ITP 312– IT RESEARCH METHODS

CAPSTONE/RESEARCH PROJECT TOPIC PROPOSAL

Proposed Title	Barangay HealthCare Management System (BHMS): A Digital Solution for Efficient Health Services
Target Client/Beneficiary	The primary beneficiaries of the Barangay HealthCare Management System (BHMS) are the residents of the barangay, barangay officials and the healthcare workers at the barangay health center.
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Introduction	Healthcare services in barangays across the Philippines are often constrained by inefficient manual processes that delay service delivery and limit access to accurate health information. The Barangay Healthcare Management System (BHMS) aims to address inefficiencies in healthcare service delivery at the barangay level by automating patient records, appointment scheduling, and resource management. Current manual processes lead to delays and inaccuracies, which hinder the effectiveness of barangay health centers. This study is founded on the need for accessible and efficient healthcare services, especially in local communities. Research such as Lim (2022) and Luciano et al. (2023) has shown the value of digital systems in improving healthcare management and service delivery. The proposed system aligns with the College Research Agenda, which emphasizes technology to advance public health services. By focusing on the barangay level, the project supports the broader national goal of enhancing grassroots healthcare through innovation and data-driven decision-making.
Statement of the Problem	Current barangay health centers rely heavily on manual systems for patient management and record-keeping. This results in inefficient service delivery, frequent data loss, and poor resource management. The lack of real-time access to health information further hampers the ability of barangay health workers to respond effectively to public health emergencies and routine healthcare needs.

Objectives of the Study	The primary objective of this study is to design and implement a Barangay HealthCare Management System that will automate and streamline the essential healthcare management processes within a barangay health center. The study specifically aims to: 1. To develop a web-based healthcare management system that automates patient record-keeping and healthcare service management in barangay health centers. 2. To improve the accessibility and reliability of patient information for health workers. 3. To provide real-time updates on healthcare resource allocation, patient appointments, and medication tracking. 4. To enhance decision-making through integrated data analytics for monitoring healthcare trends and resources.
Scope and Limitation of the Study	This study focuses on the development of a Barangay HealthCare Management System that will be deployed in a single barangay as a pilot project. The system will include modules for patient registration, appointment scheduling, medical records, and resource allocation. But the study will not cover more advanced functionalities like telemedicine or integration with national health databases, as the initial focus is on improving local healthcare services.
Review of Related Literatures and System	The need for a comprehensive and accessible healthcare management system at the barangay level is critical to improving public health services in local communities. Several studies have explored similar themes, highlighting both the successes and limitations of current systems. This review demonstrates how the proposed Barangay HealthCare Management System builds on existing research while introducing innovations that address current gaps in healthcare management. Lim (2022) developed a Barangay Integrated Management System with Mobile Support, designed to enhance the delivery of public services, particularly in the context of the COVID-19 pandemic. The system's mobile support feature improved accessibility for both barangay officials and residents, facilitating real-time updates and communication. While effective in streamlining communication and service delivery, the study recommended the inclusion of additional features such as real-time notifications and data analytics to support decision-making. Moreover, the scope of user testing was limited, primarily involving barangay officials and residents, suggesting a need for broader user testing. The proposed Barangay Healthcare Management System (BHMS) aims to address this gap by incorporating real-time data management and analytics, with extensive user testing across groups including healthcare workers and patients.

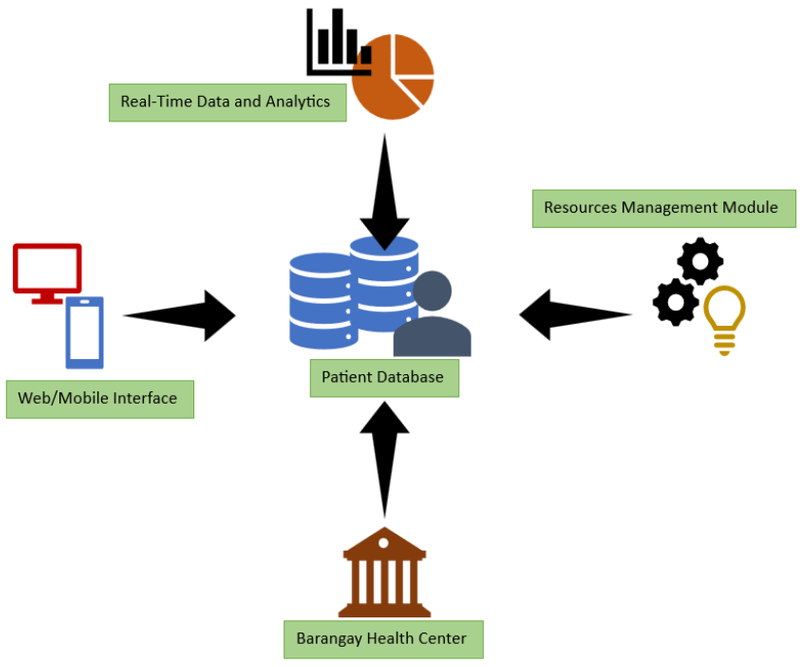
Luciano et al. (2023) focused on a Medicine Management System (MMS) that improved medicine inventory tracking and reduced errors in medication dispensing. Although the study significantly improved operational efficiency in healthcare facilities, it identified the need for integration with electronic health records (EHR) and scalability for larger healthcare systems. The BHMS extends this concept by integrating both medicine tracking and patient record management in a single platform, allowing for seamless communication and coordination between health workers and patients.

Balaban et al. (2019) explored new methodologies for System Health Management, emphasizing the use of advanced data analytics and machine learning to improve decision-making processes. The study suggested that traditional health management approaches were insufficient, proposing data-centric techniques for more adaptable and predictive models. The BHMS incorporates elements of data-driven decision-making through integrated data analytics for tracking healthcare trends, predicting resource needs, and providing actionable insights for barangay health centers.

Olipas et al. (2022) introduced MediCord, a web-based health record management system, aimed at improving patient data accessibility and overall healthcare service delivery at the barangay level. The system successfully enhanced data management, but the study recommended further investigation into different software development methodologies to improve efficiency. The BHMS leverages web technologies but focuses on expanding functionalities by incorporating mobile access and real-time updates, enabling healthcare workers to manage patient data more efficiently and in a timely manner.

Sholihah et al. (2022) evaluated the user readiness for the Health Center Management Information System (SIMPUS), identifying the Technology Acceptance Model (TAM) as a critical factor in the successful adoption of the system. The study highlighted the importance of user training and communication to ensure readiness and acceptance. To enhance system usability, the BHMS will incorporate thorough training modules for health workers and end-users, ensuring smooth system implementation and adoption.

The study by Allen (2024) explored the integration of Geolocation Technology and Chatbot Services into a barangay information system, which was particularly effective in disaster management scenarios. The inclusion of geolocation allowed barangay officials to quickly locate residents in need of assistance during emergencies. While the BHMS focuses on healthcare services, similar geolocation features could be employed for tracking patients or directing them to the nearest available health centers, especially during public health emergencies.

	Ilmi (2022) assessed the Primary Health Centre Information System and found that system acceptance was strongly influenced by the user interface and ease of use. This highlights the importance of creating an intuitive and user-friendly interface to encourage adoption. The BHMS is designed with simplicity and ease of navigation in mind, ensuring that even users with limited technical experience can effectively utilize the system. Villones (2021) developed a Barangay Constituents Information and Services Management System, focusing on improving the efficiency of managing barangay records and services. Although the study successfully improved record retrieval and service management, it recommended the integration of additional features like automated notifications and feedback mechanisms. The BHMS builds on this by including automated reminders for patient appointments, medicine restocks, and health updates, further streamlining operations.
Conceptual Framework	 • Health Center: The central focus is the barangay health center, where all healthcare processes are managed. • Web/Mobile Interface: Health workers use the web-based system to manage patient data and services, while patients interact through a mobile app, ensuring both accessibility and communication. • Patient Database: Acts as the core data repository for all patient-related information. • Resource Management: Ensures efficient allocation and tracking of health resources like medicines and medical staff availability.

	• Data Analytics: Provides valuable insights that allow health workers to track trends and optimize decision-making.
References	Lim, J. P. (2022). Barangay integrated management system with mobile support. International Journal of Computer Science and Mobile Computing, 11(7), 119–127. https://doi.org/10.47760/ijcsmc.2022.v11i07.011 Luciano, R. G., Torres, R. A. G., Gomez, E. B., Nacino, H. J. D., & Ramirez, R. D. (2023). Medicine management system: Its design and development. International Journal of Education and Management Engineering, 13(3), 11–18. https://doi.org/10.5815/ijeme.2023.03.02 Balaban, E., Johnson, S. B., & Kochenderfer, M. J. (2019). Rethinking system health management. arXiv. https://doi.org/10.48550/arxiv.1903.03948 W. Dodd, et al. (2021). Governance of community health worker programs in a decentralized health system: A qualitative study in the Philippines. BMC Health Services Research, 21(1). https://doi.org/10.1186/s12913-021-06452-x Olipas, C. N. P., Viloria, J. P., Mateo, S. M., Maria, S. A. P. S., Bisnar, E. A., & Vallecera, M. L. M. (2022). MediCord: A web-based health record management system. Journal of Healthcare Treatment Development, 2(05), 35–45. https://doi.org/10.55529/jhtd25.35.45 Sholihah, S. M., Subiyakto, A., Ratnawati, S., & Azizah, M. N. (2022). Qualitative evaluation of user acceptance readiness to the implementation of the Health Center Management Information System (SIMPUS) at the South Tangerang City Health Center. Applied Information System and Management (AISM), 5(1), 1–6. https://doi.org/10.15408/aism.v5i1.10589 Allen, J. (2024). Enhancing the Barangay Information System by integrating geolocation technology and Tagalog chatbot using NLP algorithm for efficient community engagement and service. Journal, 20(5s), 1136–1149. https://doi.org/10.52783/jes.2426

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