pawlowski, "Miniature Gas Sensors Heads and Gas Sensing Devices for Environmental Working Conditions -A Review," *Commu. Eng. Resol J. Elec. Commu. Eng. Resol*, vol. 1, no. 12, pp. 1–11, 2017, [Online]. Available: http://verizonaonlinepublishing.com/PDF/Electronics/JournalofElectronicsandCommunicationEngineeringResearch5.pdf.

[29] Q.-H. Wu, J. Li, and S.-G. Sun, "Nano SnO2 Gas Sensors," *Curr. Nanosci.*, vol. 6, no. 5, pp. 525–538, 2011, doi: 10.2174/157341310797574934.

[30] I. Sugriwan, A. Rachmattulah, O. Soesanto, and A. A. Harnawan, "Desain Dan Fabrikasi Alat Ukur Kadar Gas Metana (Ch4) Pada Lahan Gambut Menggunakan Sensor Tgs2611 Berbasis Atmega8535," *J. Neutrino*, vol. 8, no. 1, p. 11, 2016, doi: 10.18860/neu.v0i0.3165.

[31] M. Yantidewi, M. S. Muntini, U. A. Deta, and N. A. Lestari, "The design of a PC-based real-time system for monitoring Methane and Oxygen concentration in biogas production," *J. Phys. Conf. Ser.*, vol. 997, no. 1, 2018, doi: 10.1088/1742-6596/997/1/012018.

[32] H. Rahadian, B. Sutopo, and I. Soesanti, "TGS2611 performance as biogas monitoring instrument in digester model application," *2015 Int. Semin. Intell. Technol. Its Appl. ISITIA 2015 - Proceeding*, pp. 119–123, 2015, doi: 10.1109/ISITIA.2015.7219965.

[33] I. Sugriwan, A. S. Ramdani, A. E. Fahrudin, and S. Suryajaya, "Pemanfaatan Sistem Alat Ukur Kadar Gas Metana (Ch4), Suhu dan Kelembaban pada Perkebunan Kelapa Sawit di Lahan Gambut," *J. Fis. FLUX*, vol. 1, no. 1, p. 138, 2019, doi: 10.20527/flux.v1i1.6157.

[34] "PRODUCT INFORMATION TGS 2611 - for the detection of Methane," 2017. [Online]. Available: https://www.figarosensor.com/product/docs/TGS2611C00(1013).pdf.

[35] M. T. Tabada and M. E. Loretero, "Application of a low-cost water level circuit for an accurate pulse detection of a tipping-bucket rain gauge as an alternative method for reed switch sensors," *Environ. Monit. Assess.*, vol. 191, no. 5, 2019, doi: 10.1007/s10661-019-7459-3.

[36] R. G. De Sousa and M. Nogueira, "Elaboração de um Protótipo de Software Embarcado e de Tempo Real Como Ferramenta Sensorial de Auxílio Para Contagem de Elaboração de um Protótipo de Software Embarcado e de Tempo Real Como Ferramenta Sensorial de Auxílio Para," no. September

2016, 2011.

[37] A. Vidal-Pardo and S. Pindado, "Design and development of a 5-channel arduino-based data acquisition system (ABDAS) for experimental aerodynamics research," *Sensors (Switzerland)*, vol. 18, no. 7, 2018, doi: 10.3390/s18072382.

[38] "Introduction to Arduino Mega 2560 - The Engineering Projects." https://www.theengineeringprojects.com/2018/06/introduction-to-arduino-mega-2560.html (accessed Jul. 13, 2021).

[39] "DS 3231 RTC General Description," 2015. [Online]. Available: https://datasheets.maximintegrated.com/en/ds/DS3231.pdf.

[40] L. Lucas, R. Santana, M. Fernando, L. Pereira, and R. B. O. Pereira, "Miniestação baseada no microcontrolador Tiva C TM4C123G para coleta de dados agrometereológicos," no. November, 2016.

[41] Cornelius, "Battery charging circuit of DS3231 module · One Transistor." https://www.onetransistor.eu/2019/07/zs042-ds3231-battery-charging-circuit.html (accessed Jul. 13, 2021).

[42] R. Bello, U. Nebo, and M. Onilude, "Development of a Temperature Data Acquisition (TDAq) Device in Agroforest Environments," *Int. J. Ind. Manuf. Syst. Eng.*, vol. 1, no. 2, pp. 34–44, 2016, doi: 10.11648/j.ijimse.20160102.12.

[43] S. Rao, A. Smitha, and K. Kulkarni, "Smart Phone based cost effective visitor management system for smart offices," *Int. J. Interact. Mob. Technol.*, vol. 12, no. 6, pp. 112–123, 2018, doi: 10.3991/ijim.v12i6.9476.

[44] "3141 3144, Switches, Sensitive Hall-effect Operation, for High-Temperature Operation," Worcester. [Online]. Available: https://www.mpja.com/download/a3144eul.pdf.

[45] "Hall Magnetic Standard Linear Sensor Module for Arduino AVR PIC KY-024 : Amazon.in: Industrial & Scientific." https://www.amazon.in/Linear-hall-module-Arduino-other/dp/B00Z045Z6K (accessed Jul. 14, 2021).

[46] F. Surya, "I2C Protokol." 2007, [Online]. Available: https://comp-eng.binus.ac.id/files/2014/05/Artikel-I2C-Protokol.pdf.

[47] J. Valdez and J. Becker, "Understanding the I2C Bus," 2015. [Online]. Available: https://www.ti.com/lit/an/slva704/slva704.pdf.

[48] S. Campbell, "Basics of the I2C Communication Protocol," 2016. https://www.circuitbasics.com/basics-of-the-i2c-communication-protocol/ (accessed Jul. 18, 2021).

[49] S. Campbell, "Basics of UART Communication." https://www.circuitbasics.com/basics-uart-communication/ (accessed Jul. 19, 2021).

[50] "Arduino - SoftwareSerialBegin." https://www.arduino.cc/en/Reference/SoftwareSerialBegin (accessed Jul. 20, 2021).

[51] J. Park and S. Mackay, *Practical Data Acquisition for Instrumentation and Control Systems*. Elsevier, 2003.

[52] M. Cable, *Calibration, A Technician's Guide*. Research Triangle Park, NC : Instrumentation Systems, and Automation Society, 2005.

[53] S. N. Ahmed, *Physics and Engineering of Radiation Detection*, 2nd Editio. Amsterdam: Elsevier Inc., 2015.

[54] B. Ratner, "The correlation coefficient: Its values range between 1/1, or do they?," *J. Targeting, Meas. Anal. Mark.*, vol. 17, no. 2, pp. 139–142, 2009, doi: 10.1057/jt.2009.5.

[55] "ISO 5725-1:1994(en), Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions." https://www.iso.org/obp/ui/#iso:std:iso:5725:-1:ed-1:v1:en (accessed Jul. 16, 2021).

[56] "Measurements and Error Analysis," *Universtiy of North Carolina*. https://www.webassign.net/question_assets/unccolphysmechl1/measurements/manual.html (accessed Jul. 16, 2021).

[57] S. Makridakis, "Accuracy measures: theoretical and practical concerns," *Int. J. Forecast.*, vol. 9, no. 4, pp. 527–529, 1993, doi: 10.1016/0169-2070(93)90079-3.

[58] L. Ferrante and R. Cameriere, "Statistical methods to assess the reliability of measurements in the procedures for forensic age estimation," *Int. J. Legal Med.*, vol. 123, no. 4, pp. 277–283, 2009, doi: 10.1007/s00414-009-0349-4.

[59] C. Kasemset, N. Sae-Haew, and A. Sopadang, "Multiple regression model for forecasting quantity of supply of off-season longan," *Chiang Mai Univ. J. Nat. Sci.*, vol. 13, no. 3, pp. 391–402, 2014, doi: 10.12982/cmujns.2014.0044.

[60] S. Abbas, "On-Line Measurement of Dissolved Methane Concentration During Methane Fermentation in a Loop Bioreactor," *Iran. J. Chem. Chem. Eng.*, vol. 28, no. 4, pp. 85–93, 2009.

[61] M. Beland, "WO2003069314 - Sterilisable Probe for Extraction of Volatile Compounds in Liquids and Their Quantitative Determination," 2003.