## **IJARSCT**



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 3, Issue 2, July 2023

# Design and Development of Barangay Health Information System using Google Maps

Alma Christie C. Reyna<sup>1</sup>

Faculty, College of Engineering and Information Technology, Surigao del Norte State University, Surigao City, Philippines

Abstract: The study aimed to design and develop a Barangay Health Information System that integrates Google Maps as a key component. It utilizes rapid application development methodology and object-oriented analysis and design. The system was implemented using Laravel Framework, to create a robust and efficient BHIS. By integrating Google Maps, the BHIS can efficiently geolocate and map health facilities, patient populations, and other relevant data points. This spatial visualization offers a comprehensive view of healthcare dynamics within the barangay, enabling evidence-based decision-making and resource allocation. The evaluation conducted on the app concluded that it is highly effective in terms of usability, relevance, functionality, maintainability, and portability, receiving an overall average rating of 4.52, which is very satisfactory. This underscore the system's potential to significantly enhance health information management and healthcare services delivery at the barangay level, fostering improved health outcomes for the community.

Keywords: health information system, Google maps, object-oriented design

#### REFERENCES

- [1]. World Health Organization. (2017). Using geospatial technology to improve health services. Retrieved from https://www.who.int/tdr/news/2017/geospatial-technology/en/
- [2]. Department of Health. (2014). National Implementation Guidelines for the Barangay Health Workers' Program. Retrieved from https://doh.gov.ph/sites/default/files/publications/DOH%20BHW%20 Implementing%20Guidelines.pdf
- [3]. Hersh, W. R., & Wright, A. (2008). What workforce is needed to implement the health information technology agenda? Analysis from the HIMSS analytics database. AMIA Annual Symposium Proceedings, 303-307.
- [4]. Chen, Y., Sun, H., & Li, X. (2012). The development and application of hospital information system. International Journal of Medical Informatics, 81(10), 702-711.
- [5]. Luna, D., Almerares, A., Mayan, J. C., González Bernaldo de Quirós, F., Otero, C., & Bottazzi, R. (2014). Health informatics in developing countries: Going beyond pilot practices to sustainable implementations: A review of the current challenges. Healthcare Informatics Research, 20(1), 3-10.
- [6]. Gatrell, A. C., Elliott, S. J., Bentham, G., & Moore, D. G. (2010). Geographical information systems, spatial analysis, and health inequalities in the study of environmental epidemiology. Progress in Human Geography, 34(4), 513-524.
- [7]. Kamel Boulos, M. N., & Berry, G. (2004). Towards evidence-based, GIS-driven national spatial health information infrastructure and surveillance services in the United Kingdom. International Journal of Health Geographics, 3(1), 1-14.
- [8]. McLafferty, S., & Gatrell, A. C. (2003). GIS and health: A spatial perspective. CRC Press.
- [9]. Arribas-Bel, D., & Singleton, A. D. (2017). The geographic data science ecosystem: Foundations, opportunities, and future directions. Journal of Geographical Systems, 19(4), 1-8.
- [10]. Lombardo, J. S., Buckeridge, D. L., Wojcik, R., Ruscus, D., Sniegoski, C., Aguirre, A., & Wojcik, R. (2016). Using syndromic surveillance data and Google Maps to visualize the spatial distribution of illicit drug use. Online Journal of Public Health Informatics, 8(1), e185.

DOI: 10.48175/IJARSCT-12141

ISSN 2581-9429 IJARSCT

## **IJARSCT**



### International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

#### Volume 3, Issue 2, July 2023

- [11]. U.S. Department of Health & Human Services. (2021). Find a Health Center. Retrieved from https://findahealthcenter.hrsa.gov/
- [12]. Chen, S. Y., Fang, W. F., & Huang, M. S. (2018). The development of a disaster information system for evacuees using Google Maps. Journal of Information Hiding and Multimedia Signal Processing, 9(4), 996-1005.
- [13]. Somerville, I. (2016). Software Engineering. Pearson Education.
- [14]. Booch, G., Rumbaugh, J., & Jacobson, I. (2005). The Unified Modeling Language User Guide. Pearson Education.
- [15]. Pressman, R. S., & Maxim, B. R. (2015). Software engineering: A practitioner's approach. McGraw-Hill Education.
- [16]. Johnson, R., & Teng, J. (2001). Designing with Object-Oriented Analysis and Design. McGraw-Hill Education.
- [17]. Morgan, B. (2015). Understanding and using statistics in psychology: A practical introduction. Routledge.
- [18]. Batoon, J. A., Benitez, A. B., Cajucom, K. Z., Dalusung, M. J. M., Faustino, S. J. D., Galvez, I. N. D., & Mercado, L. J. L. (2022). Public Health Record Management System: An Up-Close Monitoring System. International Journal, 11(3).
- [19]. Mercurio, D. I., & Hernandez, A. A. (2022). An Open Data and Geo-based Information Systems. arXiv preprint arXiv:2201.12544.
- [20]. Bulaclac, J., Peña, C., Mangulabnan, J., Bulacan, J. M., Dulatre, J., Abes, J. E., & Briñas, J. (2023). Design and Development of an Information Kiosk with Log Monitoring for Leonor M. Bautista National High School. The Quest: Journal of Multidisciplinary Research and Development, 2(1).
- [21]. Gallera, J. (2023). Development and Assessment of Online Graveyard Locator with Mobile Integration. International Journal of Innovative Science and Research Technology, 8(4) 2023, 1854-1858.
- [22]. 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.

DOI: 10.48175/IJARSCT-12141

