

## DAFTAR PUSTAKA

- Alile, O. M., Ujuanbi, O., & Evbuomwan, I. A. (2011). Geoelectric investigation of groundwater in Obaretin – Iyanomon locality, Edo state, Nigeria. In *British Journal of Applied Science & Technology* (Vol. 3, Issue 1). <https://doi.org/10.9734/bjast/2011/600>
- Arshad, M., Cheema, J. M., & Ahmed, S. (2007). Determination of Lithology and Groundwater Quality Using Electrical Resistivity Survey. *International Journal of Agriculture Biology*, 9(1), 143–146.
- Asnawi, R., Nugraha, A. C., Hertanto, D. B., & Surwi, F. (2019). Development and Testing of *Microcontroller*-Based Learning Media for the Internet of Things Lab Work. *Journal of Physics: Conference Series*, 1413(1). <https://doi.org/10.1088/1742-6596/1413/1/012007>
- Basaran, K. (2017). Error sources and measurement uncertainties in outdoor testing of BIPV modules. *Turkish Journal of Electrical Engineering & Computer Sciences*, 25, 1840–1851. <https://doi.org/10.3906/elk-1510-8>
- Bergmann, P., Schmidt-Hattenberger, C., Kiessling, D., Rücker, C., Labitzke, T., Henningses, J., Baumann, G., & Schütt, H. (2012). Surface-downhole electrical resistivity tomography applied to monitoring of CO<sub>2</sub> storage at Ketzin, Germany. *Geophysics*, 77(6). <https://doi.org/10.1190/geo2011-0515.1>
- Casas, A., Cosentino, P. L., Fiandaca, G., Himi, M., Macias, J. M., Martorana, R., Muñoz, A., Rivero, L., Sala, R., & Teixell, I. (2018). Non-invasive Geophysical Surveys in Search of the Roman Temple of Augustus Under the Cathedral of Tarragona (Catalonia, Spain): A Case Study. *Surveys in Geophysics*, 39(6), 1107–1124. <https://doi.org/10.1007/s10712-018-9470-6>
- Clark, J. A., & Page, R. (2011). Inexpensive Geophysical Instruments Supporting Groundwater Exploration in Developing Nations. *Journal of Water Resource and Protection*, 03(10), 768–780. <https://doi.org/10.4236/jwarp.2011.310087>
- Clément, R., Moreau, S., Henine, H., Guérin, A., Chaumont, C., & Tournebize, J. (2014). On the value of combining surface and cross-borehole ERT measurements to study artificial tile drainage processes. *Near Surface Geophysics*, 12(6), 763–775. <https://doi.org/10.3997/1873-0604.2014034>

- Dahlin, T. (1996). 2D resistivity surveying for environmental and engineering applications. *First Break*, 14(7), 275–283. <https://doi.org/10.3997/1365-2397.1996014>
- de la Vega, M., Bongiovanni, M. V., & Grünhut, V. (2021). Design of a Low-Cost Electrical Resistivity Meter for Near Surface Surveys. *Earth and Space Science*, 8(12), 1–10. <https://doi.org/10.1029/2020EA001575>
- Eintronic. (2017). Introduction to NodeMCU ESP8266 - IoTEDU. In Eintronic (Vol. 1, Issue July, pp. 1–5).
- ETSI. (2020). Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); General aspects of Quality of Service (QoS). In *Etsi Tr 101 329 V2.1.1*.
- Fatahillah, D., & Nuryani, N. (2019). Low-cost multi electrode resistivity meter based on *microcontroller* for electric resistivity tomography purpose. *9th International Conference on Physics and Its Applications*. <https://doi.org/10.1088/1742-6596/1153/1/012022>
- Fox, G. C., Dongarra, J., & Hwang, K. (2012). Distributed and Cloud Computing: From Parallel Processing to the Internet of Things (Issue 1). 225 Wyman Street Waltham, MA 02451, USA.
- Fowler, D. E., & Moysey, S. M. J. (2011). Estimation of aquifer transport parameters from resistivity monitoring data within a coupled inversion framework. *Journal of Hydrology*, 409(1–2), 545–554. <https://doi.org/10.1016/j.jhydrol.2011.08.063>
- Froese, D. G., Smith, D. G., & Clement, D. T. (2005). Characterizing large river history with shallow geophysics: Middle Yukon River, Yukon Territory and Alaska. *Geomorphology*, 67(3–4), 391–406. <https://doi.org/10.1016/j.geomorph.2004.11.011>
- Gutiérrez-Martín, A., Yenes, J. I., Fernández-Hernández, M., & Castedo, R. (2021). Stabilization methodology in foundation soils by ERT-3D application in Estepona, South Spain. *Applied Sciences (Switzerland)*, 11(10). <https://doi.org/10.3390/app11104455>
- Hendrajaya, L., & Arif, I. (1990). *Geolistrik Tahanan Jenis*. Laboratorium Fisika Bumi FMIPA ITB.
- Horsburgh, J. S., Caraballo, J., Ramírez, M., Aufdenkampe, A. K., Arscott, D. B., & Damiano, S. G. (2019). Low-cost, open-source, and low-power: But what

- to do with the data? *Frontiers in Earth Science*, 7(April), 1–14.  
<https://doi.org/10.3389/feart.2019.00067>
- Hou, L., Zhao, S., Xiong, X., Zheng, K., Chatzimisios, P., Hossain, M. S., & Xiang, W. (2016). Internet of Things Cloud: Architecture and Implementation. *IEEE Communications Magazine*, 54(11), 32–39.  
<https://doi.org/10.1109/MCOM.2016.1600398CM>
- Igboama, W. N., & Ugwu, N. U. (2011). Fabrication of resistivity meter and its evaluation Fabrication of resistivity meter and its evaluation R =. *AMERICAN JOURNAL OF SCIENTIFIC AND INDUSTRIAL RESEARCH*, 2(5). <https://doi.org/10.5251/ajsir.2011.2.5.713.717>
- Indarto, B. (2016). Rancang Bangun Sistem Pengukuran Resistivitas Geolistrik dengan menggunakan Sumber Arus Konstan. *Jurnal Fisika Dan Aplikasinya*, 12(2), 83. <https://doi.org/10.12962/j24604682.v12i2.1336>
- Instruments, T. (2015). Ina219. In *Dallas: Ti E2e*. [www.ti.com](http://www.ti.com)
- Juhari, K. N., Mohamed, A. H., Jusoh, M. H., & Aziz, N. (2018). *Development of Cloud - Based Monitoring System for Underground Resistivity and Soil Measurement*.
- Kamiński, M., Zientara, P., & Krawczyk, M. (2021). Electrical resistivity tomography and digital aerial photogrammetry in the research of the “Bachledzki Hill” active landslide – in Podhale (Poland). *Engineering Geology*, 285(July 2020). <https://doi.org/10.1016/j.enggeo.2021.106004>
- Kavre, M. (2019). *Internet of Things (IoT): A Survey*. 1–6.
- Kearey, P., Brooks, M., & Hill, I. (2002). An Introduction to Geophysical Exploration. In London: Blackwell Science Ltd. (Vol. 3).  
<https://doi.org/10.1016/j.jafrearsci.2017.04.031>
- Kuras, O., Pritchard, J. D., Meldrum, P. I., Chambers, J. E., Wilkinson, P. B., Ogilvy, R. D., & Wealthall, G. P. (2009). Monitoring hydraulic processes with automated time-lapse electrical resistivity tomography (ALERT). *Comptes Rendus - Geoscience*, 341(10–11), 868–885.  
<https://doi.org/10.1016/j.crte.2009.07.010>
- Liu, Y., Dong, B., Guo, B., Yang, J., & Peng, W. (2015). Combination of *Cloud computing* and Internet of Things (IOT) in Medical Monitoring Systems. *International Journal of Hybrid Information Technology*, 8(12), 367–376.  
<https://doi.org/10.14257/ijhit.2015.8.12.28>

- Maison, Sawitri, K. N., Samsidar, Handayani, L., Purbakawaca, R., & Nurjaman, J. (2019). Design of digital resistivity-meter for subsurface exploration. *Journal of Physics: Conference Series*, 1282(1). <https://doi.org/10.1088/1742-6596/1282/1/012051>
- Mao, F., Khamis, K., Krause, S., Clark, J., & Hannah, D. M. (2019). Low-Cost Environmental Sensor Networks: Recent Advances and Future Directions. *Frontiers in Earth Science*, 7(September), 1–7. <https://doi.org/10.3389/feart.2019.00221>
- Mikailu, A., Abdullahi, I., Sani, M. G., Muhammad, S., Unit, P., & Studies, R. (2015). Development of Digital Resistivity Meter. *Advances in Physics Theories and Applications*, 42, 56–62.
- Morris, A. S. (2001). *Measurement and instrumentation principles* (3rd ed.). Elsevier.
- Nejad, H. T. (2009). Geoelectric Investigation of the Aquifer Characteristics and Groundwater Potential in Behbahan Azad University Farm, Khuzestan Province, Iran. *Journal of Applied Sciences*, 9(20), 3691–3698.
- Ochs, J., & Klitzsch, N. (2020). Considerations regarding small-scale surface and borehole-to-surface electrical resistivity tomography. *Journal of Applied Geophysics*, 172. <https://doi.org/10.1016/j.jappgeo.2019.103862>
- Olanrewaju, A. ., Nafiu, A. K. ., & Oluwole, O. . (2020). Fabrication of resistivity meter and its evaluation within shallow depth of investigation. *Global Journal of Engineering and Technology Advances*, 04(01), 015–029. <https://doi.org/10.30574/gjeta>
- Sismanto, & Sunarta. (2022). Analysis of Electrode Placement Error on Geoelectric Data Acquisition. *The 47th Annual Scientific Meeting of Himpunan Ahli Geofisika Indonesia*, 6–18.
- Suhaeb, S., Abd Djawad, Y., Jaya, H., Ridwansyah, Sabran, & Risal, A. (2017). Mikrokontroler dan Interface. In Buku Ajar Jurusan Pendidikan Teknik Elektronika UNM. [https://scholar.google.co.id/scholar?hl=id&as\\_sdt=0,5&q=jurnal+artikel+ilmiah&btnG=](https://scholar.google.co.id/scholar?hl=id&as_sdt=0,5&q=jurnal+artikel+ilmiah&btnG=)
- Suparwoto. (2017). Pembuatan Alat Spectral Induced Polarization (Sip) Untuk Mengukur Efek Polarisasi Pada Sampel Batuan Galena, Pyrite Dan Chalcophyrite. Universitas Gadjah Mada.

- Telford, W. M., Geldart, L. P., & Sheriff, R. E. (1990). Applied geophysics. In *Cambridge University Press* (Vol. 2). <https://doi.org/10.1038/127783a0>
- Toll, D. G., & Hassan, A. (2014). Data Acquisition and Control *Software* for Automated Resistivity Measurements. *Information Technology in Geo-Engineering*. <https://doi.org/10.3233/978-1-61499-417-6-170>
- Urang, J. G., Awak, E. A., & Bamidele, A. S. (2018). Design and construction of a simple resistivity meter for resistivity measurement. *Research Journal of Physical Sciences*, 6(5), 1–7.
- Wan Ahmad, W. F. H., Azhari, M. S., Jasni, J., Ab-Kadir, M. Z. A., & Gomes, C. (2018). Portable Natural Enhancement Material Resistivity Meter: A Prototype. *2018 IEEE 7th International Conference on Power and Energy, PECon 2018*, 96–101. <https://doi.org/10.1109/PECON.2018.8684060>
- Yeh, H. F., Lin, H. I., Wu, C. S., Hsu, K. C., Lee, J. W., & Lee, C. H. (2015). Electrical resistivity tomography applied to groundwater aquifer at downstream of Chih-Ben Creek basin, Taiwan. *Environmental Earth Sciences*, 73(8), 4681–4687. <https://doi.org/10.1007/s12665-014-3752-1>
- Yohandri, Mairizwan, & Akmam. (2018). Development of A Digital ResiMeter Based on *Microcontroller*. *TENCON 2018 - 2018 IEEE Region 10 Conference, October 2018*, 551–554. <https://doi.org/10.1109/TENCON.2018.8650464>
- Global, Shenzhen Technology Co., L. (2015). Voltage Sensor / 170640. Shenzhen City, Guangdong Science and Technology Co., Ltd.
- Instruments, T. (2015). Ina219. In *Dallas: Ti E2e*. [www.ti.com](http://www.ti.com)
- <https://components101.com/sensors/voltage-sensor-module>
- [https://www.handsontec.com/dataspecs/I2C\\_2004\\_LCD.pdf](https://www.handsontec.com/dataspecs/I2C_2004_LCD.pdf)
- <https://microcontrollerslab.com/micro-sd-card-module-esp8266-nodemcu/>
- <https://www.datasheethub.com/wp-content/uploads/2022/10/Arduino-25v-voltage-sensor-module.pdf>
- <https://docs.Arduino.cc/software/ide-v2/tutorials/getting-started-ide-v2>