

**BARANGAY SAN RAFAEL INFORMATION SYSTEM
(SAN ESTEBAN, ILOCOS SUR)**

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Chapter I

INTRODUCTION

Project Context

The rapid growth of technology has contributed a lot to the continuous progress of all classes of industry. However, some sectors today seem to be left behind in adapting the use of different methods to allow progress on their part. Nowadays, business people define the application and problems to be solved by the computer. Unfortunately this potential has not been fully recognized or even adequately realized in some business. It is because users may not fully understand the capabilities and limitations of modern computer technology. Information technology in our country is in-demand for progress. The computers serve us a general service tool is in the field of information retrieval and operations the search of facts. Computer-based information retrieval operates through the use of software that can offer information services for an institution. It is a powerful and convenient builder for simultaneous growth in society and industries. Information technology is also significant in process of upgrading leadership through services that every Barangay are working with (<https://www.google.com/search?=computerized+information+system>).

Computerization is a control system that manages processes in the industrial workplace. It reduces human errors and processing time, thus it can boost productivity and result in a high quality production. This can



result in a system will integrated process that can perform much faster and more accurate than the manual system with (<https://www.google.com/search?q=computerized+information+system>).

The Computerized Barangay Information System is appropriate for use of barangay employees, who have access to profile information of barangay residents for the direct reports. Moreover, departmental organizational staffs which have a business need for this information for their business unit can also benefit. This is responsible for an effective and efficient approach for barangay employees and residents. It will help them accomplish task faster and would also eliminate the need of a large staff. It will provide profile-based information for residents. Barangay information system, is a system with database, which is capable of handling numerous records from its area, including the census and demographic profile, the history of the Barangay and land area, the elected barangay officials, the economy and religion. The Barangay information System will be in charge in keeping the data and will prevent redundancy of work, and will take less time and effort in making the master list or searching specific data for some important purposes (<https://www.google.com/studymoose/Computerized-Barangay-Information-System>).

San Rafael, San Esteban, Ilocos Sur is still using manual system of keeping records of the barangay. The barangay usually keep their data hand-written on paper, and file it in a folder. Then the secretary will generate the list of all the names of an individual in a household in each



purok through hand writing. In tracing the records, the secretary will find it one by one. It takes a lot of time. These records are very important for different purposes, it should be securely stored.

With this, the researchers happened to develop a Barangay Information System to provide the needs of the barangay in storing and maintaining its records. The Barangay Information System will be in charge in keeping the data and will prevent redundancy of work, and will take less time and effort in making the master list or searching specific data for some important purposes.

The Record Management System is a system that provides the manager with information for decision-making process. Developing this project is very essential for the residing obliged practically to those barangays that have huge area, they can easily monitor their place inaction of effortless. It is proposed to save time and efforts in producing vivid information. Authorized person are disseminating updates about the information to the residents. A centralized computer-based information system will provide the people up-to-date detailed information; view, search, add and update. This system serves as an assistance of the information that were gathered in this said barangay such as the population growth, economic development, personal information, etc. The system by the officials from Barangay San Rafael is a manual-based process for all services to its constituent. The staff encountered difficulties and long procedure in retrieving, recording, computing and processing.



Thus, this proposed Barangay Information System maintains resident's records as complete up-to-date as possible and as easily accessible for verification, monitoring and reference purposes based on the available residents' census data kept by the direct Barangay. A great help for them to lessen their work and a secured keeping of all data (<https://en.wikipedia.org/wiki/records management>).

Thus, the researchers proposed the Barangay San Rafael, San Esteban Information System that will give safer storage, fast retrieval of files, maintains reliability and accuracy, and faster tracking of the files. Proposing software for the records is very useful to the staff, from written records. Barangay Information System hope to enhance the way of managing and keeping all the resident's confidential records.

Purpose and Description

The core function of this study is to offer a detailed reliable and secured keeping of all data, updating information and it also allows the user to search or view records. Residents Information System hope to enhance the way of managing and keeping all the resident's confidential records.

This system facilitates Barangay management by enabling the Barangay to maintain their resident records as complete and up-to-date as possible and as easily accessible for verification, monitoring and reference purposes based on the available residents' census data kept by the client



Barangay. Data provided by this system in the form of comprehensive reports are invaluable for planning, program implementation and related purposes.

The proposed system will benefit the following:

Barangay Captain and other Officials. This study helps the barangay captain and other officials to lessen time consuming in getting information in manual-based process.

Barangay Secretary. This study helps the barangay secretary in recording information of the residents in a faster way and develop time management.

Researchers. It enhances their skills in designing a particular program applying the principles they have gained in their field of specialization.

Future Researchers. This will serve as their reference material and guide in developing a new system.



Objective of the Project

The main goal of the study is to develop a Barangay Information System of San Rafael, San Esteban, Ilocos Sur to have a more efficient barangay management. Specifically, it sought to:

1. Determine the problems of Barangay San Rafael, San Esteban in terms of records or information management;
2. Design and develop an Information System for Barangay San Rafael, San Esteban, Ilocos Sur and;
3. Test and deploy the developed system.

Scope and Limitation

The study was conducted during the second semester of Academic Year 2018-2019 at Ilocos Sur Polytechnic State College. This system provides efficient, reliable, fast, and accurate information to provide good quality service to secure the file of the client and to ensure that services and information are given at the right time to satisfy the needs of the clients, to provide user efficient working environment and generates more output. This system provides friendly user interface resulting in knowledge in each and every usability features of the system.

This system is limited in a way that the resident of the barangay is not allowed to use the system but only the secretary of the barangay is allowed and have the permission to use it.



Chapter II

REVIEW OF LITERATURE

A manual information system is one that does not rely on any computerized systems and a computer-based information system does. A manual-based system will see information recorded and kept in different way such as in files in paper form. Whereas a computer based information system will see data stored on various computer programs including on database, word documents, excel etc. (Medel, 2015).

A study on Barangay Resident Record Management and Certificate Issuance System stated that this study focuses on the records management system of the said Barangay. The Barangay treasurer/secretary is the one who performs permits, certificates transactions community tax, business taxes, and other fees. They are also on charge of keeping tracks of the records, capture and maintain up-to-date records of all issuance transactions and daily, monthly, yearly reports. They manually handled transactions daily; specially get Barangay clearance, certification, cedula and permits. Before the accomplishment of the task the constituents who request must undergo a long process. Same through with storing of files, updating, accessing of data and recording the expenses, they used folders and log of papers for its storage. The staff encountered difficulties and long procedure in retrieving and recording files (Algara, 2015).



According to Nestor (2016), barangay represent the government at the grass root level. They are considered the epitome of what the government can offer and are the court of first help of the general populace.

Barangay is a very essential place where it contains information about the people living there. Some people would seek some information they need that can only be found in the barangay. With only manual processing it would take time to search for information. But with the aid of computers it would gently improve the time and result you will get compares to manual labor or work done. We were determined to come up with a system that will change all their existing manual system into a very accurate and competent Barangay Information System. With this proposed system, it will help them to save time. This system is much better compared to the one's they're currently using. And manual processing is really inaccurate and time consuming. While on the other hand if they do agree to adapt with the system that we came up with it will practically improve their jobs. They can avoid most of the most common problems that most people will encounter in manual processing. Due to competitiveness it would be best that every barangay should adapt to this kind of work (Studymoose, 2013).

Barangay profiling system is appropriate for the use of barangay employees who have access to profile information of barangay residents for the direct reports and also departmental organizational staffs that have business need for this information for their business unit. The Barangay



profiling system is responsible for an effective and efficient approach for barangay employees and residents. It will help them accomplish task faster and also it eliminates the need of a large staff. It will provide profile-based information on residents (Scribd, 2015).

According to Lado *et al.* (2017), Computerized Barangay Information System is appropriate for use of barangay employees, who have access to profile of barangay residents for the direct reports. Moreover, departmental organizational staffs which have a business need for this information for their business unit can also benefit. This is responsible for an effective and efficient approach for barangay employees and residents. It will help them accomplish task faster and would also eliminate the need of a large staff. It will provide profile-based information for residents.

Wikipedia (2014) PHP: Hypertext Preprocessor (or simply PHP) is a server-side scripting language designed for web development but also used as a general-purpose programming language. It was originally created by Rasmus Lerdorf (1994), the PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Preprocessor. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management system, and web frameworks. PHP code is usually processed by a PHP interpreter implemented as a module in the web server or as a Common Gateway Interface (CGI) executable. The web server combines the results of the interpreted and executed PHP code, which may be any type of data,



including images, with the generated web page. PHP code may also be executed with a command-line interface (CLI) and can be used to implement standalone graphical application. The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge. The PHP language evolved without a written formal specification or standard until 2014, leaving the canonical PHP interpreter as a de facto standard. Since 2014 work has gone on to create a formal PHP specification.

WAMMI (2017) The Website Analysis and Measurement Inventory (WAMMI) measures user-satisfaction by asking visitors to your website to compare their expectations with what they actually experience on the website. It is based around a standardized 20-statement questionnaire and a unique international database. WAMMI's uniqueness lies in that visitor satisfaction for the site being evaluated is compared with values from our reference database, which now contain data from over 320 surveys.

Techterms (2013) WAMP stands for “Windows, Apache, MySQL, and PHP. “WAMP is a variation of LAMP for Windows systems and is often installed as a software bundle (Apache, MySQL, and PHP). It is often used for web development and internal testing, but may also be used to serve live websites. The most important part of the WAMP package is a Apache (or “Apache HTTP Server”) which is used run the web server within Windows. By running a local Apache web server on a Windows machine, a web



developer can test web pages in a web browser without publishing them live on the Internet.

WAMP also include MySQL and PHP, which are two of the most common technologies used for creating dynamic websites. MySQL is a high-speed database, while PHP is a scripting language that can be used to access data from the database. By installing these two components locally, a developer can build and test a dynamic website before publishing it to a public web server.

Sketchy Information from hazy recollections of Ms. Conception Vergara (and the others), a retired school teacher, her mother told her that the Barangay San Rafael got its name from a Statuette of Saint Rafael brought home from the United States by a resident of San Rafael sometime in the early Nineteenth Century. This woman (name unknown or forgotten for Ms. Vergara said she has already forgotten who brought the statuette home) was so attracted and enamored by the beauty of the statuette that she brought it and brought it home with her from the U.S.A. She also had a sculptor from the town of San Vicente, Ilocos Sur (a town well known country-wide for their prowess in making statues and images) make a life-size replica of said statuette, and as time elapsed, the religious elements here in San Rafael learned to love and venerate the statuette. By the time Barangay San Rafael was made into a barangay, the residents here have already considered the statuette their patron saint. Ms. Vergara recalled



that the town of San Esteban was still a barangay Santiago, Ilocos Sur then.

In the year 1910 when San Esteban was separated as a town from Santiago, all the existing sitios near the Poblacion were likewise made into barangay. Since the statuette & life-size replica of Saint Rafael was considered the patron saint of the existing sitio (name likewise forgotten by the old folks & Ms. Vergara is not sure whether it was "Pagserkan" or "Pagserraan" for the sitio was the exit or entrance, as the case may be, to the eastern barangays of San Esteban) the residents of the sitio then considered it appropriate to name the barangay as a name sake of their patron saint.



Chapter III

METHODOLOGY

Software Development Model/Paradigm

The software development models are the various processes or methodologies that are being selected for the development of the project depending on the project's aims and goals. There are many development life cycle models that have been developed in order to achieve different required objectives.

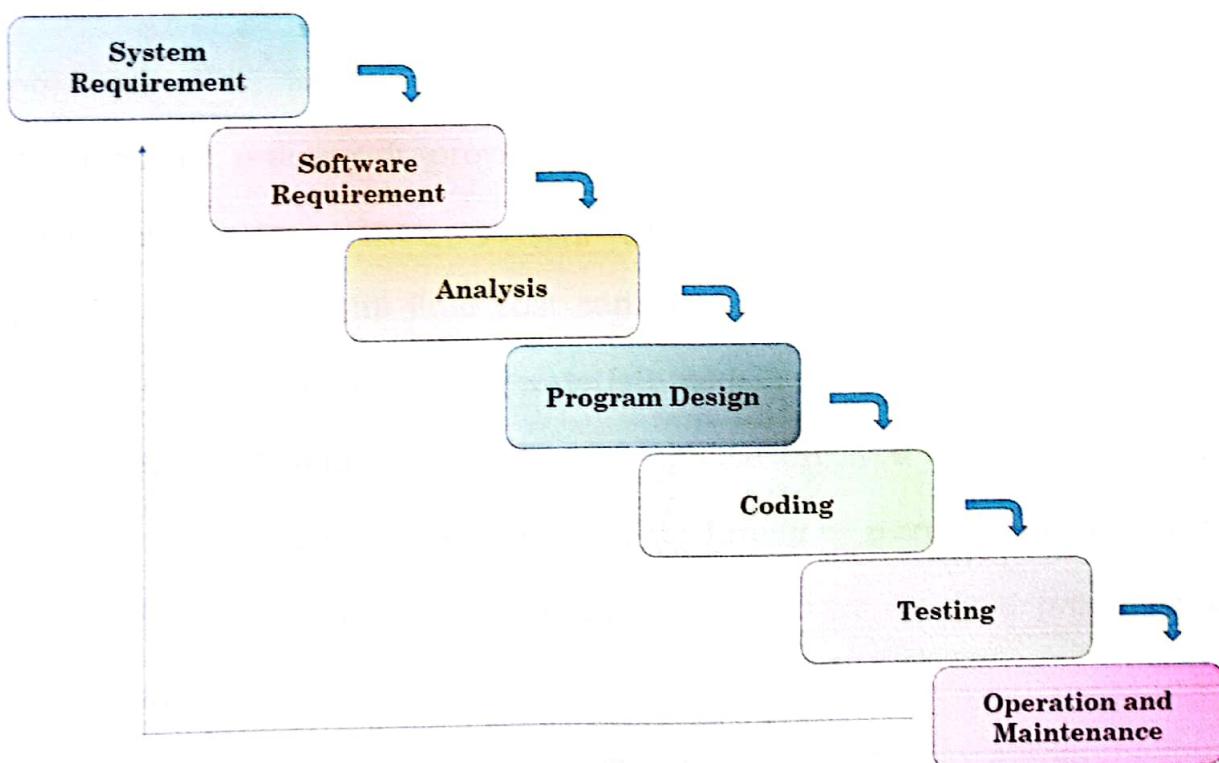


Figure 1. Waterfall Model

The waterfall model is a relatively linear sequential design approach for certain areas engineering design. In software development, it tends to be among the less iterative and flexible approaches, as progress flows in



largely one direction ('downwards like a waterfall') through the phases of conception, initiation, analysis, design, construction, testing, deployment and maintenance. Benefits of this model: The requirements are clearly and accurately stated, they remain unchanged throughout the entire project development; Detailed documentation of each development stage provides resistance to changes in human resources - a new developer can quickly get all the necessary information; Careful planning of the project development structure reduces the number of problematic issues: The start and end points for each phase are set, which make it easy to measure progress; The task remain as stable as possible throughout the development process; It provides easy control and transparency for the customer due to a strict reporting system; Release date for the finished product, as well as its final cost can be calculated prior to development (<https://airbrake.io/blog/sdlc/waterfall-model>).

System Requirement. The first phase involves understanding the nature of the system to be designed, its function, purpose and the rest. Here, the specifications of the input and output or the final product are studied and marked.

Software Requirement. The requirement specifications from the first phase are studied in this phase and the system design is prepared.

Analysis. The main objective of this phase is the requirements determination. This is the most important phase in the SDLC as the goal is to understand the requirements of the new system and to develop a system



that addresses these requirements. This is done by working through the details of each requirement, studying and analysing the current system and defining and prioritising user requirements.

Program Design. The requirement specifications from first phase are studied in this phase and the system design is prepared. System design helps in specifying hardware and system requirements and also helps in defining overall system architecture. The software code to be written in the next stage is being created.

Coding. The purpose of the coding or construction phase is to implement the requirements according to the design made during the design phase in a given target technology. It is the coding phase in which the realization of the abstract takes place. The coding standards and conventions to be used for a given technology are decided and circulated to the members. When the code is used for documentation purposes, the standards for the commenting and documenting are also decided which the developers need to adhere.

Testing. All the units developed in the implementation phase are integrated into the system after its testing. The software designed needs to go through constant software testing to find out if there are any flaws or errors. Testing is done so that the client does not face any problem during the installation of the software.

Operation and Maintenance. This step occurs after installation and involves modifications to the system or an individual component to alter,



attributes or improve its performance. These modifications arise either due to the change of requests initiated by the customer or defects uncovered during live use of the system. Client is provided with regular maintenance and support for the developed software.



Project Plan

The following table presents the activities based on the Waterfall methodology and the project schedule. The project started in January 2019 and was completed in April 2019.

Table 1. Gantt Chart

Months	JANUARY				FEBRUARY				MARCH				APRIL			
Weeks	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Brainstorm																
Design																
Development																
Quality Assurance																
Deployment																

Brainstorm. Efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its member. Brainstorm was done in first week to third week of January.

Design. Specifying hardware and system requirements and defining overall system architecture. The design was done in fourth week of February.



Development. The process of defining, testing and implementing a new software application or program. The development of the study was done in third week of March.

Quality Assurance. The quality assurance was done in fourth week of March.

Deployment. Encompasses all the processes involved in getting new software or hardware up and running properly in its environment, including installation, configuration, running, testing, and making necessary changes. The deployment of the study was done in third week of April.



Project Team Assignment

The assigned role for each of the team members as required in the Waterfall Model is presented in Table 2.

Table 2. Role requirements and responsibility

Project Role	Proponent/s
System Analyst	Joanna Marie C. Quiachon Regine L. Tamayo Princess Ann Arabe
System Developer and Designer	Joanna Marie C. Quiachon Regine L. Tamayo Princess Ann Arabe
Researcher and Documenter	Joanna Marie C. Quiachon Regine L. Tamayo Princess Ann Arabe Janice E. Cardenas

Data Gathering Procedure

Document Analysis. The proponents collected all the needed documents from the barangay which were used as references. Data collected were analysed to determine how they could develop the Barangay San Rafael Information System.

Interview. The proponents gathered the needed information about the barangay in their manual system include the history, ordinances, activities, and about the elected officials. They conducted the interview with the secretary and other officials of the Barangay.

Observation. Based on observation, the records were prepared manually using forms and documented.

Internet Surfing. The proponents used various website through internet to gathered a lot of information for the propose system.



Library Research. The proponents gathered the information from BSIT research manuscript and books that are related to the capstone project.

Survey. The proponents conducted a survey to determine the usability of the developed system. The respondents were the 4 IT students and 5 Barangay Officials.

Data Gathering Instrument

WAMMI QUESTIONNAIRE. The Web Analysis and Measurement Inventory (WAMMI) uses 20 statements to capture visitor's personal views on a website's attractiveness and ease-of-use. It measures the efficiency, attract ability, helpfulness, controllability and learnability of the website. WAMMI was used by the proponents to test the usability of the system. A 5-point liker scale was used to measure the degree of agreement with 5 as "Strongly Agree", and 1 as "Strongly Disagree". The WAMMI questionnaire that was used in this study was designed to obtain the information on the effects of the manual system. Questions will be used to give the respondents the opportunity to give their responses and suggestions (<http://www.wammi.com/whatis.html>).

The researchers provided the questionnaire to the respondents. The handling of questionnaire was done personally by the researchers and facilitated by the retrieval of responses. This procedure also enabled the researchers to conduct interview at the same time.

**Table. 3 Data Categorization**

The following rubrics were used to evaluate the developed system

Scale	Statistical Range	Descriptive Rating
5	4.24 – 5.0	Strongly Agree
4	3.42 – 4.23	Agree
3	2.61 – 3.41	Undecided
2	1.81 – 2.60	Disagree
1	1.0 – 1.80	Strongly Disagree

Source of Data

A survey was conducted at Barangay San Rafael, San Esteban Ilocos Sur. The data were collected directly from the secretary, barangay captain and the residents of the barangay.



Chapter IV

RESULTS AND DISCUSSION

Current System

The current information system of Barangay San Rafael, San Esteban, Ilocos Sur regarding adding, deleting, updating, and viewing of barangay information and documenting barangay activities and ordinances are done manually.

According to the barangay secretary that is in-charge of the recording and safe keeping of the barangay records which are mostly stored in paper-based files and arranged in folders or envelopes. There are times where they would lose of import files and there is no manner for them to recover it. When there's an activity of the barangay, the secretary will take a picture of the barangay activity and post it on the bulletin board. When there's a newly elected barangay officials, the secretary will write their names at her record book.

In recording the resident's information, the secretary does it in manual-based process. In updating barangay ordinances, the barangay officials will fill-up the information form and then will give report to the secretary. The secretary will again record the data manually and a copy is submitted to the municipal hall.

The current system of managing information in Barangay San Rafael is time consuming and laborious. The staff encountered difficulties, long procedure in recording, filing, and processing. Updating of information



requires creating duplicate copies and could lead to erroneous entries. The information are not secured and are prone to get damaged or lost.

Requirements Documentation

Use Case Diagram

The use case diagram describes the functionality of the system as shown in Figure 2.

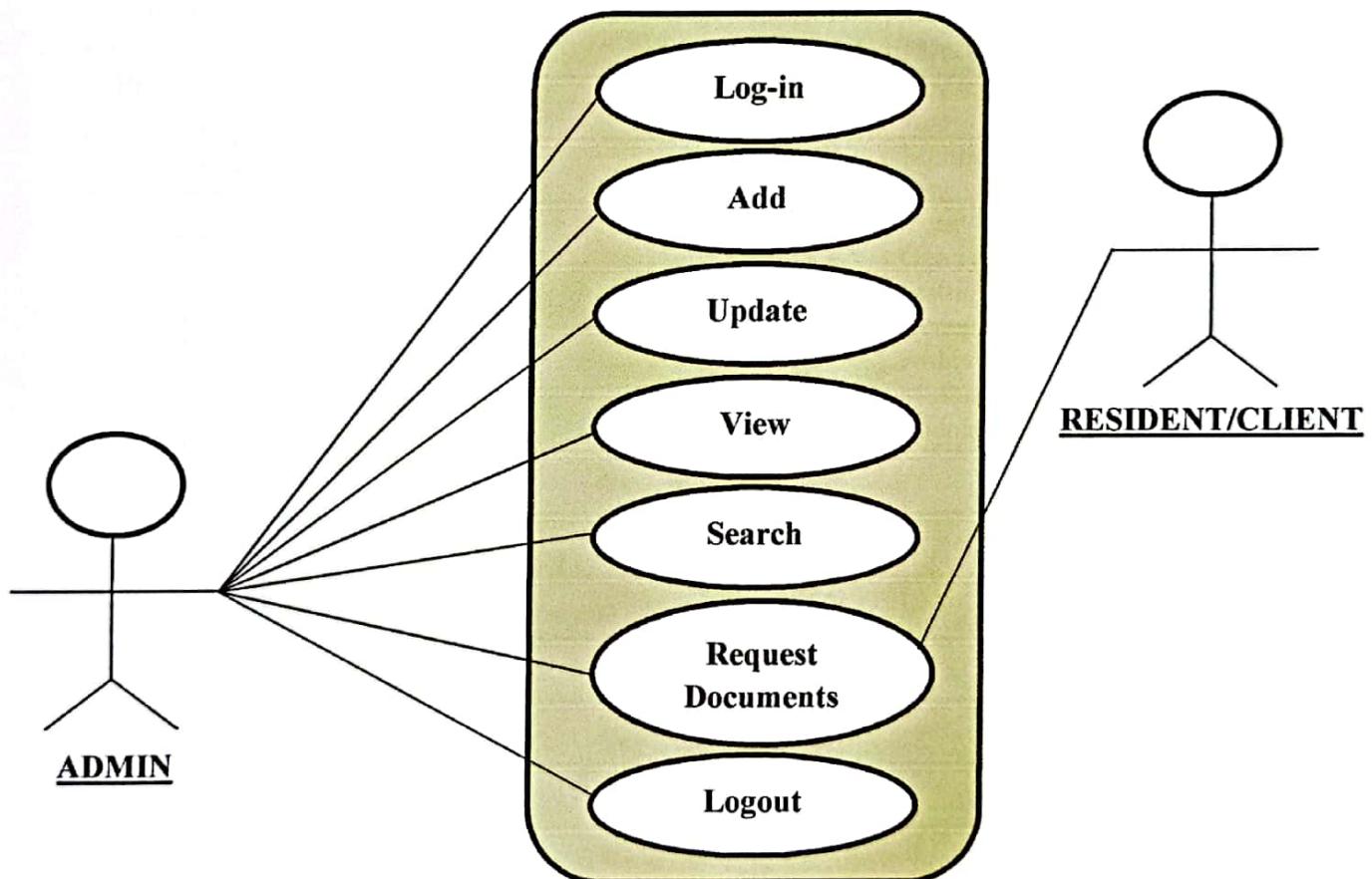


Figure 2. Use Case Diagram of Barangay San Rafael Information System (San Esteban, Ilocos Sur)

The figure displays the flow on how the Admin can add, update, view the resident's information. The resident or the client can request the documents.



Entity-Relationship (ER) Diagram

ER Diagram is a data modelling technique that graphically illustrates an information system's entities and the relationship between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure. (www.techopedia.com)

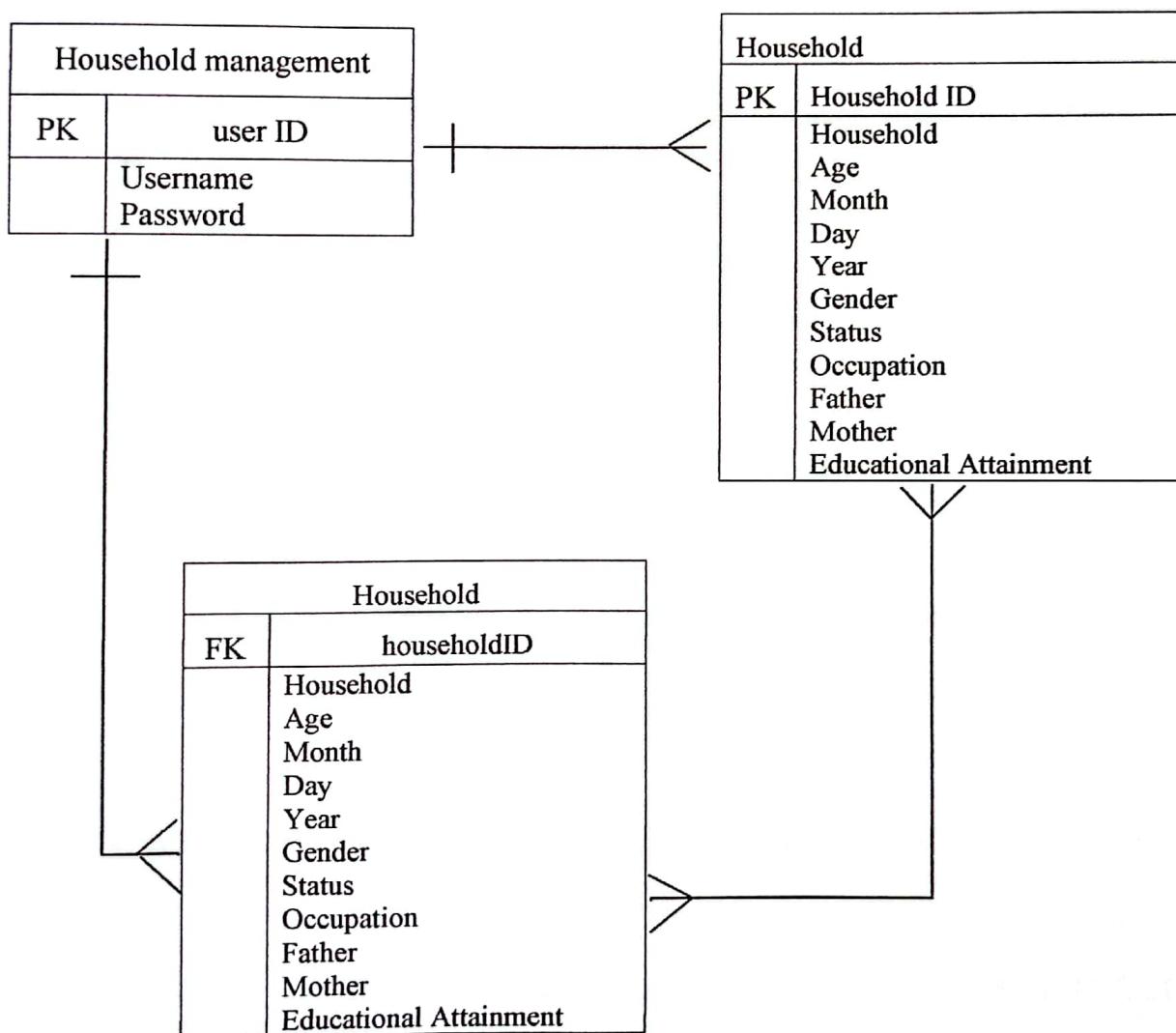


Figure 3. ER Diagram of Barangay San Rafael Information System



Functional Requirements

The functional requirements refer to how the system works. There are capabilities and functions that the system must be perform successfully.

San Rafael Information System has the following features:

1. Only the admin can add, view and update the barangay information that are stored in the system.
2. Only the admin is allowed to print any documents from the system.
3. The barangay secretary will monitor the barangay activities and information.
4. Only the admin can able to access whatever the client needs from the system.

Non-Functional requirements

Barangay Information System is exclusively developed for barangay San Rafael, San Esteban, Ilocos Sur. The following are the needed requirements for the implementation of the system.

1. Admin interface for documenting activities and ordinances of the barangay.
2. Interface for adding, updating, viewing records in San Rafael Information System.
3. Log-in interface for admin, for security purposes.



4. Web Page having all the information and documents of the barangay.

Hardware Requirements

Admin Server

Desktop or Laptop

Monitor

Printer

Software Requirements

- The system software requires an opening system (OS) version of Windows 10
- Database Management System: Wamp Server 3.1.3

Development and Testing

The development of Barangay San Rafael Information System (San Esteban, Ilocos Sur) was tested and evaluated to determine the errors in its operation, whether it runs correctly or not. The programs reliability and effectiveness are also tested.

System Testing. The system testing is performed on the entire system in the context of a functional requirements specification. It was tested on its design, behaviour and expectation of the applicant as user.

Accessibility Testing. The researchers tested the accessibility of the system if it is fully automated and user friendly.



Security Testing. The researchers tested the security of the system in order to determine whether it is secured.

Usability Testing. The proponents used WAMMI questionnaire. (See appendix) WAMMI was composed of 20 questions that is divided into 5 categories: controllability, helpfulness, attractiveness, efficiency, and learnability. The proponents tested the usability of the software with the use of the questionnaire after asking permission and approval from their adviser. Researchers used 9 respondents.

Table 4. Usability of System Along Attractiveness

Items	Mean	Descriptive Rating
This website has so much interest me.	4.88	Strongly Agree
This website is very attractive.	4.22	Agree
I don't like using this website	1.11	Strongly Disagree
This website has some annoying features.	2.22	Disagree
Overall Mean	3.11	Undecided

Gleaned in the table 3 is the usability of the system along attractiveness. The statements "This website has so much interest me" and "this website is very attractive" with their respective means of 4.88 (Strongly Agree) and 4.22 (Agree) contradict the overall mean of 3.11 (Undecided) as rated by the respondents. This implies that some features of the developed system need some adjustments and refinement to capture much the interest of the clients of the system.

**Table 5. Usability of the System Along Controllability**

Items	Mean	Descriptive Rating
It is difficult to move around this website.	3.44	Agree
I feel in control when I am using this website.	4.11	Agree
I can easily contact the people I want to on this website.	4.44	Strongly Agree
Remembering where I am on this website is difficult.	2.11	Disagree
Overall Mean	3.52	Agree

Table 4 shows that the respondents rated the developed system along controllability as "Agree" with the overall mean of 3.52. This supported by the statements "I feel in control when I am using this website" and "I can easily contact the people I want to on this website" with their respective means of 4.11 (Agree) and 4.44 (Strongly Agree). This indicates that the user is in control with the usage of the system. the user can control the entry of figures and data in the developed system.

**Table 6. Usability of the System along Helpfulness**

Items	Mean	Descriptive Rating
This website helps me find what I am looking for.	4.22	Strongly Agree
I get what I expected when I log in into this website.	3.66	Agree
It is difficult to tell if this website has what I want.	3.2	Undecided
This website seems logical to me.	3.22	Undecided
Overall Mean	3.57	Agree

In the table 5, the respondents rated the developed system “Agree” along helpfulness with the overall mean of 3.57. This is supported by the statements “This website helps me find what I am looking for” and “I get what I expected when I log in into this website” with their corresponding means of 4.22 (Strongly Agree) and 3.66 (Agree). This implies that the developed system is very helpful and advantage to the barangay mostly in record keeping and storing. Also, it is helpful in giving accurate data and information to its clients.

**Table 7. Usability of the System along Efficiency**

Items	Mean	Descriptive Rating
I can quickly find what I want on this website	3.88	Agree
I feel efficient when I am using this website.	3.77	Agree
This website is too low	2.11	Disagree
Using this website is a waste of time.	2.1	Disagree
Overall Mean	2.96	Disagree

It can be glanced in the table 6 that the statements "I can quickly find what I want on this website" and "I feel efficient when I am using this website" with their corresponding means of 3.88 and 3.77 and described as "Agree" contradicts the overall mean of 2.96 which described as "Disagree". This implies the developed system is efficient. It can response to the needs of the clients quickly. It can also give accurate information on the different parameters used in the study.

**Table 8. Usability of the System Along Learnability**

Items	Mean	Descriptive Rating
Learning to find my way around to this website is a problem.	2.11	Disagree
This website needs more introductory explanations.	3.55	Agree
Using this website for the first time is easy.	3.88	Agree
Everything on this website is easy to understand.	4.22	Strongly Agree
Overall Mean	3.44	Agree

Table 7 reveals the usability of the system along its learnability. The respondents came into the agreement that the developed system is easy to use and different procedures is very easy to follow and understand. This is supported by the statements "Using this website for the first time is easy" and "Everything on this website is easy to understand" with their respective means of 3.88 (Agree) and 4.22 (Strongly Agree). This implies that the respondents are comfortable in using the developed system that may enhance their record keeping procedure.

Description of the Prototype

The Barangay Information System for San Rafael, San Esteban, Ilocos Sur provides the administrator the privilege to organize the barangay information logical and accurate. The primary function of the system is to add, update, view record, search, and request documents. The administrator can monitor all clients registration through the use of the developed system.



The Developed System

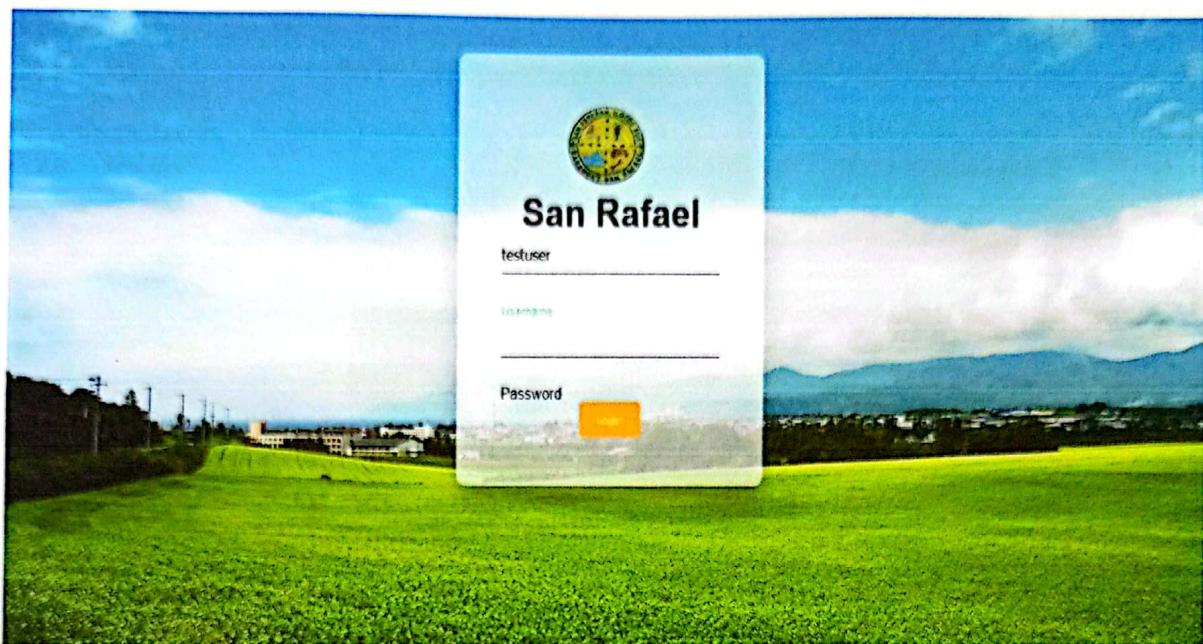


Figure 4. Log in Page

This is the Log in page to start using the website. The admin must enter the correct username and password in order to access the system.

The admin will be the one who manipulate the data and control everything on this system.



Home Page

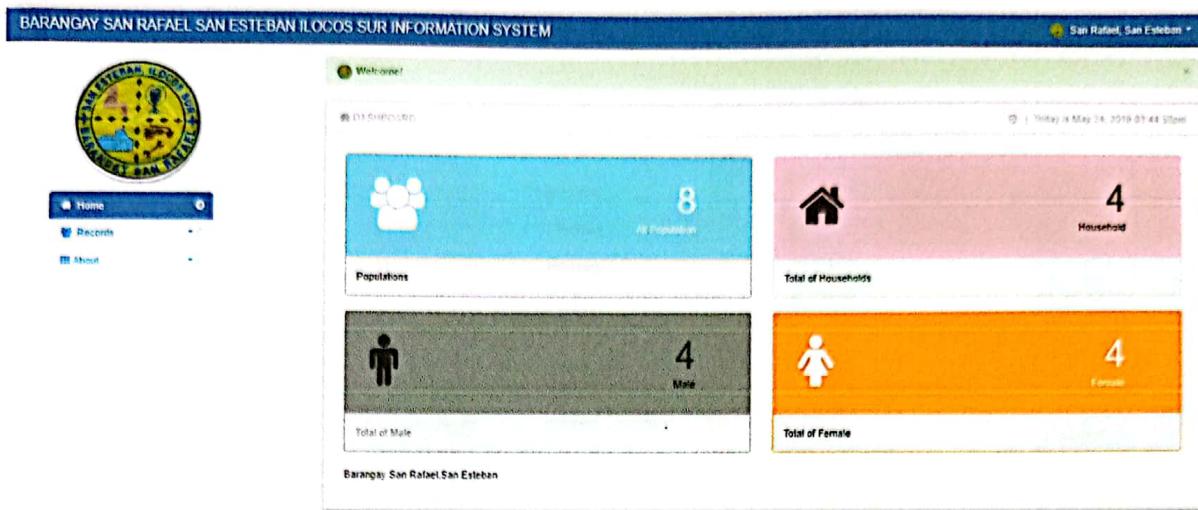


Figure 5. Home Page

This figure is the Home Page. In this figure the admin can see how many residents have been added and how many household and population are there in Barangay San Rafael, San Esteban.



Add Records Page

The screenshot shows a web-based application interface. At the top, there's a header bar with the text "BARANGAY SAN RAFAEL SAN ESTEBAN ILOCOS SUR INFORMATION SYSTEM" and a "San Rafael, San Esteban" button. On the left, a sidebar menu includes "Home", "Records" (which is highlighted in blue), and "About". The main content area is titled "Welcome" and "Add Record". It features a "Resident Information" form with fields for House Hold No., Firstname, Middlename, Lastname, Age, Sex (radio buttons for Male and Female), Date of Birth (dd/mm/yyyy), Place of Birth, Civil Status (dropdown menu showing "-STATUS-"), Street Address (dropdown menu showing "SELECT STREET"), Citizenship (dropdown menu showing "-CITIZENSHIP-"), and Highest Education Attained (dropdown menu showing "-EDUCATIONAL ATTAINED-"). A timestamp at the top right indicates "Today is May 24, 2019 13:15:38pm".

Figure 6. Add Records Page

This figure shows the form to be filled up where the admin can add resident's information.



View Records

HH NO.	NAME	DOB	AGE	GENDER	STAT	OCC	POB	ST.	C.SHP	ED.	INCOME SOURCE	LIVING STAT	ACTION
1	Joanna Marie Calderon Quachon	1996-08-26	20	female	Single	Student	Pantoc Nar 1 S	National Highway, N-S WestSide,	Filipino	College Graduate			
1	Juanito Mario Calderon Quachon	1999-08-26	19	male	Single	Student	Pantoc Nar 1 S		Filipino	College Level			
2	Regine Lazarte Tamayo	1999-05-31	19	female	Single	Student	Quinarian Nar 1 S		Filipino	College Graduate			
2	Regino Lazarte Tamayo	2000-05-12	17	male	Single	Student	Quinarian Nar 1 S	National Highway, N-S WestSide,	Filipino	College Level			
3	Princess Ann Esmeralda Arabe	1996-08-12	20	female	Single	Student	Burgos 1 S		Filipino	College Graduate			
3	Prince Esmeralda Arabe	1999-04-12	18	male	Single	Student	Burgos 1 S		Filipino	College Level			
4	Jance Espano Calderon	1999-12-12	20	female	Single	Student	San Esteban	National Highway, N-S	Filipino	College Graduate			

Figure 7. View Records Page

In this figure, when the admin click the View Records button then the admin can view all the records of the residents in the barangay. The admin can print document and it can also update and delete resident's information.



List of Barangay Officials

The screenshot shows a web application interface for the "BARANGAY SAN RAFAEL SAN ESTEBAN ILOCOS SUR INFORMATION SYSTEM". The header includes the college logo and the title "BARANGAY SAN RAFAEL SAN ESTEBAN ILOCOS SUR INFORMATION SYSTEM". A navigation bar on the left has links for "Home", "Records", and "About". The main content area features a banner image of a building. The title "BARANGAY OFFICIALS" is displayed prominently. Below it, the "Barangay Captain" is listed as "ROMMEL C. AGUIRRE". Underneath his name, the "Barangay Kagawad Members" are listed: BRUNO A. BENITEZ, LERIZA C. MILANES, OSCAR G. ESPANTO, MARIETA T. EDRALIN, JONATHAN D. QUITOS, JOHNNY E. CABALO JR., and JOSAN FLOREN C. RESONABLE. Further down, the "Barangay Secretary" is listed as "KATHLEEN ROSE E. ONG", and the "SK Chairman" is listed as "JOHN REY E. TAN". Other names listed include JONAS J. AYSON and CHRISTIAN B. EBOJO.

Figure 8. List of Barangay Officials Page

In this figure, the admin can click the about button and click the Officials page then this page where you can see the Officials of the Barangay and the admin can also update it.



Ordinances of the Barangay

The screenshot shows a web interface for the "BARANGAY SAN RAFAEL SAN ESTEBAN ILOCOS SUR INFORMATION SYSTEM". The header includes the college logo, the title "BARANGAY SAN RAFAEL SAN ESTEBAN ILOCOS SUR INFORMATION SYSTEM", and a location indicator "San Rafael, San Esteban". The main content area is titled "ORDINANCES OF THE BARANGAY" and "BARANGAY ORDINANCE No. 01". It specifies the date as "Series of 2019". The ordinance is titled "AN ORDINANCE REGULATING THE PROPER SEGREGATION OF WASTE MATERIALS AT DESIGNATED AREAS AS DROPPING POINTS OF BARANGAY SAN RAFAEL AND PROHIBITING/ NOT ALLOWING ANY NON-SEGREGATED WASTE MATERIALS TO DROP AT ANY NONE SPECIFIED AREAS.". It details the purpose of the ordinance, mentioning Republic Act 9003 and the implementation of waste segregation programs. It also states that the ordinance prohibits non-segregated waste materials from being dumped at any other place than the designated dropping points. The ordinance is signed by the Sangguniang Barangay of San Rafael. Below the ordinance, there are sections for "Statement of Policy", "Definition of Terms", and "Penalties".

Figure 9. Ordinances of the Barangay Page

In this figure, the admin can view the updated Ordinances of the Barangay by clicking the about and Ordinances button. This figure shows the updated Ordinances of Barangay San Rafael, San Esteban, Ilocos Sur.



History of the Barangay

The screenshot shows a web-based information system for Barangay San Rafael, San Esteban, Ilocos Sur. At the top, there's a navigation bar with links for Home, Barangay, and Admin. On the left, there's a sidebar with a logo for "BARANGAY SAN RAFAEL SAN ESTEBAN ILOCOS SUR INFORMATION SYSTEM". The main content area has a title "BRIEF HISTORY OF SAN RAFAEL" and a sub-section "How Barangay San Rafael Got Its Name?". The text discusses the history of the barangay's name, mentioning a statue of Saint Raphael brought from the United States by a resident of San Rafael sometime in the early Nineteenth Century. It also mentions the loss of the original statue during World War II and its replacement with a smaller replica. Below this, there's another section titled "Who is Saint Raphael?" with a brief description of the saint.

Figure 10. History of the Barangay Page

The admin can view the History of the Barangay by clicking the History button. This figure shows the history of the Barangay.



Activities of the Barangay

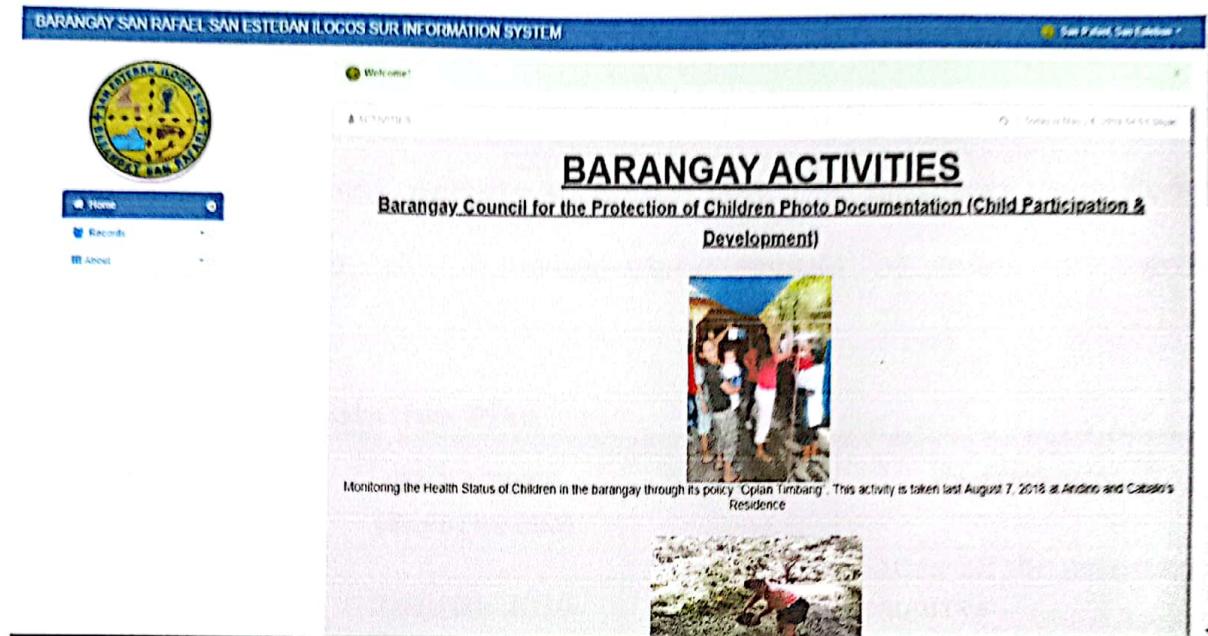


Figure 11. Activities of the Barangay Page

The admin can also view the residents and officials in action at the Activities page. This figure shows the barangay residents while doing the activities of their Barangay.



Implementation Plan

The researchers designed, created and implemented a plan to describe how the Barangay San Rafael Information System will be installed in the Barangay San Rafael. To implement the Barangay San Rafael Information System, the following plans should be taken into great consideration.

Table 12. Implementation Plan

TASKS	DURATION (days/weeks)	BUDGET	COMMENTS
Request and Procurement of the Equipment	January 2019	28,000.00	Gather all the necessary resources ➤ Laptop/Computer ➤ Printer (Epson 620)
Testing	February 2019	1,000.00	Presentation of the system to the Barangay Secretary
Training of Secretary and Barangay Captain	March 2019	1,000.00	Train the admin or Barangay Secretary and Barangay Captain in managing or manipulating the new system for better result
Encoding	April 2019	1,000.00	Use the newly developed system
Maintenance	May 2019	1,200.00	➤ Visitation of the system after a week of deployment. ➤ Visitation of the system after a year of deployment.



Chapter V

SUMMARY, CONCLUSION, RECOMMENDATION

Summary

The Capstone Project entitled “Barangay San Rafael San Esteban Information System” will provide a solution to the current manual process that the barangay is using. Specifically, it sought address the following: 1) determine the problem of Barangay San Rafael, San Esteban in terms of records or information management; 2) design and develop an Information System for Barangay San Rafael, San Esteban; 3) test and deploy the developed system.

The Waterfall Model is the conceptual model used in developing the Barangay San Rafael, San Esteban Information System. The proponents gathered data through Interview and Survey.

Salient findings include:

- 1) The existing process of recording information of residents in the Barangay San Rafael is done manually. The barangay secretary records the information in paper-based record. A computer is also used to create document records using word processing and spread sheet software. The paper-based process is time consuming when searching for records.
- 2) The developed system has features: admin log-in, home, about ordinances, activities, officials and history of the Barangay, records, can add , delete and update the residents record, and



- 3) The system was tested by the intended users as follows: Learnability (3.44), Attractiveness (3.11), Controllability (3.52), Efficiency (2.96), and Helpfulness (3.57).

Conclusions

Based on findings, the following conclusions were drawn:

1. The current information system of Barangay San Esteban, Ilocos Sur is paper-based and done manually.
2. The developed 4Barangay San Rafael, San Esteban Information System can provide an efficient way of recording residents information in the barangay.
3. The developed system has a high usability testing in terms of learnability, efficiency, attractiveness, helpfulness and efficiency.

Recommendations

From the findings and conclusions drawn, the following recommendations are offered:

1. The current system is recommended to lessen the work of the clients.
2. The design and developed system is recommended to use in barangay to lessen their time in recording resident's information.
3. The developed system must be continually developed and updated regularly to maximize its usability.



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