

## DAFTAR PUSTAKA

- [1] D. R. S. ., A. R. ., Y. Z. Adi Susilo, "DESAIN SISTEM PERINGATAN DINI ZONA RAWAN LONGSOR," 2011.
- [2] I. M. B. S. S. Afrizal Dwiantara, "SIMULASI PENDETEKSIAN TANAH LONGSOR MENGGUNAKAN SENSOR," *Dielektrika*, vol. 3, no. 2, p. 8, 2016.
- [3] J. S. C. C. JULIANA ANDREA RAMOS CIFUENTES, "CARACTERIZACIÓN DEL SENSOR IMU (INERTIAL MEASUREMENT UNIT) BNO055," Universidad Antonio Nariño Facultad de Ingeniería Mecánica, Electrónica y Biomédica, Villavicencio, Colombia, 2020.
- [4] I. Rusdiyanto, "Identifikasi Daerah Rawan Longsor".
- [5] C. Novita, "tirto.id," 23 september 2021. [Online]. Available: <https://tirto.id/apa-itu-tanah-longsor-pengertian-jenis-jenis-proses-terjadinya-gaF3>. [Accessed 1 november 2021].
- [6] W. Wati, "PENGEMBANGAN MODUL PEMBELAJARAN FISIKA SMA," PENGEMBANGAN MODUL PEMBELAJARAN FISIKA SMA , 116, 2019.
- [7] S. S. W. d. A. P. W. M. Hanif Arzaq, "Identifikasi Karakteristik Longsor dan Analisis Kestabilan Lereng (Studi Kasus: Dusun," in *Prosiding Seminar Nasional Teknik Lingkungan Kebumihan Ke-II "Strategi Pengelolaan Lingkungan Sumberdaya Mineral dan Energi Untuk Pembangunan Berkelanjutan"* Jurusan Teknik Lingkungan, Fakultas Teknologi Mineral, UPN Veteran Yogyakarta,., yogyakarta, 2020.
- [8] D. Karnawati, *Bencana Alam Gerakan Massa Tanah di Indonesia dan Upaya Penanggulangannya*, Yogyakarta: Jurusan Teknik Geologi Fakultas Teknik Universitas Gadjah Mada, 2005.
- [9] E. Subowo, "Pengenalan Gerakan Tanah," Pusat Volkanologi dan Mitigasi , bandung, 2003.
- [10] I. W. G. E. Saputra, "ANALISIS RISIKO BENCANA TANAH LONGSOR DI KECAMATAN SUKASADA KABUPATEN BULELENG," *ECOTROPHIC : Jurnal Ilmu Lingkungan (Journal of*

Environmental Science), UPT Pusdalops PB BPBD Provinsi Bali Jurusan Biologi Fakultas MIPA Universitas Udayana Jurusan Agroekoteknologi Fakultas Pertanian Universitas Udayana, vol. 10, no. 2503-3395, pp. 54-61, 2016.

- [11] L. Sambolangi, "Identifikasi Jenis dan Karakteristik Longsor di Daerah Aliran Sungai (DAS) Lisu Kabupaten Barru," 2017. [Online]. Available: [http://digilib.unhas.ac.id/uploaded\\_files/temporary/DigitalCollection/MjBhMjFmZDUyYmY0ZTg4NGQxOTVmYmM2NzEwN2I4ODQ1OTY0MzljYg==.pdf](http://digilib.unhas.ac.id/uploaded_files/temporary/DigitalCollection/MjBhMjFmZDUyYmY0ZTg4NGQxOTVmYmM2NzEwN2I4ODQ1OTY0MzljYg==.pdf). [Accessed 2 november 2021].
- [12] H. W. Fakhryza Nabila Hamida, "RISIKO KAWASAN LONGSOR DALAM UPAYA MITIGASI," *PONDASI*, vol. Vol 24 No 1 , 2019.
- [13] T. U. P. C. J. L. C. X. Q. S. Jiren Xie, "A Relationship Between Displacement and Tilting Angle of The Slope Surface in Shallow Landslides," Springer-Verlag GmbH Germany part of Springer Nature 2019, Germany, 2019.
- [14] S. B. R. F. A. B. O. M. P. T. D. B. M. C. F. C. Lorenzo Solari, "Satellite Interferometric Data For Landslide Intensity Evaluation in Mountainous Regions," *International Journal of Applied Earth Observation and Geoinformation*, vol. Volume 87 , 2020.
- [15] BADAN PENANGGULANGAN BENCANA DAERAH PEMERINTAH KABUPATEN BOGOR, "BADAN PENANGGULANGAN BENCANA DAERAH PEMERINTAH KABUPATEN BOGOR," 2 AGUSTUS 2022. [Online]. Available: <https://bpbd.bogorkab.go.id/mitigasi-adalah-upaya-mengurangi-risiko-berikut-langkah-langkah-dan-contohnya/>. [Accessed 3 FEBRUARI 2023].
- [16] BADAN PENANGGULANGAN BENCANA DAERAH PEMERINTAH KABUPATEN PURWOREJO, "MITIGASI definisi dan pengertian," 6 AGUSTUS 2019. [Online]. Available: <https://bpbd.purworejokab.go.id/mitigasi>. [Accessed 3 FEBRUARI 2023].
- [17] H. Setiawan, "KAJIAN BENTUK MITIGASI BENCANA LONGSOR DAN TINGKAT," *Jurnal Hutan Tropis* , p. Volume 4 No. 1, Maret 2015.
- [18] F. K. Muhammad Ari Roma Wicaksono, "Kalman Filter untuk Mengurangi Derau Sensor Accelerometer pada IMU," *AVITEC*, vol. Vol. 2, no. P-ISSN 2685-2381, E-ISSN 2715-2626, p. No. 2, August 2020.

- [19] D. I. Suryanti, "INERTIAL MEASUREMENT UNIT (IMU) PADA SISTEM PENGENDALI SATELIT," *FAKTUALITA*, vol. Vol. 12 , 2 desember 2017.
- [20] L. Kholida, "Aplikasi Prinsip Gyroscope untuk Mempertahankan Kesetimbangan Sebuah Sistem Sederhana," *PROSIDING SKF 2016*, 2016.
- [21] N. M. Dewi, "Fisika Terapan," 28 oktober 2013. [Online]. Available: <https://id.scribd.com/doc/179629264/fisika-terapan>. [Accessed 5 desember 2021].
- [22] Y. Sahreza, "Perancangan dan Implementasi Sistem Navigasi Menggunakan Inertial Measurement Unit pada Autonomous Underwater Robot," Universitas Telkom, Bandung, 2015.
- [23] Y. A. Pramana, "IMPLEMENTASI SENSOR ACCELEROMETER, GYROSCOPE DAN MAGNETOMETER BERBASIS MIKROKONTROLER UNTUK MENAMPILKAN POSISI BENDA MENGGUNAKAN INERTIAL NAVIGATION SYSTEM (INS)," Program Studi Teknik Elektro, Universitas Komputer Indonesia, Bandung, 2013.
- [24] G. H. E. J. D. P. B. W. P. Demoz Gebre-Egziabher, "Calibration of Strapdown Magnetometers in Magnetic Field Domain," *Journal of Aerospace Engineering* 19(2), April 2006.
- [25] n. k. umam, "Gerak Vektor," 19 desember 2012 . [Online]. Available: [https://www.slideshare.net/nur\\_khothibul\\_umam/gerak-vektor](https://www.slideshare.net/nur_khothibul_umam/gerak-vektor). [Accessed 15 februari 2023].
- [26] R. A. Putra, "PERANCANGAN ROKET ELECTRIC DUCTED FAN DAN SISTEM KENDALI UNTUK MENCAPAI SASARAN SECARA HORIZONTAL," Prodi S1 Teknik Elektro, Fakultas Teknik dan Ilmu Komputer, Universitas Komputer Indonesia, Bandung.
- [27] P. McWhorter, "9-AXIS INERTIAL MEASUREMENT UNIT (IMU)," 15 agustus 2019. [Online]. Available: <https://toptechboy.com/arduino-based-9-axis-inertial-measurement-unit-imu-based-on-bno055-sensor/>. [Accessed 3 februari 2023].
- [28] W. d. A. H. M. Antisto Akbar, "PERANCANGAN PERANGKAT LUNAK PENDETEKSI SUDUT DAN POSISI MENGGUNAKAN

MIKROKONTROLER ATMEGA 32," Jurusan Teknik Elektro,  
Universitas Diponegoro Semarang , semarang.

- [29] M. N. Qomarudin, "Memahami Sudut Euler dan Matriks Rotasi," 22 November 2017. [Online]. Available: [https://www.researchgate.net/publication/321225062\\_Memahami\\_Sudut\\_Euler\\_dan\\_Matriks\\_Rotasi](https://www.researchgate.net/publication/321225062_Memahami_Sudut_Euler_dan_Matriks_Rotasi). [Accessed 15 februari 2023].
- [30] R. M. W. K. Hafizhuddin Zul Fahmi, "Implementasi Complementary Filter Menggunakan Sensor Accelerometer Dan Gyroscope pada keseimbangan Gerak Robot Humanoid," *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, vol. Vol. 1 No. 11, no. e-ISSN:2548-964x, pp. Hlm. 1376-1384, 2017.
- [31] N. H. O. M. Ali Boyali, "A signal pattern recognition approach for mobile devices and it's application to braking state classification on robotic mobility devices," april 2015. [Online]. Available: <https://www.researchgate.net/publication/275718992/figure/fig4/AS:267903505268749@1440884581410/A-complementary-filter-block-diagram.png>. [Accessed 15 februari 2023].
- [32] H. A. DARMAWAN, MIKROKONTROLER Konsep Dasar dan Praktis, MALANG: UB Press, 2017.
- [33] U. K. U. I. A. Atika Shinta Ayuningtyas, "Analisa Performansi Jaringan Lora (LONG Range) di Kota Surabaya," *e-Proceeding of Engineering*, vol. Vol. 7 No.2, no. 2355-9365, p. 3350, 2 AGUSTUS 2020.
- [34] P. Rizky, "SISTEM PEMBERI PAKAN HEWAN PELIHARAAN DENGAN KENDALI JARAK JAUH LORA," Program Studi Teknik Elektro Fakultas Sains dan Teknologi Universitas Sanata Dharma, YOGYAKARTA, 2019.
- [35] M. S. R. Firmansyah, "Analisis Parameter Lora Pada Lingkungan Outdoor," Universitas Dinamika, Surabaya, 2020.
- [36] Sensing Labs Best Performing and Most Reliable LoRa Sensors, "Understand how RSSI and SNR are considered as good radio level," [Online]. Available: <https://sensing-labs.com/f-a-q/a-good-radio-level/>. [Accessed 3 februari 2023].
- [37] A. R. Wijaya1, "ANALISA KEHANDALAN JARINGAN INTERNET DENGAN PENDEKATAN QUALITY OF SERVICE PADA RS. KUSTA

DR. RIVAI ABDULLAH PALEMBANG," *Jurnal Ilmiah Matrik*, Vols. Vol.20 No.1., pp. 1 -10, April 2018.

- [38] F. A. M. Ahmad Turmudi, "ANALISIS QOS (QUALITY OF SERVICE) DENGAN METODE TRAFFI," *SIGMA – Jurnal Teknologi Pelita Bangsa*, vol. Volume 9 Nomor 4, no. 2407-3903, Juni 2019.
- [39] A. Junaidi, "INTERNET OF THINGS, SEJARAH, TEKNOLOGI DAN PENERAPANNYA : REVIEW," *Jurnal Ilmiah Teknologi Informasi Terapan*, vol. 1, no. 2407 - 3911, p. 3, 10 AGUSTUS 2015.
- [40] Wikipedia, "Microcontroller," 2021.
- [41] Atmel, "ATmega328P 8-bit AVR Microcontroller with 32K Bytes In-System Datasheet".
- [42] HOPERF Electronics, "RFM95/96/97/98(W) - Low Power Long Range Transceiver Module V1.0," HOPERF Electronics.
- [43] RWTH Aachen University, "Phyphox," RWTH Aachen University, [Online]. Available: <https://phyphox.org/>. [Accessed 12 februari 2023].
- [44] Bosch Sensortec, "Data sheet Bno055 Intelligent 9-axis absolute orientation sensor," Bosch Sensortec, June 2016.
- [45] Zamil Consulting, "Derajat kebebasan," 2019.
- [46] "Bencana Tanah Longsor Paling Mematikan Di Indonesia," 2 september 2016. [Online]. Available: <https://pusatkrisis.kemkes.go.id/bencana-tanah-longsor-paling-mematikan-di-indonesia>. [Accessed 23 desember 2021].
- [47] IDX, "HUT ke-25, Zyrex (ZYRX) Luncurkan Internet Of Things (IOT)," 22 september 2021. [Online]. Available: <https://www.idxchannel.com/economics/hut-ke-25-zyrex-zyrx-luncurkan-internet-of-things-iot>. [Accessed 9 Desember 2021].
- [48] MathWorks, "Magnetometer," [Online]. Available: <https://es.mathworks.com/help/supportpkg/android/ref/magnetometer.html>. [Accessed 9 Desember 2021].
- [49] "PENGERTIAN ACCELEROMETER DAN CARA KERJANYA," 6 februari 2018. [Online]. Available: <https://www.immersa->

lab.com/pengertian-accelerometer-dan-cara-kerjanya.htm. [Accessed 5 Desember 2021].

- [50] "PENGERTIAN, FUNGSI DAN KELEBIHAN ACCELEROMETER YANG TAK BANYAK ORANG KETAHUI," 15 april 2019. [Online]. Available:  
[https://www.baktikominfo.id/id/informasi/pengetahuan/pengertian\\_fungsi\\_dan\\_kelebihan\\_accelerometer\\_yang\\_tak\\_banyak\\_orang\\_ketahui-785](https://www.baktikominfo.id/id/informasi/pengetahuan/pengertian_fungsi_dan_kelebihan_accelerometer_yang_tak_banyak_orang_ketahui-785). [Accessed 5 desember 2021].
- [51] TEKNIK FISIKA ITS, "SISTEM PENGUKURAN & KALIBRASI TF091332," [Online]. Available:  
[http://share.its.ac.id/pluginfile.php/291/mod\\_resource/content/1/Pengantar\\_Sistem\\_Pengukuran.pdf](http://share.its.ac.id/pluginfile.php/291/mod_resource/content/1/Pengantar_Sistem_Pengukuran.pdf). [Accessed 24 SEPTEMBER 2020].
- [52] TOKYO KEISO CO.,LTD., "TECHNICAL GUIDANCE K SERIES," [Online]. Available:  
[https://www.tokyokeiso.co.jp/english/products/download/tg/K\\_TG-F832E.pdf](https://www.tokyokeiso.co.jp/english/products/download/tg/K_TG-F832E.pdf).
- [53] Telkom Iot, "Telkom Iot," Telkom Indonesia, 2020. [Online]. Available:  
<https://www.telkomiota.com/antares-iot-platform>. [Accessed 28 november 2021].
- [54] E. S. Noor, "Implementasi Sensor Magnetometer dan Akselerometer Untuk Memonitor Arah Muatan Roket," Universitas Brawijaya, malang, 2013.
- [55] R. A. Putra, "Perancangan dan Pembuatan Magnetometer Digital dengan Sensor Magnet HMC5883L Berbasis Web," Sub Bidang IKA Balai Besar Meteorologi Klimatologi dan Geofisika Wilayah I, Medan, Medan.
- [56] A. Lavric, "LoRa (Long-Range) High-Density Sensors for Internet of Things," *HINDAWI Journal of sensors*, Vols. Volume 2019, Article ID 3502987, p. 9, 24 februari 2019.
- [57] J. V. U. R. Martin Bor, "LoRa for the Internet of Things," Lancaster University.
- [58] H. D. N. R. Isna Nikmatul Farikha, "PROTOTYPE DETEKTOR BENCANA TANAH LONGSOR MENGGUNAKAN ACCELEROMETER AND GYROSCOPE SENSOR DENGAN KONSEP INTERNET OF THINGS (IoT)," Prodi D3 Teknologi Telekomunikasi, Fakultas Ilmu Terapan, Universitas Telkom, bandung, 2021.

[59] Wikipedia, "GIROSKOP".

[60] Indonesia, Kemlu, [Online]. Available:  
[https://pih.kemlu.go.id/files/UU\\_%20tentang%20ketenagakerjaan%20no%2013%20th%202003.pdf](https://pih.kemlu.go.id/files/UU_%20tentang%20ketenagakerjaan%20no%2013%20th%202003.pdf).