

# Enhancing Barangay Household Registration with Google Maps

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**Abstract:** *This study presents the creation of the "Enhancing Barangay Household Registration with Google Maps" system, which aims to enhance the efficiency and accuracy of household registration in the barangay. By incorporating Google Maps technology, the system improves data visualization and analysis for informed decision-making by barangay officials. The project follows Agile software development methodology and object-oriented analysis and design, ensuring a flexible and scalable system architecture. Implementation is done using the Laravel Framework, ensuring a robust and easily maintainable solution. User satisfaction is evaluated using the System Usability Scale (SUS), with positive feedback received on usability. The web-based registration system, integrated with Google Maps, effectively overcomes the limitations of the traditional paper-based approach, streamlining data collection and providing real-time information access.*

**Keywords:** household services ePortal, object-oriented design, Laravel

## REFERENCES

- [1]. Department of the Interior and Local Government (DILG). (2018). Barangay Operations Manual. Manila, Philippines: DILG Publications.
- [2]. World Bank. (2020). Local Government Units in the Philippines: A Governance Study. Washington, D.C.: World Bank Publications.
- [3]. Google Maps Platform Documentation. (n.d.). Retrieved from <https://developers.google.com/maps/documentation>
- [4]. Zhang, Y., Li, Y., & Gu, D. (2021). Integration of Geographic Information System and Spatial Decision Support System for Urban Land Use Planning. *ISPRS International Journal of Geo-Information*, 10(2), 98. doi:10.3390/ijgi10020098
- [5]. Ghumman, A. R., Rehman, S., & Amin, N. (2020). Geospatial Analysis of Air Pollution and Its Health Impacts in Urban Areas: A Case Study of Lahore, Pakistan. *ISPRS International Journal of Geo-Information*, 9(10), 598. doi:10.3390/ijgi9100598
- [6]. Adnan, A., Mazlan, M. B., & Ismail, Z. (2021). Geospatial Information System for Monitoring the Sustainable Development Goals (SDGs) in Local Governments: A Review. *Remote Sensing*, 13(3), 573. doi:10.3390/rs13030573
- [7]. Yu, J., Shao, Z., & Wu, J. (2021). Application of Geographic Information System in Urban Transportation Planning: A Review. *Sustainability*, 13(12), 6866. doi:10.3390/su13126866
- [8]. Rafiei, R., Rezapour, S., & Alesheikh, A. A. (2020). Geospatial Data Infrastructure for E-Government Services in Smart Cities: A Review. *ISPRS International Journal of Geo-Information*, 9(5), 283. doi:10.3390/ijgi9050283
- [9]. Zhu, X., Wang, Y., & Li, W. (2019). GIS-Based Data Integration and Analysis for Disaster Management in the Qilian Mountain Area. *International Journal of Environmental Research and Public Health*, 16(23), 4634. doi:10.3390/ijerph16234634

- [10]. Nkwunonwo, U. C., Onyejebu, J. O., &Eboka, O. I. (2020). GIS Application for Flood Hazard Mapping and Management in Aba Metropolis, Abia State, Nigeria. *International Journal of Scientific and Engineering Research*, 11(6), 1795-1806.
- [11]. Rajabifard, A., Williamson, I., & Feeney, M. (2013). *Spatially Enabled Government*. CRC Press.
- [12]. Mukhtar, A. S., & Umar, S. I. (2018). Mobile Application for Geographical Information System (GIS) Data Collection in Developing Countries: Case Study of Gusau. *International Journal of Engineering Research in Africa*, 37, 92-103.
- [13]. Highsmith, J. A. (2002). *Agile Software Development Ecosystems*. Addison-Wesley.
- [14]. Booch, G., Rumbaugh, J., & Jacobson, I. (1999). *The Unified Modeling Language User Guide*. Addison-Wesley.
- [15]. Gallera, J. (2023). Enhancing User Interface and Experience in an Online Car Rental Applications, *International Journal of Advanced Research in Science, Communication and Technology*, Volume 3 - Issue 2, July 2023 Edition, p328-336.
- [16]. Taylor, D. A. (2015). *Learning Laravel 4 Application Development*. Packt Publishing.
- [17]. Mangca, D. (2023). Pedal Power: A Laravel Framework Solution for Bike Rentals on the Web. *International Journal of Innovative Science and Research Technology*, 8(5), 457-460.
- [18]. Brooke, J. (1996). SUS-A quick and dirty usability scale. In *Usability Evaluation in Industry* (pp. 189-194). CRC Press.