

DAFTAR PUSTAKA

- [1] General Authority for Statistics, "Umrah Statistics for Q4 of 2025," Riyadh, 2025. Accessed: Aug. 04, 2026. [Online]. Available: <https://www.stats.gov.sa/en/statistics-tabs/-/categories/124334?tab=436312&category=124334>
- [2] S. W. Ningsih, Y. Arisandi, and E. Stiawan, "Strategi dan Dinamika Pelaksanaan Bimbingan Manasik Umrah dalam Meningkatkan Kesiapan Jamaah (Studi Kasus pada PT Wafdullah Tamu Mulia Cabang Bengkulu)," *Jurnal Masharif al-Syariah: Jurnal Ekonomi dan Perbankan Syariah*, vol. 11, no. 3, pp. 1195–1208, 2026, doi: 10.30651/jms.v11i3.31508.
- [3] I. S. Butsainah, A. Anas, A. Rozaq, M. Hilmi, Kasmuri, and V. Darissurayyya, "Persepsi Jemaah Terhadap Bimbingan Manasik Umrah di Biro Saibah Mulia Mandiri Semarang Pada Tahun 2025," *Kamaya: Jurnal Ilmu Agama*, vol. 8, no. 3, pp. 193–205, 2025, [Online]. Available: <https://jayapanguspress.penerbit.org/index.php/kamaya>
- [4] Febinnaqiyya, S. Mukaromah, L. M. Sholihah, F. Wulandari, R. Effendi, and F. M. Savitri, "Evaluasi Manasik Umrah di KBIH Al-Mujahidin Jepara Ditinjau dari Lima Layanan: Tangibility, Responsiveness, Reliability, Empathy, dan Assurance," *Jotika Journal in Management and Entrepreneurship*, vol. 3, no. 2, pp. 63–69, Feb. 2024.
- [5] S. S. Alwakeel, B. Alhalabi, and M. M. Alwakeel, "Perspectives on System of Systems for Pilgrimage Ritual Guidance and Management," in *8th Annual IEEE International Systems Conference (SysCon 2014)*, Ottawa: IEEE, Mar. 2014.
- [6] Md. M. Hasan, "How to Prepare for Hajj and Umrah," IslamiCity. Accessed: Aug. 04, 2026. [Online]. Available: <https://www.islamicity.org/106638/how-to-prepare-for-hajj-and-umrah/Faith>
- [7] E. Setiawan and H. KH, "Pendampingan Edukasi Manasik Umrah (EduManarah) untuk Peningkatan Kualitas Spiritual," *Jumat: Keagamaan: Jurnal Pengabdian Masyarakat*, vol. 7, no. 1, pp. 44–53, Apr. 2026.
- [8] A. M. Kabir, S. T. Nisa, and M. M. Khan, "A Virtual Reality (VR) Based Interactive and Educative Experience of Hajj and Umrah for the People of Bangladesh," in *2021 IEEE 11th Annual Computing and Communication Workshop and Conference (CCWC)*, Institute of Electrical and Electronics Engineers Inc., Jan. 2021, pp. 170–173. doi: 10.1109/CCWC51732.2021.9375915.
- [9] H. Rossa, N. Hudallah, B. Sunarko, and A. Mulwinda, "Virtual Reality-Based Hajj Manasik Practice Digitization System with 360 Degree Video,"

Budapest International Research and Critics Institute-Journal (BIRCI-Journal), vol. 5, no. 1, pp. 4956–4970, Feb. 2022, doi: 10.33258/birci.v5i1.4199.

- [10] S. N. Johari, N. S. Nadri, N. H. Mat Zain, A. A. Yasin, Z. Othman, and S. F. A. Aziz, “Non-Immersive Virtual Reality Umrah Simulation: A Functionality Test,” in *2022 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT)*, IEEE, 2022, pp. 138–143. doi: 10.1109/3ICT56508.2022.9990678.
- [11] A. S, “Navigation of a User-Controlled Virtual Object in Indoor and Outdoor Environments, Considering Occlusion Challenges and Utilizing Spatial Computing,” *Int. J. Eng. Adv. Technol.*, vol. 15, no. 2, pp. 19–27, Dec. 2025, doi: 10.35940/ijeat.C4734.15021225.
- [12] A. Nugroho, A. G. Moeksin, A. I. Maula, and S. M. Widyasari, “Analisis Kualitatif Persepsi Visuospasial Muslim Milenial Urban Indonesia Terhadap Manasik Haji/Umrah Virtual,” *Kartala Visual Studies*, pp. 1–8, May 2022, [Online]. Available: <https://journal.budiluhur.ac.id/index.php/kartala>
- [13] A. Ibrayev and B. Omarov, “Recent Advances in Visual SLAM: Taxonomy, Comparative Analysis, and Open Challenges,” *Engineering, Technology and Applied Science Research*, vol. 15, no. 6, pp. 29069–29076, 2025, doi: 10.48084/etasr.13116.
- [14] A. J. Davison, “Andrew J. Davison - Personal Academic Homepage,” Imperial College London. Accessed: Aug. 05, 2026. [Online]. Available: <https://www.doc.ic.ac.uk/~ajd/>
- [15] Unity Technologies, “What is Inside-out vs. Outside-in Tracking?,” Unity. Accessed: Aug. 05, 2026. [Online]. Available: <https://unity.com/glossary/Insideout-outsidein-tracking>
- [16] R. Mur-Artal, J. M. M. Montiel, and J. D. Tardos, “ORB-SLAM: A Versatile and Accurate Monocular SLAM System,” *IEEE Transactions on Robotics*, vol. 31, no. 5, pp. 1147–1163, Oct. 2015, doi: 10.1109/TRO.2015.2463671.
- [17] R. Mur-Artal and J. D. Tardos, “ORB-SLAM2: An Open-Source SLAM System for Monocular, Stereo, and RGB-D Cameras,” *IEEE Transactions on Robotics*, vol. 33, no. 5, pp. 1255–1262, Oct. 2017, doi: 10.1109/TRO.2017.2705103.
- [18] H. Strasdat, “Local Accuracy and Global Consistency for Efficient Visual SLAM,” PhD Thesis, Imperial College London, London, 2012.
- [19] M. R. Ramadhan *et al.*, “Building Virtual Reality Hajj Journey Learning Media as a Simulation Tool for Teaching Hajj and Umrah Topics,” *Nadwa:*

- Jurnal Pendidikan Islam*, vol. 19, no. 1, pp. 39–64, Jul. 2025, doi: 10.21580/nw.2025.19.1.26704.
- [20] M. A. Yaqin and A. Tholib, “Implementasi Manasik Haji dengan Teknologi VR (Virtual Reality) untuk Mencegah Penyebaran Virus Covid-19,” *Jurnal Dinamika Informatika*, vol. 14, no. 2, pp. 81–89, 2022, doi: 10.35315/informatika.v14i2.9185.
- [21] F. Yixuan, W. Guoyan, and F. Hongqi, “Validation of ORB-SLAM2’s applicability across scenarios,” in *Информационная безопасность : сборник материалов 61-й научной конференции аспирантов, магистрантов и студентов БГУИР*, БГУИР, 2025, pp. 152–157. Accessed: Jul. 09, 2026. [Online]. Available: <https://libeldoc.bsuir.by/handle/123456789/61463>
- [22] H. V. F. Kainde and D. G. S. Ruindungan, “Implementation of Virtual Reality Technology for Visualization of Moraya Fortress Tondano,” *Jurnal Teknik Elektro dan Komputer*, vol. 14, no. 3, pp. 127–134, 2025, doi: 10.35793/jtek.v14i3.64662.
- [23] D. Sumardani, R. R. Saraswati, U. Widiastuti, K. Komala, and W. D. Listyasari, “The Free Hajj: Virtual Reality in Manasik Hajj Training Education,” *Al-Hayat: Journal of Islamic Education*, vol. 4, no. 2, p. 191, Jan. 2021, doi: 10.35723/ajie.v4i2.136.
- [24] W. Liu, G. Wan, J. Liu, and D. Cong, “ORB-SLAM2 System Enhanced With SiaT-Hough Module on Mars Digital Twin Platform: For Rock Counting and 3D Reconstruction in Martian Environments,” *IEEE Access*, vol. 13, pp. 127824–127836, 2025, doi: 10.1109/ACCESS.2025.3585918.
- [25] A. Fitri’Aini, F. R. Pradhana, and D. Fikrianti, “Simulasi Interaktif 3 Dimensi Manasik Haji Berbasis Konsep Third Person Shooter Kepada Siswi Gontor Kelas 1 F,” in *Seminar Nasional Teknologi & Sains (STAINS)*, Kediri: Universitas Nusantara PGRI Kediri, Jan. 2025, pp. 364–371. doi: <https://doi.org/10.29407/kbn74n52>.
- [26] M. Syahmi, M. Dinein, I. Khairul, and S. Kalid, “V-Tawaf: A Virtual Reality Application for the Learning of the Tawaf Ritual,” *Malaysian Journal of Information and Communication Technology (MyJICT)* |, vol. 7, no. 2, pp. 29–38, 2022, doi: 10.53840/myjict7-2-154.
- [27] W. A. Candra, R. Merzouki, and M. Djemai, “Practical Validation of ORB2 SLAM Mapping on Indoor Logistic UAV Application,” in *Proceedings of the 5th International Conference on Applied Science and Technology on Engineering Science (iCAST-ES 2022)*, SCITEPRESS – Science and Technology Publications, Lda., Dec. 2023, pp. 976–981. doi: 10.5220/0011973800003575.

- [28] Republik Indonesia, *Undang-Undang Republik Indonesia Nomor 8 Tahun 2019 tentang Penyelenggaraan Ibadah Haji dan Umrah*. Jakarta, Indonesia, 2019, pp. 1–63.
- [29] A. Nugroho, A. G. Moeksin, A. I. Maula, and S. M. Widyasari, “Analisis Kualitatif Persepsi Visuospasial Muslim Milenial Urban Indonesia Terhadap Manasik Haji/Umrah Virtual,” *Kartala Visual Studies*, vol. 2, no. 1, May 2022, doi: 10.36080/ka.v2i1.1838.
- [30] Md. M. Hasan, “How to Prepare for Hajj and Umrah,” *IslamiCity*, Apr. 29, 2026. [Online]. Available: <https://www.islamicity.org/106638/how-to-prepare-for-hajj-and-umrah/>
- [31] Kaimudin, Nurhasan, and Y. A. Dwiyanto, “Pengembangan Pembelajaran Digital pada Mata Pelajaran Pendidikan Agama Islam Berbasis Nilai Adab dan Akhlak Islami,” *Jurnal Wahana Literasi Pendidikan*, vol. 1, no. 1, pp. 138–145, Jan. 2026, doi: <https://doi.org/10.58472/jwlp.v1i1.363>.
- [32] A. Nurherviyanti, N. S. Rani, N. A. Apriani, and S. Devrianti, “Menelaah Penggunaan Virtual Reality (Vr) Dalam Pelaksanaan Ibadah Haji Dari Sudut Pandang Rukun Haji,” *Moderasi: Jurnal Kajian Islam Kontemporer*, vol. 1, no. 1, pp. 1–25, Dec. 2023, doi: 10.11111/nusantara.xxxxxxx.
- [33] A. Saputro, Nurwati, and Y. Santoso, “Menggali Pengalaman Umroh Melalui Teknologi Virtual Reality,” *Jurnal Ilmiah Telsinas Elektro, Sipil dan Teknik Informasi*, vol. 6, no. 1, pp. 63–73, Apr. 2023, doi: 10.38043/telsinas.v6i1.4411.
- [34] Mohamad Ikhsan, “Rukun Umroh: Urutan, Tata Cara, dan Dalilnya agar Ibadah Sah,” *Alsha Tours*. Accessed: Jul. 11, 2026. [Online]. Available: <https://www.alshatravel.com/5-rukun-umroh-terlengkap-beserta-tata-cara-dan-dalilnya/>
- [35] W. A. B. Wan Al Akmal, N. A. B. Mohamed Ghazali, and S. Che Din, “An Analysis on 3D Modelling Technique in Virtual Reality for Hajj and Umrah Simulation,” *Idealogy Journal*, vol. 10, no. 2, pp. 129–137, Sep. 2025, doi: 10.24191/idealogy.v10i2.834.
- [36] Y. M. Tang and H. L. Ho, “3D Modeling and Computer Graphics in Virtual Reality,” in *Three Dimensional Computer Graphics*, IntechOpen, 2020. doi: <https://www.intechopen.com/chapters/71263>.
- [37] A. Mostafavi, Z. Qiu, T. B. Xu, W. Niu, and S. Kalantari, “Designing for Wayfinding in VR: Linking Navigation Interfaces to Spatial Learning and Cognitive Mapping,” in *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems*, Barcelona: Association for Computing Machinery, Apr. 2026, pp. 1–19. doi: 10.1145/3772318.3791145.

- [38] N. P. Bimby, Zamzami, and M. A. Hasan, "Tinjauan Sistematis: Efektivitas Simulasi Virtual Reality (VR) dalam Peningkatan Keterampilan Alat dan Mesin Pertanian (Alsintan)," *JATI (Jurnal Mahasiswa Teknik Informatika)*, vol. 10, no. 1, pp. 1755–1759, Feb. 2026.
- [39] E. D. Fajrianti *et al.*, "INSUS: Indoor Navigation System Using Unity and Smartphone for User Ambulation Assistance," *Information*, vol. 14, no. 7, pp. 1–20, Jun. 2023, doi: 10.3390/info14070359.
- [40] X. Lu, H. Zhao, and G. Turken, "Research on the Comprehensive Simulation Testing Platform of Navigation Satellite Based on BD3," in *2025 IEEE 5th International Conference on Smart Information Systems and Technologies (SIST)*, IEEE, 2025. doi: 10.1109/SIST61657.2025.11139223.
- [41] P. Aryan, S. D. Shetty, V. Kalaichelvi, and R. Karthikeyan, "SimNav-XR: an extended reality platform for mobile robot simulation using ROS2 and Unity3D," *Front. Robot. AI*, vol. 13, Feb. 2026, doi: 10.3389/frobt.2026.1708161.
- [42] S. Goodroe *et al.*, "Predicting real-world navigation performance from a virtual navigation task in older adults," *PLoS One*, vol. 20, no. 1, Jan. 2025, doi: 10.1371/journal.pone.0317026.
- [43] A. Coutrot *et al.*, "Virtual navigation tested on a mobile app is predictive of real-world wayfinding navigation performance," *PLoS One*, vol. 14, no. 3, p. e0213272, Mar. 2019, doi: 10.1371/journal.pone.0213272.
- [44] J. A. S. Carneiro, A. Cardoso, F. P. Santos, S. T. Milagre, E. A. Lamounier, and L. C. Oliveira, "Ethical Aspects in a Virtual Reality Environment," in *2023 18th Iberian Conference on Information Systems and Technologies (CISTI)*, Aveiro: IEEE, Jun. 2023.
- [45] T. L. Kunii, Ed., *Computer Graphics: Theory and Applications*, 1st Edition. Tokyo: Springer-Verlag, 1983. doi: 10.1007/978-3-642-85962-5.
- [46] W. Xincheng, Z. Weile, Z. Xiaokun, and G. Deren, "Three-Dimensional Space Interpolation of Grey / Depth Image Sequence: A New Technique of Computer Graphics Synthesis," *Chinese Journal of Systems Engineering and Electronics*, vol. 4, no. 3, pp. 70–77, 1993.
- [47] X. Gao and T. Zhang, *Introduction to Visual SLAM: From Theory to Practice*. Singapore: Springer, 2021.
- [48] R. W. Ali, H. Hakim, and M. A. Al-Ibadi, "A Full Overview of Visual SLAM Algorithms," *Journal of Computer Science and Engineering Research*, vol. 2, pp. 27–41, Jun. 2025, doi: 10.64820/aepjcsr.21.27.41.62025.
- [49] A. J. Davison, "FutureMapping: The Computational Structure of Spatial AI Systems," Mar. 2018, [Online]. Available: <http://arxiv.org/abs/1803.11288>

- [50] P. Liang, E. Blasch, and H. Ling, "Encoding Color Information for Visual Tracking: Algorithms and Benchmark," *IEEE Transactions on Image Processing*, vol. 24, no. 12, pp. 5630–5644, Dec. 2015, doi: 10.1109/TIP.2015.2482905.
- [51] R. C. Smith and P. Cheeseman, "On the Representation and Estimation of Spatial Uncertainty," *Int. J. Rob. Res.*, vol. 5, no. 4, pp. 56–68, 1986, doi: 10.1177/027836498600500404.
- [52] E. P. Herrera-Granda, J. C. Torres-Cantero, and D. H. Peluffo-Ordóñez, "Monocular visual SLAM, visual odometry, and structure from motion methods applied to 3D reconstruction: A comprehensive survey," *Heliyon*, vol. 10, no. 18, p. e37356, Sep. 2024, doi: 10.1016/j.heliyon.2024.e37356.
- [53] Y. E. El-Alfy and U. Baroudi, "Monocular based 3D depth estimation and SLAM integration," *Drone Systems and Applications*, vol. 13, pp. 1–14, 2025, doi: 10.1139/dsa-2024-0025.
- [54] H. Strasdat, J. M. M. Montiel, and A. J. Davison, "Scale Drift-Aware Large Scale Monocular SLAM," in *Proceedings of Robotics: Science and Systems VI (atau cukup tulis Robotics: Science and Systems (RSS 2010))*, Zaragoza, 2010.
- [55] W.-H. Lien *et al.*, "A Monocular SLAM-based Multi-User Positioning System with Image Occlusion in Augmented Reality," *arXiv preprint arXiv:2411.10940*, Nov. 2024, [Online]. Available: <http://arxiv.org/abs/2411.10940>
- [56] R. Mur-Artal and J. D. Tardos, "Monocular SLAM for User Viewpoint Tracking in Virtual Reality," in *2015 IEEE Virtual Reality (VR)*, IEEE, 2015. doi: 10.1109/TRO.2015.2463671.
- [57] G. Marchesi, C. Eichhorn, D. A. Plecher, Y. Itoh, and G. Klinker, "EnvSLAM: Combining SLAM Systems and Neural Networks to Improve the Environment Fusion in AR Applications," *ISPRS Int. J. Geoinf.*, vol. 10, no. 11, p. 772, Nov. 2021, doi: 10.3390/ijgi10110772.
- [58] C. A. P. de Sousa, H. Hamann, and O. Deussen, "Mesh2SLAM in VR: A Fast Geometry-Based SLAM Framework for Rapid Prototyping in Virtual Reality Applications," in *2025 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, IEEE, 2025, pp. 57–62. doi: 10.1109/VRW66409.2025.00021.
- [59] M. Calonder, V. Lepetit, C. Strecha, and P. Fua, "BRIEF: Binary Robust Independent Elementary Features," in *Computer Vision – ECCV 2010*, Springer, Berlin, Heidelberg, 2010, pp. 778–792. doi: 10.1007/978-3-642-15561-1_56.

- [60] E. Rosten and T. Drummond, "Machine Learning for High-Speed Corner Detection," in *Computer Vision – ECCV 2006*, Springer, 2006, pp. 430–443.
- [61] G. Liu, W. Zeng, B. Feng, and F. Xu, "DMS-SLAM: A General Visual SLAM System for Dynamic Scenes with Multiple Sensors," *Sensors*, vol. 19, no. 17, p. 3714, Aug. 2019, doi: 10.3390/s19173714.
- [62] R. Hartley and A. Zisserman, *Multiple View Geometry in Computer Vision*, 2nd ed. Cambridge: Cambridge University Press, 2004.
- [63] R. Kümmerle, G. Grisetti, H. Strasdat, K. Konolige, and W. Burgard, "g2o: A General Framework for Graph Optimization," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Shanghai: IEEE, 2011, pp. 3607–3613. doi: <https://doi.org/10.1109/ICRA.2011.5979949>.
- [64] R. Munir, "Nilai Eigen dan Vektor Eigen (Bagian 1): Bahan Kuliah IF2123 Aljabar Linier dan Geometri," Bandung, 2023. Accessed: Jul. 16, 2026. [Online]. Available: <https://informatika.stei.itb.ac.id/~rinaldi.munir/AljabarGeometri/2023-2024/Algeo-19-Nilai-Eigen-dan-Vektor-Eigen-Bagian1-2023.pdf>
- [65] D. Gálvez-López and J. D. Tardós, "Bags of Binary Words for Fast Place Recognition in Image Sequences," *IEEE Transactions on Robotics*, vol. 28, no. 5, pp. 1188–1197, Oct. 2012, doi: 10.1109/TRO.2012.2197158.
- [66] M. van Steen and A. S. Tanenbaum, *Distributed systems*, 3rd ed. Maarten van Steen, 2018.
- [67] P. Ahire, A. Joshi, and S. Hajare, "Client-Server Communication Using Socket Programming," *International Journal of Creative Research Thoughts (IJCRT)*, vol. 13, no. 4, pp. 52–59, Apr. 2025, [Online]. Available: www.ijert.org
- [68] O. Hahm, "Distributed Systems - Sockets," Frankfurt, Apr. 2004. [Online]. Available: <https://teaching.dahahm.de>
- [69] A. Bettens *et al.*, "UnrealNavigation: Simulation Software for Testing SLAM in Virtual Reality," in *AIAA SciTech 2020 Forum*, Orlando: American Institute of Aeronautics and Astronautics, Jan. 2020. doi: 10.2514/6.2020-1343.
- [70] S. Jangra, G. Singh, A. Mantri, S. Angra, and B. Sharma, "Interactivity Development Using Unity 3D Software and C# Programming," in *2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT)*, Delhi: IEEE, Jul. 2023. doi: 10.1109/ICCCNT56998.2023.10308030.

- [71] S. Singh and A. Kaur, "Game Development using Unity Game Engine," in *2022 3rd International Conference on Computing, Analytics and Networks (ICAN)*, IEEE, 2022. doi: 10.1109/ICAN56228.2022.10007155.
- [72] D. E. Rzig, N. Iqbal, I. Attisano, X. Qin, and F. Hassan, "Virtual Reality (VR) Automated Testing in the Wild: A Case Study on Unity-Based VR Applications," in *Proceedings of the 32nd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA '23)*, Seattle: ACM, Jul. 2023, pp. 1269–1281. doi: 10.6084/m9.gshare.19678938.
- [73] X. Jiang, L. Zhu, J. Liu, and A. Song, "A SLAM-based 6DoF controller with smooth auto-calibration for virtual reality," *Vis. Comput.*, vol. 39, no. 9, pp. 3873–3886, Sep. 2023, doi: 10.1007/s00371-022-02530-1.
- [74] A. Torralba, P. Isola, and W. T. Freeman, *Foundations of Computer Vision*. Cambridge: The MIT Press, 2024.
- [75] C. A. P. de Sousa, N. Gröne, M. Günther, and O. Deussen, "Co-Located VR with Hybrid SLAM-based HMD Tracking and Motion Capture Synchronization," in *Proceedings of the GI VR/AR Workshop 2025 (Lecture Notes in Informatics)*, Sep. 2025. [Online]. Available: <http://arxiv.org/abs/2509.06582>
- [76] R. Kümmerle *et al.*, "On Measuring the Accuracy of SLAM Algorithms," *Auton. Robots*, vol. 27, pp. 387–407, Sep. 2009, doi: <https://doi.org/10.1007/s10514-009-9155-6>.
- [77] S. Shao, "A Monocular SLAM System Based on the ORB Features," in *2023 IEEE 3rd International Conference on Power, Electronics and Computer Applications (ICPECA)*, Shenyang: IEEE, Jan. 2023, pp. 1221–1231. doi: 10.1109/ICPECA56706.2023.10075945.
- [78] X. Chen, J. Wu, J. Hou, X. Liu, and J. Sun, "LIG-SLAM: A Lightweight Visual RGB-D SLAM for Indoor Dynamic Environments Leveraging Instance Segmentation and Geometric Information," *Sensors*, vol. 26, no. 10, p. 2926, May 2026, doi: 10.3390/s26102926.
- [79] X. Hu and J. Lang, "DOE-SLAM: Dynamic Object Enhanced Visual SLAM," *Sensors*, vol. 21, no. 9, p. 3091, Apr. 2021, doi: 10.3390/s21093091.
- [80] J. Sturm, N. Engelhard, F. Endres, W. Burgard, and D. Cremers, "A Benchmark for the Evaluation of RGB-D SLAM Systems," in *2012 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Vilamoura: IEEE, Oct. 2012, pp. 573–580.
- [81] M. I. Idris *et al.*, "VSLAM analysis using various ORBSLAM parameters setting," *Przegląd Elektrotechniczny*, vol. 98, no. 9, pp. 40–45, Sep. 2022, doi: 10.15199/48.2022.09.08.

- [82] G. D. Everett and R. , Jr. McLeod, “Functional Testing,” in *Software Testing: Testing Across the Entire Software Development Life Cycle*, John Wiley & Sons, Inc., 2007, ch. 7, pp. 99–121.
- [83] S. Amey, *Software Test Design: Write Comprehensive Test Plans to Uncover Critical Bugs in Web, Desktop, and Mobile Apps*, 1st Edition. Packt Publishing, 2023.
- [84] Z. A. Hamza and M. Hammad, “Web and Mobile Applications’ Testing using Black and White Box approaches,” in *Proceedings of the 2nd Smart Cities Symposium*, Sakhr: IEEE, Mar. 2019.

