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**KwikBaryo: An Online System for Document Requests and Community Updates for**

**Sumandig, San Ildefonso, Bulacan**

**INTRODUCTION**

In today's digital age, the need for efficient, accessible, and transparent government services has become more critical them ever. Barangays play a viral role in providing essential services to their communities. However, many barangays still rely on traditional, manual processes for document requests and community updates, which leads to delays, inefficiencies, and a lack of communication.

Although Barangays have computers, it is mostly used for printing files only. KwikBaryo aims to streamline the process of document requests, allowing residents to request important documents such as barangay clearances, permits, indigency, and residency. Additionally, the platform will serve as a huh for real time community updates, that causes the residents are informed of important news, events, and announcement.

Our study seeks to explore the feasibility, development, and potential impact of KwikBaryo on both the barangay administrative processes and its relationship with the community. By examining how digital solutions can improve transparency, efficiency, and communication within barangays, this study aims to highlight the benefits of modernization at the grassroots level. KwikBaryo has the potential not only to streamline processes but also to strengthen the connection between barangay officials and their constituents, fostering trust, cooperation, and a greater sense of community empowerment.

**OBJECTIVES**

* Streamline document request processes by enabling residents to submit requests for the document they need online.
* Real time communication between the barangay and its residents by providing updates on community announcements news, and events.
* Improve efficiency in barangay administrative operations by reducing the workload associated with manual document processing.
* Enhance transparency by allowing residents to monitor the status of their document requests.
* **To explore the potential scalability of KwikBaryo** as a model for other barangays and local government units aiming to digitize their services and improve community engagement.

**SCOPE AND LIMITATIONS**

This study will focus on creating **KwikBaryo**, a digital platform to help barangays handle document requests and share updates with the community more easily. KwikBaryo will let residents request documents like barangay clearances, permits, and certificates of residency online, saving them time and effort. It will also allow barangay officials to post announcements and updates, so residents can stay informed about important events and news. This study will test KwikBaryo in one barangay to see how well it improves services and communication.

There are some limitations, though. KwikBaryo is designed just for document requests and announcements, so it won’t cover all barangay functions. Also, residents will need internet access and some comfort using technology, which might be a barrier for some people. The barangay will also need resources to keep the system running smoothly, and there may be an adjustment period as people get used to the new system. Although KwikBaryo will have security measures, there are always risks to handling people’s information online. Finally, expanding KwikBaryo to other barangays may need adjustments to fit their specific needs, which could affect how easily it can be scaled up.

**REVIEW OF RELATED LITERATURE (CASTILLO)**

According to Carpio (2020), barangays serve as the primary units where the initial planning and implementation of projects within a community occur. However, there is a significant lack of available information that can be used as a baseline for planning and policy implementation at the barangay level. Carpio (2020) proposed the development of the Barangay Management System, also referred to as e-barangay, which is a web-based system designed to transform traditional barangay management into a more inclusive and citizen-oriented process. The system aims to streamline administrative tasks such as document requests, complaint filing, and the generation of accurate local statistics.

Garon et al. (2023) aimed to develop a web and mobile-based e-Government System for the Barangay Malanday Main Office in Valenzuela City. The system uses Optical Character Recognition (OCR) technologies to digitize and automate the barangay's transactional processes. The main goal was to help barangays shift from traditional methods to a more efficient digital approach.

By using OCR technology, the system allows barangays to make their processes easier and faster. To find out how effective and efficient the system is, Garon et al. (2023) conducted surveys based on the FURPS criteria, which stands for functionality, usability, reliability, portability, and supportability. This method helped evaluate how well the system works in different areas.

Taruc et al. (2023) emphasized the crucial role of barangays in a country’s development and progress, highlighting the need for continuous improvement in their processes. To address these needs, the study focused on designing, developing, and assessing a web-based barangay document requesting system called Docu-Go.

The researchers employed a developmental research design that involved collaboration with IT experts and residents from a barangay in Cabanatuan City, Nueva Ecija, Philippines. For the development of the system, a modified waterfall model was utilized, ensuring a structured approach to the design and implementation phases. To evaluate the system's technical features and overall quality, the researchers administered an adapted survey questionnaire based on the ISO 25010 standard. The results indicated that the system was generally considered acceptable by both IT experts and barangay residents.

Aguinaldo (2019) discusses the essential role of information systems in managing and organizing data effectively. An information system serves as a computerized database that accepts and stores data, which is then used for analysis and reporting. This functionality is particularly beneficial in contexts that require efficient data handling, such as in the barangay of Parian, where rapid access to information is valuable for residents and administrative personnel. Aguinaldo emphasizes that developing an information system for the residents of Barangay Parian can streamline data management and enhance accessibility, improving the ease with which residents and officials obtain necessary information.

Aparici (2018) studied how a web-based information system could help manage data across 30 barangays in Malita, Davao Occidental. The system was created to simplify tracking of households, commodities, and population in each barangay, with the data accessible on the municipal webpage. This allowed local government officials to monitor changes quickly and take immediate action if necessary. In addition to tracking numbers, the system also used geotagging to map commodities across barangays, making it easy to see locations and distributions on a map.

Bondoc (2019) developed a web-based information system called "e-Barangay" for Barangay Mangga in San Isidro, Nueva Ecija. This system was designed to help manage administrative processes and document requests more efficiently. Bondoc used a developmental research approach and followed the System Development Life Cycle (SDLC) methodology to create and refine the e-Barangay system. To assess its effectiveness, the system was evaluated by both IT experts and local officials from Barangay Mangga.

The evaluation followed the international standard ISO 9126, which measures software quality. The e-Barangay system received high ratings from both groups: IT experts gave it a mean rating of 4.24, and local officials rated it 4.23, both classified as "excellent." These positive evaluations highlighted the system’s functionality, ease of use, and its ability to meet the needs of the barangay. By serving as a database for local statistics and streamlining various administrative tasks, e-Barangay was deemed a valuable tool for Barangay Mangga.

Olipas et al. (2019) aimed to design and develop a web-based Barangay Information and Record Management System that integrates Short Message Service (SMS) for easier distribution of barangay announcements. The project employed a developmental method of research to guide the design and implementation process. The proponents based the system on user requirements and specifications gathered from observations and interviews with key barangay officials, as well as an analysis of existing manual processes and available documents. This approach ensured that the system met the actual needs of the barangay.

Yellisetti et al. (2023) proposed the development of a technology platform called the Government Schemes Eligibility System to help citizens determine their eligibility for various government programs. The system aims to bridge the gap between citizens, government officials, and available government initiatives. By installing the application on every mobile phone, residents can easily access an online portal to check if they qualify for specific programs through a quick online application.

The researchers identified a common issue in the existing system: many government programs are underutilized due to a lack of awareness and accessibility. This platform addresses that issue by providing a web-based design that is user-friendly, making it easier for citizens to apply for programs directly and understand their eligibility. Additionally, government personnel can assist users in the application process and provide updates on the application’s status. By implementing this system, both citizens and government authorities can save time, improving efficiency and participation in government programs.

Hertati (2019) examined the need for a web-based information system to enhance accountability in village financial management and encourage community involvement in development. Conducted in Tambak Oso and Sedati villages, the study used qualitative methods, including interviews and focus groups. Findings showed that while both villages practiced transparency, they faced challenges with full regulatory compliance. Issues included limited training, lack of supervision, and personnel shortages. The study highlights the potential of a web-based system to streamline management, improve regulatory adherence, and support village governance.

Simbulan (2022) focused on developing a centralized, web-based management information system called "1Kyusi" to improve recordkeeping and delivery of social services by local government units in Quezon City. Designed to act as a comprehensive data bank for residents across barangays, 1Kyusi supports local government initiatives, particularly in enhancing disaster response. The system ensures that each resident’s information is kept up-to-date while adhering to the Data Privacy Act of 2012 (Republic Act 10173). Implemented at the barangay level under local government management, 1Kyusi is expected to significantly bolster Quezon City’s capacity for coordinated projects and emergency preparedness.

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# Docu-Go: The Development and Assessment of a Web- Based Barangay Document Requesting System (Taruc et al. 2023)

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**Barangay Information System for Resident’s of Barangay Parian** (Aguinaldo et al. 2019)

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**WEB-BASED BARANGAY INFORMATION SYSTEM FOR MALITA, DAVAO OCCIDENTAL** (Aparici et al. 2018)

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**WEB-BON: THE DESIGN AND DEVELOPMENT OF A WEB-BASED BARANGAY INFORMATION AND RECORD MANAGEMENT SYSTEM** (Olipas et al. 2019)

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**Creation of Web based Eligibility System for Government Programs** (Yellisetti 2023)

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**Web-Based Government Information System Implementation Model For Village Government** (Hertati 2019)

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**1KYUSI: A CENTRALIZED WEB-BASED INFORMATION MANAGEMENT SYSTEM FOR THE LOCAL GOVERNMENT OF QUEZON CITY** (Simbulan 2022)

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**REVIEW OF RELATED LITERATURE (CHICO)**

Jamis (2022) aimed to design a system to help small communities like barangays. Barangays face difficulties in organizing and managing increasing data. Community members rely on manual processes using MS Word or Excel, which lack storage and security features. As a result, files end up mishandled or lost without a proper system in place. This issue still exists in many barangays. The study aimed to develop a web and mobile solution to assist Local Government Units (LGUs), specifically Barangay 407 in Manila, Philippines, by processing the system. The goal was to improve productivity and secure data management, offering a long-term solution for efficient data handling within small communities.

Dela Cerna (2023) focused on developing an office automation system for Barangay Local Government Units (BLGUs). The web system aimed to streamline manual processes in barangays and assist community members with tasks such as transactions, document requests, complaint filings, and report generation. This system was designed with user-friendly features for easy access, utilizing PHP, HTML, and MySQL for database management. It created nine functional components that enhance the efficiency and effectiveness of public service. The BLGU-OAS would automate repetitive tasks and assist in digital transformation for barangays.

Senaris (2023) aimed to implement a comprehensive management system for Barangay CvSu Tanza Campus to benefit the community. This system included features such as transactions, posting news and announcements, showcasing barangay projects, promoting local businesses, and providing services like handling complaints and issuing certifications. The web system was designed to be user-friendly and easily accessible, displaying logs and reports to ensure streamlined and effective management.

Gatchalian (2023) developed a system to enhance communication between local government employees and citizens during emergencies. This system focused on sending text messages to warn citizens of local crises, distributing critical information, and easing the workload of the Municipal Disaster Risk Reduction and Management Office (MDRRMO). It was well received by users, IT experts, and clients, demonstrating its effectiveness in providing notifications that support community safety and disaster preparedness.

According to Batitis (2019), a barangay represents the smallest unit of government, led by elected officials, including the Punong Barangay (Barangay Chairperson) and Barangay Councilors. Many barangays still rely on traditional manual processes. Barangay Labas in Santa Rosa, Laguna, is one of them, where document processing and information are handled manually. It has become essential for barangay operations to adopt new technologies to enhance service delivery. This study aimed to design an SMS Notification System integrating Internet of Things (IoT) technology. The system was designed to streamline document requests and deliver important information to residents via SMS, ensuring faster and more convenient services.

Requinto (2019) addressed the challenges of handling documents and records efficiently due to increasing populations, which have led to a decline in service quality. This study proposed a comprehensive solution with a "Document Management System" (DMS) for Barangay Paligui in Apalit, Pampanga. Developed using the Kanban Agile Methodology, this open-source DMS aimed to create a centralized system for barangay officials to securely access and share files through computers and mobile devices.

Duco (2023) addressed the difficulties of manual document storage and retrieval in barangays due to growing populations. This study introduced a mobile and web platform called "A Framework for a Mobile and Web Platform for Barangay Remote Services, Collaboration, and Disaster Response with Web Analytics" in Mandaluyong City. The system enabled barangay officials to access structured resident profiles, make easy document requests, provide real-time updates, and manage emergency responses. Developed using the Agile Model, the system included web analytics to support barangay decision-making.

Villones (2021) set out to simplify how barangay officials manage records by creating a Barangay Constituents Information and Services Management System (BCISMS). Previously, the barangay used manual processes for issuing documents, which were time-consuming and led to duplicate records. This system was designed to provide a faster and more organized way to handle data. The researchers conducted interviews with barangay officials to understand the challenges they faced and developed a database system tailored to the barangay’s needs.

Manun-og (2023) developed a digital record management system for local officials managing the registry of inhabitants. Using the Systems Development Life Cycle (SDLC) framework combined with Agile methodology, this system was designed to improve local government record management, particularly for disaster response and planning. The system was tested for functionality, usability, and efficiency using the ISO 9126-1 software quality model, receiving a high acceptance rate from local units. The results showed that the system effectively met user needs and could enhance local governance and streamline resident records.

Dela Cruz (2023) developed a Barangay Management Information System with a feature to issue residency certificates. Built using a development research approach, the system was tested for practicality and ease of use by IT practitioners, government employees, and barangay officials. The system received an impressive average rating of 4.58 on the Usefulness, Satisfaction, and Ease of Use (USE) questionnaire, reflecting strong user satisfaction. The system streamlined administrative tasks, simplified document issuance, and transformed how local governance operates in the digital age.

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Dela Cruz 2023 Enhanced Barangay Information Management System with Residency Certificate Issuance

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**REVIEW OF RELATED LITERATURE (PEREZ)**

**Bamansoor, S., Pande, B., Al Moaiad, Y., Pathmanathan, P. R., El-Ebiary, Y. A. B., Latiff, N. A. A., ... & Yusoff, F. H.** (2021, June). This research examines the current state of online business, with a focus on FashionValet's digital platform in Southeast Asia, where it competes with brands such as Poplook and Zalora. It assesses the platform's strengths, weaknesses, opportunities, and risks, while highlighting the technologies and business strategies that have driven its growth. The study also investigates the key elements behind FashionValet's success in the Malaysian fashion market.

**Grepon, B. G. S., Baran, N. T., Gumonan, K. M. V. C., Martinez, A. L. M., & Lacsa, M. L. E.** (2021). This study explores the creation and implementation of a School Management Information System (SMIS) for a community college in Northern Mindanao, Philippines, designed to streamline data processing and reduce reliance on paper records. Using the Agile Model for development, the system was evaluated with the ISO 25010 quality model, achieving high scores in functionality, usability, and reliability. The paper suggests additional improvements, such as incorporating smartphone-based attendance tracking and setting up kiosks on campus for grade and schedule access.

**Roa, M. F. V., Gimeno, E. L. A., Tenorio, C. B., & Malawani, A. D.** (2023). Learning Management Systems (LMS) are gaining popularity in the Philippines as educational institutions and businesses look for flexible and affordable training options, spurred by government mandates and the growth of cloud-based technologies. The Commission on Higher Education (CHED) has set guidelines for implementing e-learning in higher education, though challenges like digital infrastructure and teacher training persist. A study with 157 university students emphasized the need for intuitive LMS interfaces, reliable technical support, and active faculty involvement to improve the online learning experience.

**Khan, R. A., & Lone, S. A.** (2021). With new technology making it cheap and easy to create fake identity documents like passports, driving licenses, and certificates, the risk to personal security has increased. This paper looks at different methods developed in the past 20 years to protect these important documents from being tampered with. It explains how these methods work, points out their weaknesses, and suggests areas for improvement in the future.

**Prebreza, B., Gotseva, D., & Nakov, P.** (2021, October). This project aims to create a web application to make it easier for students to apply for their thesis online, instead of using the old, traditional method. The new system will allow students to choose their mentors and improve communication between students and professors. It will be built using Laravel, PHP, and MySQL to make the process more efficient and user-friendly.

**IDRIZI, F., NEBI, B., MEMETI, A., IMERI, F., & LUMA-OSMANI, S.** (2022). This introduction explains two main trends in software documentation: focusing on usability and using online formats like help messages and tutorials. It also shows how linguistics and cognitive science can help documenters understand how people process and understand information. By studying these areas, the research helps create clearer and more user-friendly software documentation.

**Singh, M., Fuenmayor, E., Hinchy, E. P., Qiao, Y., Murray, N., & Devine, D.** (2021). A Digital Twin (DT) is a virtual version of a physical object or system, connected through real-time data exchange for tasks like monitoring and optimization. With the growth of Industry 4.0, the use of DT is increasing, providing valuable data for improving performance and maintenance. This paper aims to clear up confusion about the different types and definitions of DT to help researchers and businesses understand its potential and make informed decisions.

**Elangovan, D., Long, C. S., Bakrin, F. S., Tan, C. S., Goh, K. W., Hussain, Z., ... & Ming, L. C.** (2020). The article looks at the rise of remote work (RW) during the COVID-19 pandemic, discussing its benefits, drawbacks, reasons for adoption, and challenges. It points out that there is little research on how remote work is being adopted and uses a specific research method to study its effects on organizations. The goal is to offer useful insights on how remote work can help businesses continue operations, save costs, and gain a competitive edge.

**Tabrizchi, H., & Kuchaki Rafsanjani, M.** (2020). Cloud computing has become very popular because it offers benefits like easier IT management, remote access, and cost savings, but it also comes with security and privacy concerns. This review looks at these issues, covering known threats, weaknesses, and current security solutions, while suggesting new ways to classify and address them. The paper focuses on the security challenges faced by cloud service providers, data owners, and users, providing a detailed look at the risks involved.

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**REVIEW OF RELATED LITERATURE (CRUZ)**

Despite the importance of community-level e-governance, prior e-government frameworks focused on the municipal or national levels. The implementation of appropriate community-based e-governance cannot be ascertained because of the absence of a community-level e-government framework. To address this gap, this mixed-method study devised a framework for community-based online services software called the e-barangay framework. A web-based system was developed based on this framework. The usability of the system was also evaluated. Thematic analysis on the transcript of interviews with three local officials showed that filing complaints, requesting documents, sending suggestions, and posting announcements were the core elements of the e-barangay framework. Both the objective and subjective measures of usability showed favorable results. Spearman Rank correlation confirmed that the design-related factors were related to the frequency of use of the e-barangay. It is concluded that the software satisfied the needs of the stakeholders. Theoretical and practical implications are discussed.

A barangay plays a vital role in the development and progress of a country, requiring careful attention and improvement. In order to address the need for advancements in barangay processes, this study focused on designing, developing, and assessing a web-based barangay document requesting system called Docu-Go. The researchers employed a developmental research design, involving IT experts and residents from a barangay in Cabanatuan City, Nueva Ecija, Philippines. The researchers utilized a modified waterfall model for the system's development. To evaluate the technical features and quality of the system, an adapted survey questionnaire based on ISO 25010 was administered. The evaluation results indicated that both aspects were generally deemed acceptable by the two types of respondents. However, various recommendations were proposed to further enhance the system's functionality and user experience.

E-Government systems have brought significant changes to the way public services are easily delivered nowadays. This motivates the researchers to contribute to this innovation by developing a system named “BALANGAY” which makes barangay services more accessible to the constituents. This is anchored with the objectives of the study which is mainly to build a centralized database for barangays and design modules with the purpose of streamlining barangay processes. Part of it is to generate an incident heatmap that will assist barangay officials in creating better programs and project developments. The study is a combination of qualitative and quantitative types of research which is reflected in the use of interviews and survey questionnaires. An iterative waterfall methodology was also adopted as a guide in the development process. Meanwhile, the ISO 9126 Software Quality Model was used in the system evaluation, wherein each response is measured using the 5-point Likert scale, and respondents were selected using purposive sampling. The result shows that out of sixteen (16) barangay constituents and sixteen (16) IT experts who participated, most of them were very satisfied with the system with a weighted mean of 4.45 and a verbal interpretation of “Very Satisfied”.

Digitalisation and adaptation of governance to the digital age arguably transform the relationship between agents (i.e., public institutions) and clients (i.e., citizens) in policy-making. E-governance is the most widely used term for the result of this digital transformation in view of the changing nature of politics. This special issue zooms into digitalised public services by discussing practices and challenges in their provision, usage, and evaluation. In doing so, it highlights interaction of e-governance (relationship among citizens, government, public and private actors notably in the context of digitalisation and innovation) and e-government (public services enabled by ICT). Contributions to the special issue identify challenges and pitfalls in implementing and evaluating e-governance by analysing different policy areas and geographical regions. The findings of the contributions suggest that factors of e-governance performance that potentially serve as evaluation criteria tend to be (overly) sensitive to context, i.e. policy area, systemic constellations, institutional settings, and administrative traditions in question. Consequently, attempts to evaluate e-governance, at least based on the empirical insight demonstrated in this special issue, remain limited to specific tools, instruments and contexts through which e-governance is operationalised and delivered (e.g., websites, projects and policy initiatives).

This research aims to address the need for improved efficiency and accessibility of a local government constitution, specifically the barangay services in the Philippines, through the integration of an English-Tagalog Chatbot using NLP Algorithm into a Progressive Web-Application based Barangay Information System and Geolocation Technology which detects the location of the affected residents and nearest evacuation centers. The specific objectives include developing an information system for efficient resident data management, training an AI chatbot to handle both English and Tagalog inquiries, and integrating geolocation technology for disaster risk reduction monitoring. The study's significance lies in enhancing the service provided by barangays, which are often the most accessible government agencies to the public. The system benefits the public by increasing transparency and providing convenient access to services, barangay officials by streamlining transactions and reducing their workload, and future researchers by laying the groundwork for further technological advancements in governance. The overall acceptance of the system based on user's feedback falls within the satisfactory category, which indicates its potential to improve barangay operations. The Barangay Information System, as demonstrated in this study, efficiently manages resident information, streamlines the delivery of certificates, enhances user experience, and ultimately contributes to more effective and efficient community service delivery.

Information systems are indispensable tools to achieve organizational efficiency, whether in the industry, government, or any organized community like the barangay. This design research adopted the Waterfall Model grounded on needs assessment. It utilized the Visual Basic 6 program in the development of the proposed Barangay Constituent Information System (BCIS). Document analysis and focus interviews with the head and secretary of the four selected barangays produced vital information for the system requirements. Each of the four barangays contributed to the modification of the system specifications and its functionalities. Elements of the system that were modularly written are as follows: census, residents profile record, barangay clearance, profile information record, business clearance, blotter, reports, barangay certifications, violations of barangay ordinances, and health information status. Pilot tests of the Barangay Constituent Information System (BCIS) attest to the functionality of the system and imply the organization’s enhanced ability to provide optimal service to the community. Further upgrades are needed to satisfy other future ordinance and technical web-based requirements.

In industrial control systems, applications perform time-critical operations based on the observations of multiple processes. We consider a request-based scenario, where a cache-enabled BS stores the most recent status observed by energy harvesting (EH) sensors, and delivers the cached status to applications upon request. Due to the time-varying nature of processes, cached status may be outdated, which affects the accuracy of operations. Frequent cache updates improve the status freshness but lead to high energy consumption of EH sensors. Furthermore, the cache updates among EH sensors are coupled due to the fact that the freshness on the application side is simultaneously determined by multiple statuses. Age of Information (AoI) is employed to measure the freshness of status. We adopt the maximum AoI among the responded statuses as the age of response (AoR). A long-term average AoR minimization problem is formulated, subject to the number of wireless channels and the energy causal constraint of each EH sensor. The problem is challenging due to the random arrivals of requests and energy harvesting, as well as the random association between requests and sensors. By introducing AoR reduction as the reward of each schedule, the problem is decomposed into a per-slot reward maximization problem and then transformed into a knapsack problem. An online correlated cache update algorithm is proposed. Numerical experiments illustrate that our solution outperforms the traditional greedy policy and achieves up to 16% performance gains.

One of the visions of Colegio de San Juan de Letran-Bataan towards the year 2022 is to empower community service through advocating care for the creation and quality of life. This paper aims to know the perception of Barangay Palili residents on the community development plan of the Colegio with the said barangay since 2019. The researchers used a quantitative method approach where survey research was utilized. The survey was able to identify 687 possible household head respondents taken from the 2021 master list from the said barangay. Only 53 out of 687 household heads were able to qualify for the following parts of the survey as they answered 'yes' to all of the first parts—focusing on questions about their awareness of the Colegio and the partnership between the two entities. Regarding the understanding of the Barangay Palili residents with the Community Service Development Plan of the Colegio, the focus on Christian values and not just the activities of the Colegio garnered the most "Agree" answer with 40 out of 53 surveyed respondents, or 75.47%. On the attitude of the Barangay Palili residents regarding the community development plan of the Colegio, the survey showed a consistent set of answers from the respondents in general, with answers ranging from 50-53 responses, with one part where only 29 out of 53 surveyed respondents answered that the Colegio taught them "how to fish" and not just "receive a fish." This also can be attributed to the impact of the pandemic since livelihood training had been stopped by the Colegio for the safety of the Barangay Palili residents and its personnel. The residents of Barangay Palili hope to continue the partnership and programs being implemented by the Colegio and their barangay, as the last part of the survey states.

This study aimed to develop a Barangay Profiling System with Analytics for Barangay Pallua Sur Tuguegarao City. It aimed to provide a systematic profiling system which can allow authorized users to easily manage resident profiles, generate statistical reports, and update records. The researchers utilized a qualitative approach using descriptive research design and systems development in collecting and analyzing data for the design and development of the system. The researchers concluded that the developed system automates the profiling of all residents in the barangay and allows authorized users to generate various types of reports such as monthly income statistics, education background, employment, and health status. Furthermore, the system can generate bar graphs, pie charts, and tables to visualize the data being stored in the system. Lastly, the researchers recommend further testing and improvements for the system to optimize its usability and efficiency.

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**REVIEW OF RELATED LITERATURE (BAYDAL)**

The study by Bautista et al. (2023) introduced BALANGAY, a web-based system aimed at improving barangay services through a centralized database and streamlined processes. The system includes features like incident reporting and a heatmap to help officials develop better programs and projects. The research combined qualitative and quantitative methods, using interviews and surveys. The system was evaluated using the ISO 9126 Software Quality Model, with a high satisfaction rating (4.45 out of 5) from both barangay constituents and IT experts. The study concluded that BALANGAY effectively enhances accessibility and efficiency in delivering public services at the barangay level.

BALANGAY: A Web-Based Document Request and Incident Reporting System with Decision Support for Barangay Program Development

https://link.springer.com/chapter/10.1007/978-981-19-7663-6\_13

The Philippines frequently faces natural disasters like floods and storms due to its geographic location, prompting the government to adopt disaster risk reduction and climate change adaptation strategies. In response, Rodriguez et al. (2017) developed a web-based Relief and Casualty Monitoring and Early Warning System for Local Government Units (LGUs). Tested in two regions, the system met user requirements and proved effective in addressing issues identified in a Commission on Audit report. It helped improve early warning capabilities, enabling local governments to better warn communities and manage relief efforts during disasters.

Anduyog: A web-based application for relief and casualty monitoring and early warning system for local government units in the Philippines

https://ieeexplore.ieee.org/abstract/document/8070002/

By Syamia et al. (2024) The study focuses on creating a web-based document archiving system for Commission C DPRD of North Sumatra, which manages financial documents. Currently, document management in this commission relies on manual processes, which are prone to errors, slow search times, and the risk of document loss or damage. To address these issues, the research proposes a digital system to improve the efficiency, security, and accessibility of documents.

The system was developed using Research and Development (R&D) methodology, including designing UML diagrams (such as use case, activity, and class diagrams). The goal is to help Commission C better manage its documents, improve service quality, and enhance transparency and accountability in regional financial management. This new system aims to streamline document handling and contribute to more effective governance.

Web-Based Document Archiving Information System In Commission C DPRD Of North Sumatra Province

https://ejournal.unwaha.ac.id/index.php/saintek/article/view/4364

According to Bringula el al. (2019) This mixed-method study explored the design of a mobile app to improve services offered by barangays (local government units) in the Philippines. The quantitative part involved a survey of 30 local residents, while the qualitative part included interviews with 3 local officials. The findings revealed that a mobile app could enhance public services by allowing residents to submit complaints, access information, speed up document processing, and aid in decision-making. Based on these insights, the "E-Barangay" app was developed. The study also includes conclusions and recommendations for further improvements.

Towards the development of e-barangay mobile application

https://dl.acm.org/doi/abs/10.1145/3306500.3313979

This study developed a web-based health information system for Barangay 69 in Tondo, Manila, to address the challenges of managing health data manually. The system serves as a platform for managing resources, tracking health programs, and visualizing data, including Covid cases. It also provides features like inventory management and tracking health activities. Testing showed that the system is functional and user-friendly, helping the barangay efficiently share health information and activities with its residents. The study concludes that the system improves resource management and transparency in the barangay’s health services.

Development of a Web-Portal Health Information System for Barangay

-K Altura et al. (2022)

https://ieeexplore.ieee.org/abstract/document/10111439/

This research focuses on developing a Web-based Barangay Profiling and Issuance System (BPIS) to improve the efficiency of local government operations in barangays. The system is designed to simplify and speed up the issuance of certificates, permits, and other documents. It also helps organize and manage essential data, making it easier for barangay officials to collect, store, and analyze information. Regression analysis is used to evaluate the effectiveness of the system, ensuring that it improves the overall process. The goal is to make barangay services more efficient, accurate, and accessible for both officials and residents.

-Ballaran et al. (2023)

Development and evaluation of web-based barangay profiling and issuance system using regression analysis

https://scholar.google.com/scholar?start=10&q=Barangay+Web+System+for+Document+Request&hl=en&as\_sdt=0,5#d=gs\_qabs&t=1731217864398&u=%23p%3DrBt5hLWgrkIJ

Tamayo et al. (2013) aimed to introduce technology to the barangay of Baliwag, Bulacan, to enhance government services and align with e-governance standards. Using Systems Analysis and Design for system development and descriptive research for assessing acceptability, the authors focused on helping local government officials embrace technology. The findings revealed that barangay officials preferred an automated system that was easy to use, secure, offered printable forms, and had a simple design. They also found the automated issuance of barangay clearances to be efficient, accurate, user-friendly, quick, and secure. Overall, the automated system was highly accepted and considered effective by the barangay officials.

The Development and Acceptability of Automated Issuance of Barangay Clearance

<https://www.ejournals.ph/article.php?id=1974>

Online Information System for Archiving Documents and Letters Requests at the Sub-District Level" (2019), focuses on developing an online system for managing document requests at the sub-district level in Indonesia. The system, called "Sipadu," was created using PHP and MySQL, and it aims to improve population administration by streamlining document and letter requests. The results show that 84.5% of users found the system convenient.

Online Information System for Archiving Documents And Letters Requests at The Sub-District Level

-Hunaifi et al. (2019)

<https://eudl.eu/doi/10.4108/eai.12-10-2019.2296543>

A Flexible System for Request Processing in Government Institutions" (2014) presents an electronic document handling system designed for government use. The system aims to manage administrative requests with minimal disruption to users' routine. It allows users to submit requests through a familiar office suite, avoiding the need for extensive training. The system is adaptable and easy to integrate into existing workflows, handling various types of requests based on well-defined user roles. This approach reduces user resistance to new software and ensures smooth implementation in government institutions.

A flexible system for request processing in government institutions

-Zarić et al. (2014)

<https://www.epa.hu/02400/02461/00052/pdf/EPA02461_acta_polytechnica_hungarica_2014_06_207-227.pdf>

This paper discusses the ADUN e-community portal, which aims to improve government service by addressing citizens' complaints. Many government portals exist, but they often lack effective public services. The ADUN portal allows community members to track the progress of complaints affecting their lives, while also giving ADUN (elected representatives) better control over these issues. The system has nine modules, including myprofile, announcement, discussion, complaints, directory, message board, crime prevention tips, report, and analysis. The paper specifically focuses on the announcement and discussion modules.

Developing ADUN e-Community Portal for Community in Malaysia: Announcement Module and Discussion Module

-Eisa et al. (2016)

https://www.researchgate.net/profile/Kamal-Karkonasasi/publication/305082442\_Developing\_ADUN\_e-Community\_PortalAnnouncement\_Module\_and\_Discussion\_Module/links/5781155c08ae69ab88262fba/Developing-ADUN-e-Community-PortalAnnouncement-Module-and-Discussion-Module.pdf