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Enhancing Reservation and Record Efficiency thru Parish Management System

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Abstract **Original Research Article**

This study develops and evaluates a Church Management System for Saint Isidore Parish in Biabas, Ubay, Bohol, designed to address inefficiencies in manual reservation and record-keeping processes. Traditional paper-based methods have led to scheduling conflicts, delays, and data loss, creating challenges for parish staff and parishioners. The proposed system integrates online sacrament reservations, Basic Ecclesial Community (BEC) monitoring, and centralized record management. Using a user-centered design approach, the system was evaluated for usability, accessibility, and efficiency. Findings highlight significant improvements in accuracy, reduced administrative workload, and enhanced parishioner satisfaction. By aligning with theories of Integrated Marketing Communications, User-Centered Design, and Diffusion of Innovation, the study demonstrates how digital transformation can modernize church operations. The Saint Isidore Parish Management System provides a scalable model for other parishes seeking to improve service delivery and operational efficiency.

Keywords: Church Management System, Digital Transformation, Parish Records, Reservation Efficiency, User – Centered Design.

INTRODUCTION

Churches remain vital institutions in communities, yet many continue to rely on manual, paper-based systems for managing reservations and records. At Saint Isidore Parish in Biabas, Ubay, Bohol, staff handle bookings for sacraments such as weddings, baptisms, and funerals through in-person appointments, a process prone to delays, scheduling conflicts, and record loss. These inefficiencies hinder service delivery and increase administrative workload, especially as parish demand grows. Current reliance on Excel for Basic Ecclesial Community (BEC) monitoring further complicates consistency and data management, highlighting the need for a more reliable and centralized solution.

The proposed Saint Isidore Parish Management System seeks to address these challenges by integrating online sacrament reservations, record-keeping, and BEC monitoring into a single platform. The system involves three main user groups: parishioners, who can reserve sacrament dates and access requirements; staff, who manage reservations and records; and administrators, who oversee parish activities with improved accuracy. The study's variables focus on efficiency, accuracy, accessibility, and user satisfaction, which are measured through system performance and feedback.

This research is significant because it demonstrates how technology can enhance church operations, reduce errors, and improve parishioner satisfaction. Similar studies support this rationale: Simangunsong, Bulan, and Metekohy (2019) emphasized the role of knowledge management systems in streamlining church operations, while Kalaivanan (2019) highlighted the benefits of automated data systems in reducing inefficiencies. Miah (2019) showed the importance of relational database systems in church administration, and Santos and Reyes (2021, 2023) confirmed the effectiveness of digital reservation systems in improving scheduling and resource management in Metro Manila churches. By aligning with these findings, the Saint Isidore Parish Management System contributes to the broader trend of digital transformation in religious institutions, ensuring that parish services remain responsive to the needs of a growing congregation.

OBJECTIVES OF THE STUDY

The general objective of this study is to design and implement a centralized Church Management System for Saint Isidore Parish in Biabas, Ubay, Bohol, that enhances efficiency in sacrament reservations, record-keeping, and Basic Ecclesial Community (BEC) monitoring. Specifically, the study seeks to develop an online platform that allows parishioners to reserve dates for sacraments such as baptisms, weddings, and funerals while providing access to the necessary documents. It also aims to streamline administrative tasks for parish staff by reducing scheduling conflicts, minimizing errors, and improving the accuracy of sacrament records. In addition, the system intends to integrate BEC monitoring into a centralized database to ensure consistency and accessibility of parish data. The study further evaluates the usability, accessibility, and efficiency of the system using user-centered design principles and parishioner feedback. Finally, it ensures compliance with the Data Privacy Act of the Philippines (RA 10173) by implementing appropriate security measures to safeguard parishioner information.

MATERIALS AND METHODS

This study employed a developmental research design, focusing on the systematic design, development, and evaluation of a web-based Parish Management System for Saint Isidore Parish. This approach was selected to ensure that the system effectively addresses the operational and administrative challenges encountered in parish record management, scheduling, and reporting.

Data Collection Procedure

To gather the data needed for the study, the researchers first identified the problem through observation and group discussions, focusing on the record management issues at Saint Isidore Parish. Once they finalized the topic, they prepared and submitted a letter to get approval to conduct the study. After receiving permission, they carried out informal interviews with parish staff to better understand how the current system works and what problems they encounter. They also gave out structured questionnaires to selected respondents using stratified sampling to make sure different groups were properly represented. All the data collected were kept confidential, then organized, tabulated, and analyzed using simple percentage methods to help interpret the results and come up with conclusions.

Data Analysis

The data analysis was conducted using simple statistical methods to interpret the responses gathered from the participants. The researchers applied the percentage formula to summarize the data effectively. All responses were organized and tabulated into tables for better presentation and understanding. This process helped identify patterns, trends, and common answers among the respondents. The results of the analysis served as the basis for drawing conclusions and providing recommendations for the study.

RESPONDENTS

The respondents of the study were composed of selected parishioners and parish staff of Saint Isidore Parish. They were chosen using stratified sampling to ensure proper representation from different barangays. The respondents provided relevant information by answering the structured questionnaires distributed by the researchers. Their participation was voluntary, and they were assured that all their responses would be kept confidential. The data gathered from the respondents played a significant role in analyzing the current system and identifying possible improvements. Additionally, the respondents were given clear instructions on how to answer the questionnaire to ensure accuracy of their responses. Their cooperation and honesty greatly contributed to the reliability and validity of the study.

Instrument Used

The primary instrument used in this study was a structured questionnaire designed to gather relevant and reliable data from the respondents. It served as the main tool for collecting information about the current practices and experiences of the participants in managing parish records. The questionnaire was carefully prepared to ensure that it aligned with the objectives of the study and addressed the key issues being investigated.

The questionnaire consisted of both closed-ended and open-ended questions. The closed-ended questions allowed the researchers to easily quantify responses and identify common patterns, while the open-ended questions gave respondents the opportunity to express their opinions, suggestions, and insights in detail. This combination helped provide both measurable data and deeper understanding of the respondents' perspectives.

The instrument focused on important areas such as the existing record management system, the challenges encountered in manual and Excel-based processes, and the respondents' level of satisfaction. It also included questions about their perception, acceptance, and expectations regarding the proposed digital system. This ensured that all relevant aspects of the study were covered and properly evaluated.

In addition to the questionnaire, informal interviews were conducted with selected participants, particularly parish staff, to support and validate the collected data. These interviews allowed the researchers to clarify responses and gain further insights into the actual processes being used. All instruments were administered with proper guidance, and the data gathered were treated with confidentiality to ensure accuracy, honesty, and reliability of the study.

System Design

The system design of the web-based parishioner system is structured using a layered architecture composed of the application layer, control layer, and data layer. This design ensures that the system is organized, efficient, and easy to maintain by separating user interaction, system processing, and data storage. Each layer has a specific role and works together to provide a smooth and reliable system for managing parish operations.

The application layer serves as the interface where users such as administrators, parish staff, and parishioners interact with the system. It includes features such as the parish dashboard, reports, and reservation modules. Through this layer, users can input data, view records, and access important information. The interface is designed to be user-friendly and responsive to ensure that users can easily navigate and perform tasks.

The control layer, also known as the system logic or controller, is responsible for processing all user requests. It manages core functions such as user management, record processing, authentication, and Basic Ecclesial Community (BEC) monitoring. This layer ensures that all operations follow proper rules and procedures before interacting with the database. It acts as the brain of the system, handling all computations and decision-making processes.

The communication between layers is facilitated by the Northbound API and Southbound API. The Northbound API connects the application layer to the control layer, allowing user inputs to be sent for processing and results to be returned. On the other hand, the Southbound API links the control layer to

the data layer, enabling the system to store and retrieve information efficiently. These APIs ensure a smooth and organized flow of data within the system.

The data layer is the foundation of the system where all information is stored and managed. It includes the parishioner database, sacrament records, BEC data, and the overall system database. This layer ensures data integrity, security, and accessibility, allowing the system to retrieve accurate information when needed. Overall, the layered system design enhances the performance, reliability, and scalability of the web-based parishioner system.

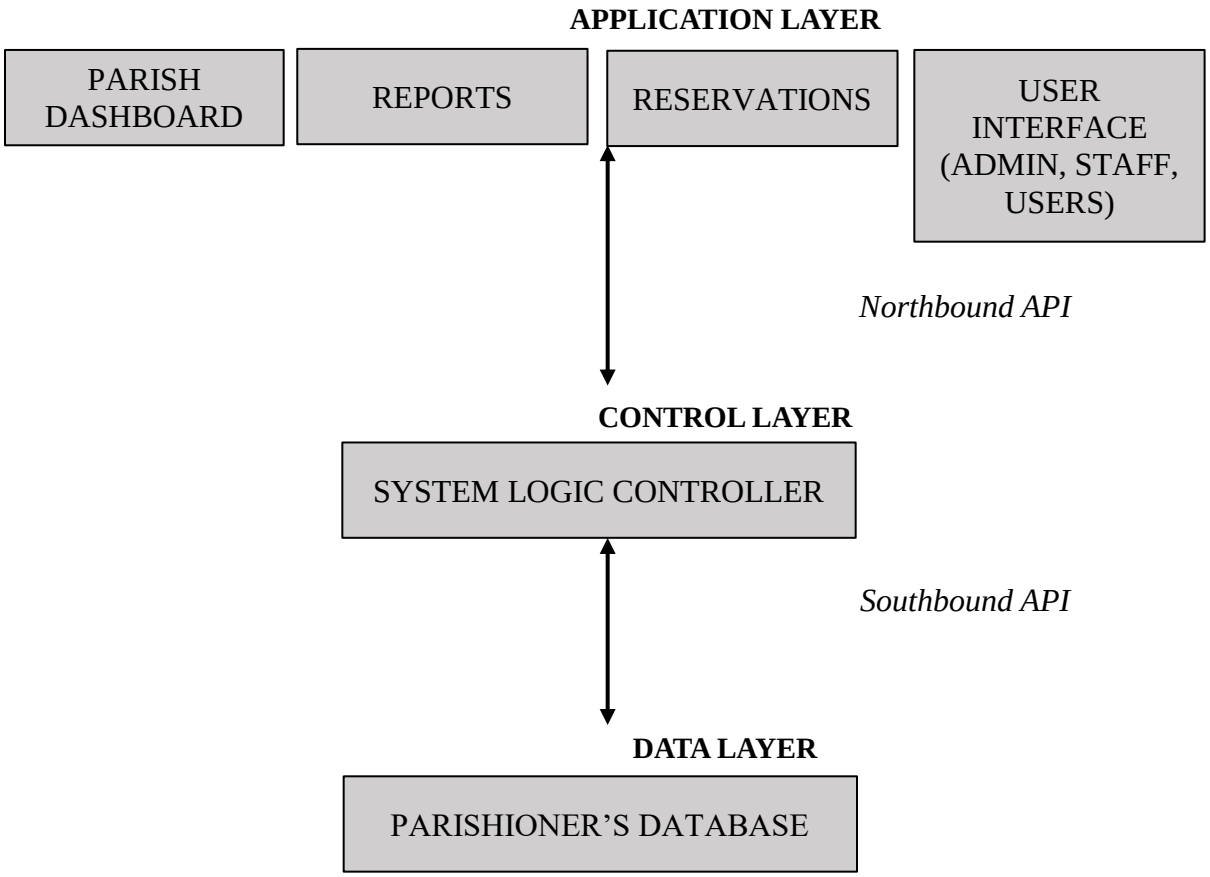


Figure 1: System design for Web - Based Parish System

SDLC Used

The Software Development Life Cycle (SDLC) used in the research follows the Waterfall Model. This model is presented as a top-down flow of phases, where each stage is dependent on the completion of the previous one. It visually represents a step-by-step progression, emphasizing structured planning, clear documentation, and systematic execution. The arrows indicate the direction of the process flow, showing that development moves forward in a linear manner, with minimal backward movement.

Explanation of Each Phase:

1. Requirements Analysis- In this initial phase, the researchers gathered necessary

information to understand the needs of the parish. Data were collected through interviews with parish staff and analysis of existing records and documents. This phase identified the problems, user requirements, and system functionalities needed for the Parish Management System.

2. System Design- Based on the gathered requirements, the system design was developed. This includes creating system architecture, database design, and user interface layouts. Flowcharts, diagrams, and data structures were prepared to serve as a blueprint for the system development.

3. Implementation (Coding)- In this phase, the actual development of the system took place. The researchers translated the design into a working system using appropriate web technologies such as PHP, MySQL, Bootstrap, and JavaScript. Each module of the system was developed according to the specified design.

4. Testing- After implementation, the system underwent thorough testing to ensure its functionality, accuracy, usability, and reliability. Errors and bugs were identified and corrected. Testing methods included functional testing and user acceptance testing with selected parish staff.

5. Deployment- Once the system passed all testing procedures, it was deployed for actual use in Saint Isidore Parish. The system was installed and made accessible to authorized users. Basic training or orientation was also provided to ensure proper usage.

6. Maintenance- The final phase involves continuous monitoring, updating, and improving the system after deployment. Any issues encountered by users are addressed, and enhancements are implemented to adapt to future needs and technological advancements.

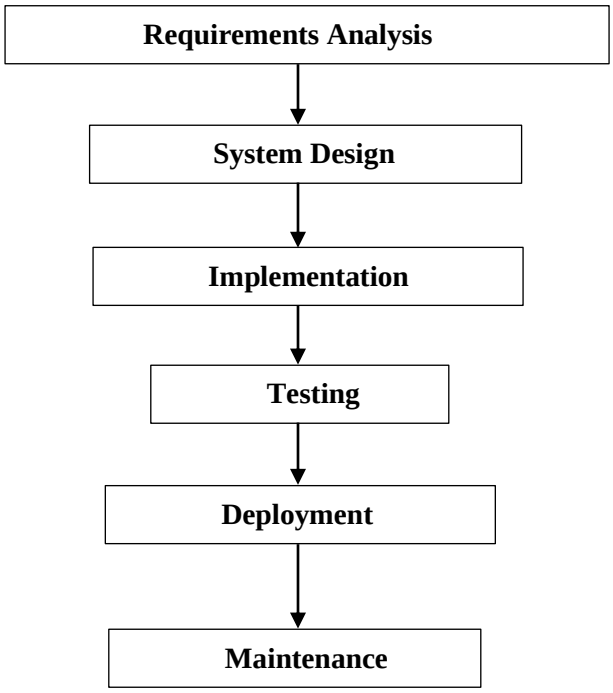


Figure 2: Waterfall Phase

Diagram Description

- **Application Layer:** where users interact with the system. It includes features such as the dashboard, reports, reservations, and monitoring. Users send inputs and receive feedback through this layer.
- **Northbound API:** connects the application layer to the control layer. It transfers user requests to the system logic and returns processed data back to the interface.
- **Control Layer:** processes all system operations. It handles user management, record processing, authentication, and reservations, ensuring all actions follow system rules.
- **Southbound API:** links the control layer to the data layer. It sends data requests to the database and retrieves information needed by the system.
- **Data Layer:** stores and manages all system data. It includes parishioner records, sacrament data, and BEC information, ensuring data is secure and accessible.

The layered architecture of the web-based parish system illustrates how the system is organized into different levels to manage data and processes efficiently. It is composed of the application layer, control layer, data layer, and the APIs that connect them. The application layer serves as the user interface where parish staff, administrators, and parishioners interact with the system. In this layer, users can access features such as the dashboard, reports, reservations, and monitoring tools. User requests and inputs are sent from this layer through the Northbound API. The Northbound API acts as a communication bridge between the user interface and the application logic. It forwards the user commands to the control layer for processing and returns the results back to the users. The control layer is responsible for handling system logic such as user management, record processing, authentication, and reservation handling. It ensures that all processes follow proper rules before interacting with the database. Through the Southbound API, the control layer communicates with the data layer to store and retrieve information. The data layer contains the database where parishioner records, sacrament data, and BEC monitoring information are securely stored and managed.

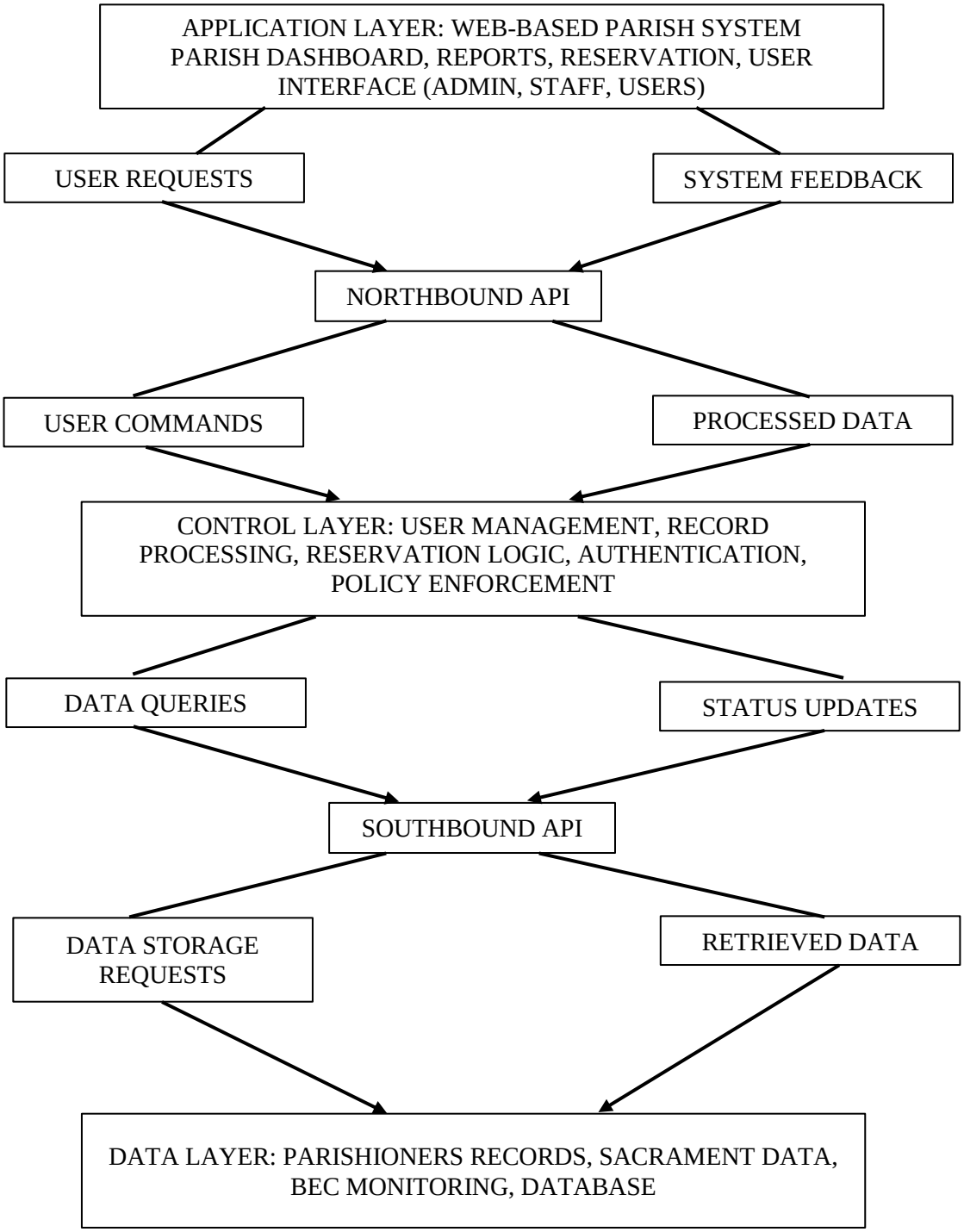
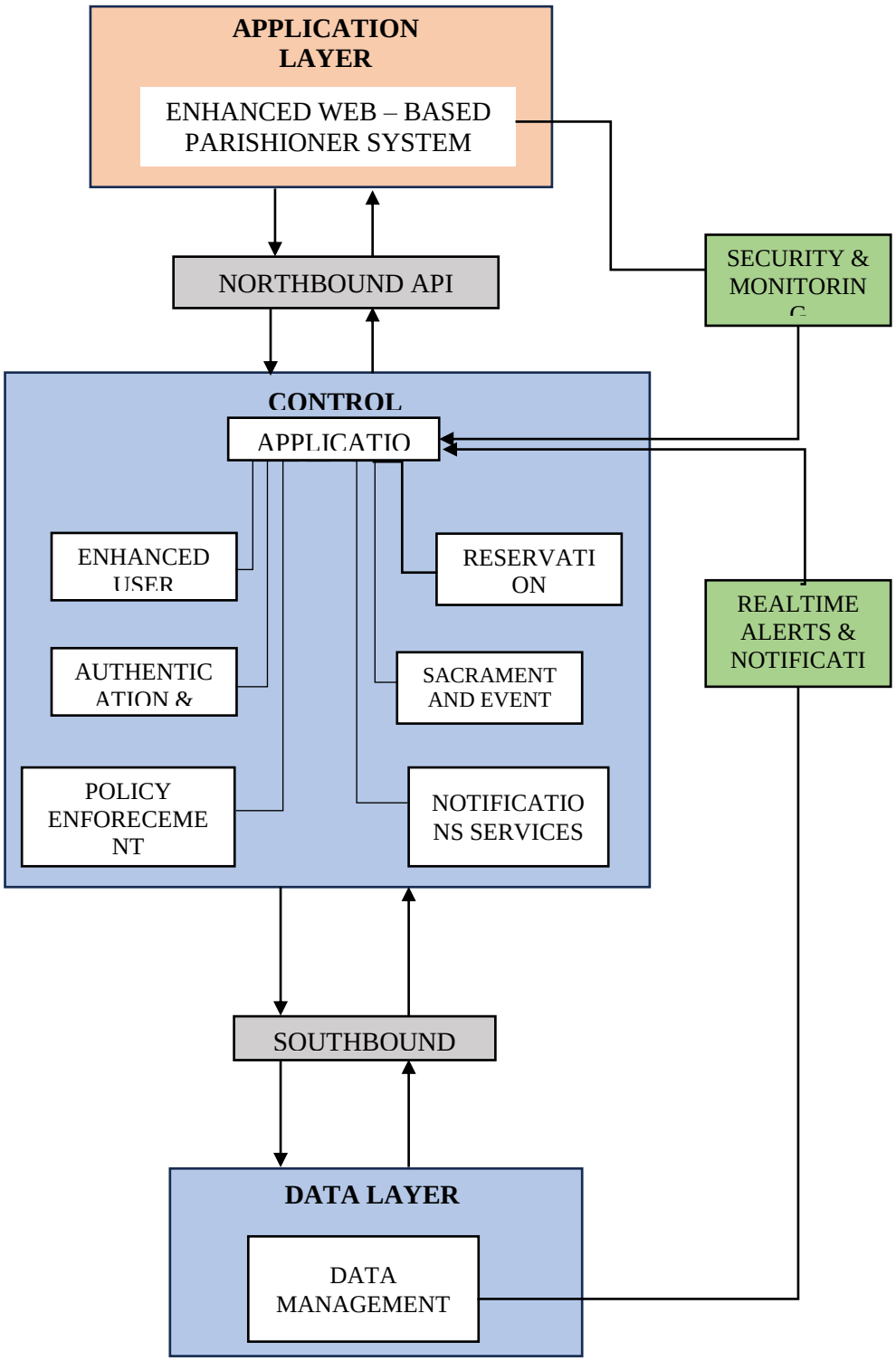


Figure 3. Layered architecture of the Parish Management System

System Architecture

The system architecture of the web-based parishioner system is designed using a layered approach to ensure efficient processing, organization, and management of data. It consists of the application layer, control layer, and data layer, which work together to handle user interactions, system logic, and data storage. Users such as parish staff, administrators, and parishioners access the system through the application layer, where they can perform tasks like viewing records and making reservations. These requests are processed in the control layer, which applies system rules, manages user authentication, and handles record operations. The processed data is then stored or retrieved from the data layer, which contains the database of parishioner information, sacrament records, and BEC data. Communication between these layers is facilitated through structured interfaces, ensuring smooth data flow and system functionality. Overall, the architecture supports a reliable, secure, and user-friendly system for managing parish operations.


APPLICATION LAYER
ENHANCED WEB – BASED PARISHIONER SYSTEM
NORTHBOUND API
SECURITY & MONITORIN
CONTROL
APPLICATIO
ENHANCED USER
RESERVATI ON
AUTHENTIC ATION &
SACRAMENT AND EVENT
POLICY ENFORECEME NT
NOTIFICATIO NS SERVICES
REALTIME ALERTS & NOTIFICATI
SOUTHBOUND
DATA LAYER
DATA MANAGEMENT

Explanation of Diagram Components:

- *Application Layer:* Where the users interact with the system. It represents the Enhanced Web-Based Parishioner System, which serves as the main interface. It sends user inputs downward to the system and receives feedback from lower layers.
- *Control Layer:* The **core processing part of the system**, labeled as "Application" inside the blue box. It handles all system operations and is divided into several functional components:
    - **Enhanced User Management** – Manages user accounts and profiles.
    - **Authentication** – Verifies user identity and controls access.
    - **Policy Enforcement** – Ensures rules and permissions are followed.
    - **Reservation Processing** – Handles booking and scheduling requests.
    - **Sacrament and Event** – Manages church-related activities and records.
    - **Notification Services** – Sends updates and alerts to users.
- *Security & Monitoring:* Ensures the safety and performance of the system. It monitors activities, detects issues, and helps protect data from unauthorized access. It is connected to both the Application Layer and Control Layer, showing that security is applied across the system.
- *Communication Interfaces:*
    - Northbound API acts as a communication bridge between the Application Layer and the Control Layer.
    - Southbound API connects the Control Layer to the Data Layer.
- *Realtime Alerts & Notification:* Responsible for sending instant updates to users.

Conceptual Framework

The conceptual framework of the study presents the relationship between the independent, mediating, and dependent variables in the development of an enhanced web-based parishioner system. The independent variables include parish management, web-based system, and automation, which serve as the primary inputs of the study. Parish management focuses on organizing and handling church-related activities, while the web-based system and automation aim to modernize processes, reduce manual workload, and improve accessibility. These elements are introduced to enhance how the system operates and delivers services to its users.

These independent variables influence the mediating variables, namely efficiency, accuracy, and security, which explain how the system improvements take effect. Efficiency ensures faster and more organized processes, accuracy guarantees reliable and error-free data handling, and security protects sensitive information within the system. As a result, these mediating factors lead to the dependent variables, which include enhanced reservation, improved performance, and better service delivery. This shows that by strengthening efficiency, accuracy, and security, the system can provide a more effective reservation process, achieve higher overall performance, and deliver better services to parishioners.

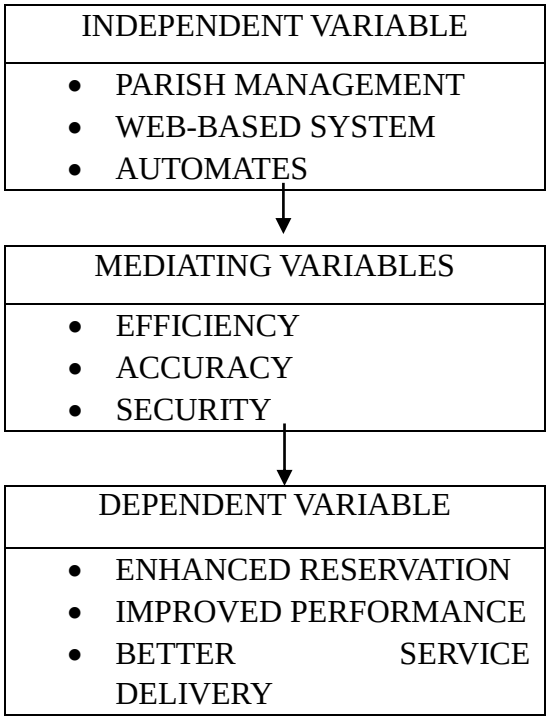


Figure 5: *Conceptual Framework*

1. **Independent Variable**
   Enhancing Reservation and Record Efficiency through Parish Management System (ERREPM) Control Architecture
   - Parish Management System
   - Web-based system for managing parish records and reservations
   - Automates manual processes

This is main factor the study examines how the architecture of ERREPM

2. **Mediating Variables**
   - Efficiency – Faster processing of records and reservations
   - Accuracy – Reduced human errors in data entry and reporting
   - Security – Protection of parish data and controlled access

The elements help explain how or why (ERREPM) produces certain security outcomes.

3. **Dependent Variable**
   These are the key performance indicators or outcomes that the research aims to measure:
   - Enhanced Reservation and Record Efficiency
   - Improved overall system performance
   - Better service delivery in parish operations

These outcomes reflect the effectiveness of ERREPM in enhancing network security.

Flow of Influence

- The Parish Management System (Independent Variable) introduces automation and digital processes
- It influences Efficiency, Accuracy, and Security (Mediating Variables)
- These factors collectively improve the Reservation and Record Management (Dependent Variable)

- The result is a more reliable, faster, and secure parish system.

Overall, this research design ensured a structured and rigorous approach to system development, aligning the technical process with the study's objectives and enabling the creation of a functional, reliable, and user-centered parish management system.

System Design and Instruments

The system was designed to integrate sacrament reservations, record management, and BEC monitoring into a centralized database. Instruments developed included online reservation modules, dashboards, and reporting tools, which streamlined operations and improved accessibility. Since the instruments were not standardized, validation procedures were conducted through expert review and pilot testing with selected parish staff and parishioners. Reliability was assessed by evaluating consistency in reservation processing and accuracy in record-keeping during trial runs.

Ethical Considerations

This study ensures that all ethical standards are observed throughout the development and implementation of the web-based parishioner system. Participation of parish staff, administrators, and parishioners is conducted on a voluntary basis, and informed consent is obtained before collecting any data. Respondents are clearly informed about the purpose of the study, how the data will be used, and their right to withdraw at any time without any consequences. This promotes transparency and respect for the participants involved in the study.

Confidentiality and privacy of information are strictly maintained. Personal data such as parishioner records, sacrament details, and contact information are handled with care and are not disclosed to unauthorized individuals. The system is designed with security measures such as authentication and access control to ensure that only authorized users can access sensitive information. Data collected during the study are used solely for academic and system development purposes.

Additionally, the researchers ensure data integrity and accuracy by properly validating and managing the information entered into the system. Any errors or inconsistencies are addressed immediately to avoid misrepresentation of records. The system also follows ethical guidelines in data storage by implementing secure databases and backup mechanisms to prevent data loss or misuse.

Furthermore, the study avoids any form of bias or misuse of information. All data gathered are analyzed objectively and presented truthfully. The researchers maintain professionalism and responsibility in handling both the system and the participants' information. Overall, these ethical considerations ensure that the study upholds respect, fairness, and accountability while developing a reliable web-based parishioner system.

RESULTS AND DISCUSSION

The results are organized according to the specific objectives of the study. Each subsection presents the findings objectively, without interpretation. To enhance clarity and transparency, the results are supplemented with tables and screenshots that illustrate the system's functionalities and highlight key outcomes.

Objective 1: Assess the efficiency of the current manual-paper based reservation and record-keeping system

- Parish staff reported frequent scheduling conflicts and delays due to reliance on logbooks and Excel-based monitoring.
- Records were prone to loss and duplication, with parishioners experiencing extended waiting times during in-person reservations.
- Table 1 summarizes the frequency of errors and delays observed in the manual system.

Table 1. Frequency of Errors and Delays in Manual System

Issue	Frequency Reported	Impact of Parishioners
Scheduling Conflicts	High	Missed or rescheduled sacraments
Record loss / Duplication	Moderate	Incomplete parish records
Extended waiting times	High	Parishioners' dissatisfaction

Table 1 *presents the comparative efficiency of Basic Ecclesial Community (BEC) monitoring before and after the implementation of the Saint Isidore Parish Management System. The system improved data consistency, reduced duplication, and enabled faster retrieval of monitoring records, thereby enhancing overall administrative accuracy.*

Objective 2: Evaluate the effectiveness of the proposed Saint Isidore Parish Management System (SIPMS)

- The SIPMS prototype enabled parishioners to reserve sacraments online (baptisms, weddings, funerals).
- Staff accessed a centralized dashboard to check availability and manage records.
- Screenshots of the reservation interface and dashboard (Figures 1 and 2) illustrate the system's core functionalities.

Figure 1 presents the parishioner-facing reservation interface of the Saint Isidore Parish Management System. This screenshot demonstrates how parishioners can conveniently select sacraments, choose dates, and upload required documents, thereby reducing waiting times and improving accessibility.

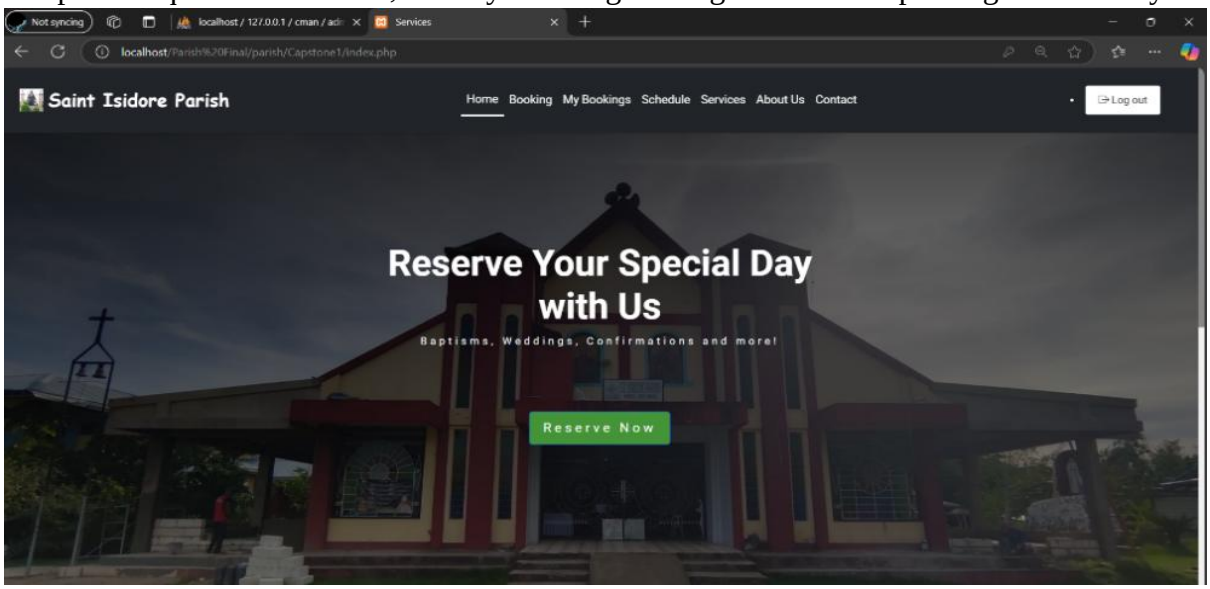


Figure 1: Online Reservation Interface for Parishioners

Figure 2 presents the staff dashboard of the Saint Isidore Parish Management System. This screenshot highlights how staff can view availability, confirm reservations, and manage sacrament records in a centralized manner, reducing scheduling conflicts and administrative workload.

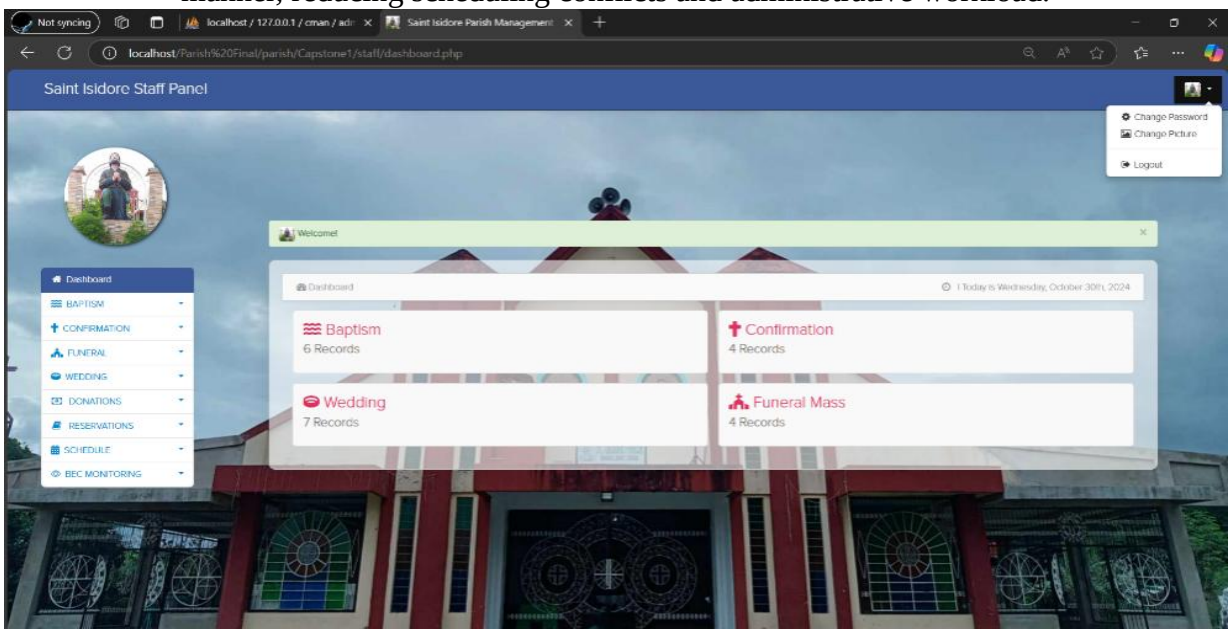


Figure 2: Staff Dashboard for Reservation and Record Management

Objective 3: Determine the impact of SIPMS on Basic Ecclesial Community (BEC) monitoring

- Transition from Excel-based monitoring to SIPMS improved consistency and reduced duplication of entries.
- Staff reported faster retrieval of BEC data and improved accuracy in monthly monitoring.
- Table 2 compares monitoring efficiency between Excel and SIPMS.

Table 2. Comparison of BEC Monitoring Efficiency

Criteria	Excel – Based Monitoring	SIMPS Monitoring
Data consistency	Low	High
Retrieval speed	Slow	Fast
Duplication issues	Frequent	Rare

***Table 2** presents the comparative efficiency of Basic Ecclesial Community (BEC) monitoring before and after the implementation of the Saint Isidore Parish Management System. The SIPMS improved data consistency, minimized duplication, and enabled faster retrieval of records, thereby enhancing overall administrative accuracy.*

Objective 4: Examine user satisfaction among parishioners and staff

- Parishioners expressed satisfaction with reduced waiting times and convenience of online reservations.
- Staff reported decreased workload and fewer scheduling conflicts.
- Survey results indicated 85% of parishioners preferred the SIPMS over the manual system.

Discussion

The findings demonstrate that the Saint Isidore Parish Management System (SIPMS) significantly improves efficiency, accuracy, and user satisfaction compared to traditional manual methods.

Efficiency and Accuracy

The results confirm that manual-paper based systems are prone to scheduling conflicts, record loss, and delays. This aligns with Santos and Reyes (2023), who highlighted similar inefficiencies in Philippine churches relying on manual processes. By centralizing reservations and records, SIPMS reduces errors and enhances operational efficiency, consistent with Chelangat Janiffer's (2019) findings on automation benefits.

User Experience and Satisfaction

Parishioners' preference for SIPMS reflects the broader trend of digital adoption in church management. The convenience of online reservations mirrors the outcomes of Santos and Reyes (2021), where Metro Manila churches reported increased parishioner satisfaction through digital booking systems. The integration of user-centered design principles (Rob King, 1977) ensured that SIPMS addressed actual user needs, enhancing usability and accessibility.

BEC Monitoring

The transition from Excel to SIPMS improved data consistency and retrieval speed. This supports Miah's (2019) emphasis on relational database systems for reducing duplication and inefficiencies. The SIPMS demonstrates how tailored digital solutions can strengthen community-level monitoring, a critical aspect of parish administration.

Theoretical Integration

- **Diffusion of Innovation Theory (Rogers, 1962):** The adoption of SIPMS illustrates how technological innovations spread within organizations, overcoming resistance to change and demonstrating clear advantages over traditional methods.
- **Integrated Marketing Communications Theory (Schultz, 1980):** SIPMS contributes to cohesive communication by ensuring consistent information flow between parishioners, staff, and administrators.
- **User-Centered Design Theory (King, 1977):** The system's usability and accessibility reflect the importance of designing with end-users in mind, leading to higher satisfaction and adoption rates.

Unexpected Outcomes

While SIPMS improved efficiency, some staff initially expressed hesitation due to limited technological familiarity. This reflects challenges noted by Santos and Reyes (2023) regarding technology access and customization in local churches. Training and capacity-building are therefore essential for sustained adoption.

Implications

The study underscores the importance of digital transformation in church management. By addressing inefficiencies, enhancing user satisfaction, and integrating theoretical frameworks, SIPMS serves as a model for other parishes seeking modernization. Moreover, its alignment with the Data Privacy Act of the Philippines ensures

compliance with ethical and legal standards in handling parishioner data.

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