

Web-based Alumni Management Information System: Its Efficiency and Usability in reaching out graduates

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Abstract

Technology has a significant impact on how educational institutions manage their alumni relations. With the rise of web-based platforms and social media, institution can easily connect with their alumni and engage them in various activities. Technology has enabled institutions to create web-based alumni management systems, which provide a centralized platform for managing alumni data, organizing events, and fostering engagement. Alumni can easily create profiles, update their contact information, and connect with other alumni through these systems. Institutions can also use these systems to track alumni activities, such as donations and volunteer work, and maintain accurate and up-to-date alumni records.

This paper presents the design and implementation of a web-based system that is used as an efficient tool for communication between higher education institution and its graduated students, and for collecting and analysis of alumni related data that could be used for different purposes, including improvement of academic programs. This system is designed using PHP/Xampp programming language by using structured diagrams, namely with Context Diagram, Data Flow Diagram (DFD), Entity Relationship Diagram (ERD) and database design using MySQL and implemented at the Faculty of Northern Negros State College of Science and Technology. Evaluation of the system performance showed good results in terms of efficiency and usability in reaching out graduates.

Key words: *alumni, web-based, management, information*

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I. INTRODUCTION

Alumni refers to individuals who have graduated from a particular institution, such as a school, college, or university. They serve as the institution's public face and organize associations to foster a sense of camaraderie among former pupils and to fortify the bonds between alumni, the local community, and the institution [1]. Education institutions often maintain relationships with their alumni through various activities, such as events, networking opportunities, and mentorship programs to help foster a sense of loyalty and support for the institution. New and innovative prospects for the mentoring and retention of graduates in information technology are made possible by emerging technologies like social networking software [2].

For students who have left the university after receiving their degrees or who have previously worked for a business or organization, a web-based alumni management information system has been created. To manage and communicate with their alumni population, educational institutions need an online tool called a Web-based Alumni Management Information System [3]. The system offers several features, such as a user-friendly GUI interface, the ability to import new graduates' data into the database, search capabilities, backup and restore, and the ability for system administrators to change alumni's data (jobs, education, email, and other details) [4].

The program will make managing and organizing alumni data and relationships possible for educational institutions and other organizations. It offers a consistent structure for storing data and managing contract details and other aspects for alumni. Also, it enables a former pupil to take advantage of the advantages and services that a facility or business has to offer such as keeping the person informed on the important events organized by the institution. Information concerning a former student can easily be received and other members of the alumni community can be located without much stress.

The system is easily available online and offers an efficient way for alumni and organizations to have productive means of interaction and communication.

Conceptual Framework

The study develops a Web-based Alumni Management Information System: Its efficiency and usability reaching out graduates in Institution or Organization.

The input-process-output (IPO) model guide is widely used to collecting, storing, and managing alumni data. It entails developing a database of alumni information, including their personal details, contact information, educational background, career experience, and any other pertinent information. The Process development includes Web-based Alumni Management Information System: Its efficiency and usability reaching out graduates in institution or organization. The output is the system's efficiency and usability.

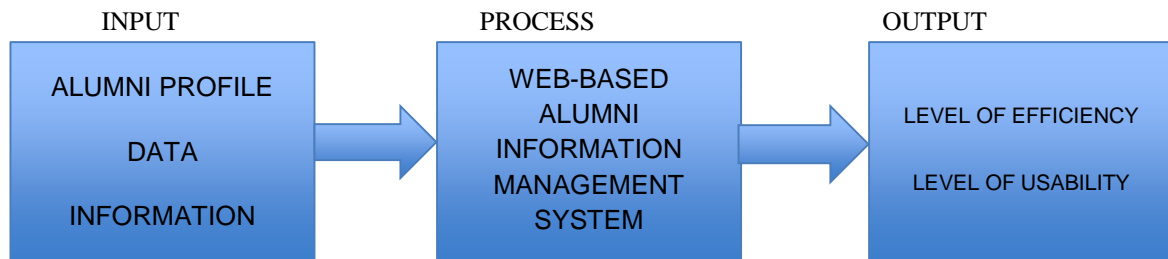


Figure 1 The Conceptual Framework of the Study

II. Methodology

2.1 Research Design

This study is descriptive-developmental research since the result of the study primarily aims to determine or examine the extent, efficiency and effectiveness and satisfaction of the end-users for the pilot testing of the Web-based Alumni Management Information System.

Descriptive research is conclusive in nature, as opposed to exploratory. This means that descriptive research gathers quantifiable information that can be used for statistical inference on your target audience through data analysis.

Evaluation research is a research that has an aim to provide information for decision maker (policy maker) related to a power or strength of a program, seen from its effectiveness, cost, device, etc.

2.2 Software Development Life Cycle

A method used in software development is to plan, design, create, test, deploy, and manage software systems is called the Software Development Life Cycle (SDLC). It is a methodical strategy that aids in making sure software is created in a predictable and consistent manner and satisfies the demands of its users and stakeholders. Planning and implementing end-user support systems, as well as having troubleshooting abilities, were seen as crucial elements. In short, The RAD technique is the methodology employed in this design, and it entails recognizing the goals and data needs, creating the system, putting it together, and introducing the new system. This study specifically utilized the RAD, or Rapid Application Development Model.

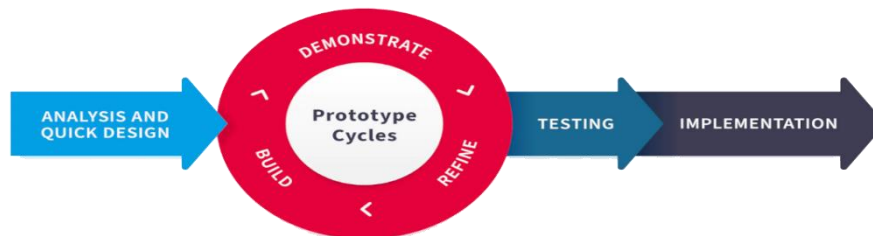


Figure 2: The Rapid Application Development Model

Figure 2.0 depicts the Prototype Model that the researchers utilized to create the system. It demonstrates the many procedures that researchers must adhere to in order to provide better results constructing the systems.

Analysis and Quick Design

The researchers spoke with the respondents and the selected participants throughout the Analysis and Quick Design phase. A business that carried out the investigation. The responders have the opportunity to provide suggestions and requests regarding the development and design process for the system. After acquiring the data, the researchers created a preliminary layout for the suggested system.

Data Analysis

All data, information, and user requirements are been analyzed by the researchers. This phase also assists the researchers will have an idea on how to develop and create the system, as well as help envision how the suggested system would work. If this is a solution to the respondents' needs, the system would be useful.

System Design

The researchers begin to work on the proposed system. It includes the system's design or layout. Depending on user requirements, researchers/programmers also contribute personal designs to make the system to be more responsive.

Prototype Cycle

This phase requires the development, evaluation, and improvement of information gathered and studied. The researchers immediately designed a system prototype that was shown to the customer. During the design phase, the researchers collect all of the data collected to develop the prototype. After constructing the prototype, it is demonstrated to the user; the researchers illustrate the function of the system, the flow of how it works, and the functions of the system's features. The final phase is polishing. During this phase, the researchers modified the system which is based on the user's additional requirements. It includes changes in features, flow, and functions that based on the requirements added by the user.

Testing

This is the presented system's feedback method after it has been developed and tested by the Three (3) Experts and its intended users. It notifies the developer whether there are any suggestions or errors, as well as whether the system's functionality works properly.

Implementation

This phase discusses the implementation of the proposed system, and the Three (3) Experts evaluate it. This phase also considered whether the responders' and users' proposed functionalities and ideas were satisfied.

2.3 Process Model

Process modeling is the process of visually portraying the processes, or activities, that capture, alter, store, and distribute data between a system and its environment, as well as across system components. In this work, the researcher employed the DFD to describe its logical design. The DFD (Date Flow Diagram) is a graphical representation of data transfer between external entities and the operations and data storage within a system. Figure 4 depicts the system's relationship to the data flow diagram's other external entities.

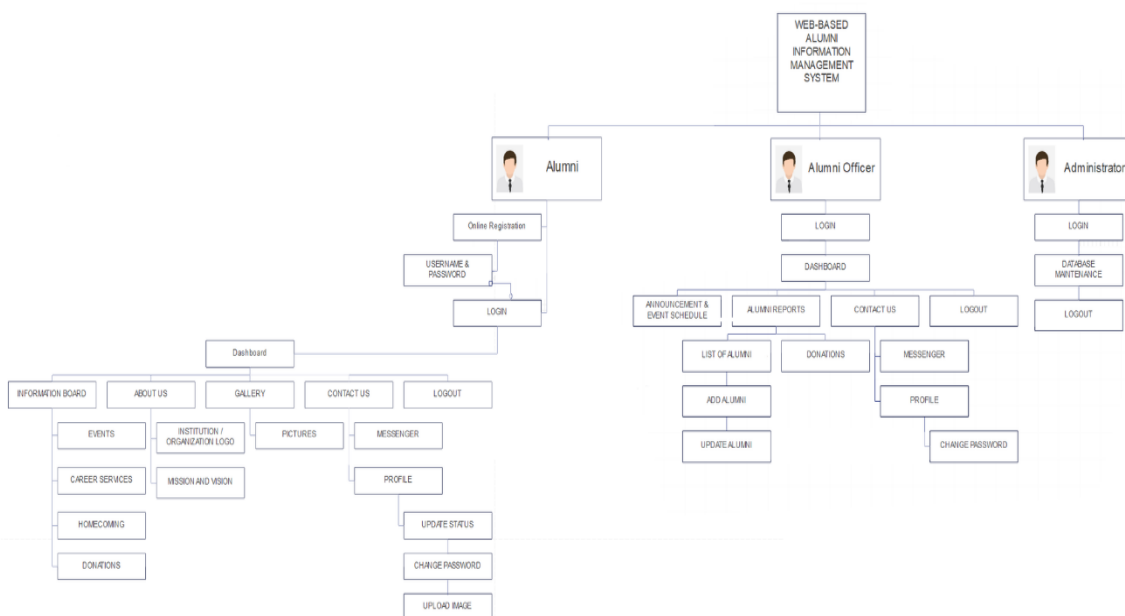


Figure 3: The Context Data Flow Diagram of the Developed System

2.4 Testing Evaluation

To gather information, the researcher utilized a questionnaire created by the researchers and validated by experts using the Good and Skates validation tool. The questioner was distributed to fifty-five (55) respondents, including the administrator of institution, alumni officer, and batchmates within NONESCOST for the upcoming alumni homecoming on July 22-23, 2023. Upon the completion of the built system, the researchers enlisted the help of three (3) IT experts to assess the overall quality of the system. IT Specialists were given questionnaires based on the criteria of McCall's Software Model. Additionally, the survey data was tallied, reviewed, and interpreted.

III. PRESENTATION OF DATA AND INTERPRATATION OF RESULTS

This chapter includes the generated data as well as data analysis and result interpretation.

3.1 Level of usability of the Web-based Alumni Management Information System in terms of Learnability and operability

Table 1 shows the mean and interpretation findings of the created questionnaire's respondents' remarks. The system's usability in terms of learnability and operability. Learnability (M=4.70) was identified as

"Very good" implies that system users can become proficient quickly and effectively. In relation to the system's operability (M=4.80) is rated as "Very good" because it works as expected. Fit the expectations of its users in the context of its operating environment. The usefulness of the intended system "Very good" with an aggregate mean of 4.75 was considered. The respondents rated the utility of the Web-based Alumni Management Information System: Its efficiency and usability in reaching out graduates.

This signifies that the produced system had a high degree of usability, with users considering the system's operations to be user-friendly and the information provided on the system to be general enough to allow for simple comprehension. Because the system was designed to be user-friendly, it was straightforward for new users to navigate.

Table 1: The Level of Usability of the developed system in terms of Operability and Learnability

Implementation Indicators	Mean	Verbal Interpretation
Learnability	4.70	Very Good
Operability	4.80	Very Good
Level of Usability	4.75	Very Good

Legend: 1.00 -1.80 (Poor); 1.81 –2.60 (Fair); 2.61 –3.40 (Average); 3.41 –4.20 (Good); 4.21 –5.00 (Very Good)

3.2 Level of functionality of the developed system in terms of its security, accurateness and suitability

Table 2 displays the mean and interpretation results from respondents' feedback on the functionality of the developed system in terms of security, accuracy, and suitability, with the following mean: Security (M=4.58) interpreted as "Very good", accuracy (M=4.66) interpreted as "Very good", and suitability (M=4.99) interpreted as "Very good". The overall average of functioning of Web-based Alumni Management Information System. 4.70 is understood orally as "Very good" since the data processing, connectivity, user interface design, error management, security, and performance are among the many characteristics of the system. As a result, it was quite functional in terms of security, accuracy, and adaptability. With this, authorized individuals may access the system and retain correct information and management records.

Table 2: The Level of Functionality of the developed system in terms of Security, Accurateness, and Suitability

Implementation Indicators	Mean	Verbal Interpretation
Security	4.58	Very Good
Accurateness	4.66	Very Good
Suitability	4.99	Very Good
Level of Functionality	4.70	Very Good

Legend: 1.00 -1.80 (Poor); 1.81 –2.60 (Fair); 2.61 –3.40 (Average); 3.41 –4.20 (Good); 4.21 –5.00 (Very Good)

IV. CONCLUSION

The primary difficulty or issue with the manual was that the data management institution or organization was prone to human mistakes, and lack of communication or contact with the person and overseas, which resulted in data loss. According to the study's findings, the NONESCOST highly recommends the established system. The efficiency and usefulness of the Web-based Alumni Management Information System in reaching out graduates is to fulfill the demands of responders and intended users. They recognized the approach as having the ability to help the alumni president and others manage prospective grads. It also saves time when communicating with and gathering information from grads.

As a result of the data acquired, the researchers determined that the developed system is usable and totally working. The advantages of the established system will benefit the university in improving alumni records, monitoring of graduates, alumni status if employed or unemployed, and easy contact for events such as alumni homecoming. The adoption of the technology will reduce data administration. In the manual procedure, complications, difficulties in record keeping, and workload were experienced. The developed only authorized users have access to the system, which ensures exact information management. It will have an effect. Keeping an alumni record that is appropriate for the institution.

REFERENCES:

- [1]. Gunasekara, P.D., "Alumni Management System for Weeraketiya Rajapaksha Central College," M.S. thesis, University of Colombo School of Computing, Colombo, Sri Lanka, 2017.
- [2]. H. Chi, E. L. Jones, and L. P. Grandham, "Enhancing Mentoring Between Alumni and Students via Smart Alumni System," in *Procedia Computer Science*, vol. 9, pp. 1583-1592, 2012.
- [3]. R. Johnson, "The role of Alumni Management Information Systems (AMIS) in educational institutions," *Journal of Higher Education Management*, vol. 15, no. 2, pp. 1-15, 2019.
- [4]. V. K. Vundavalli, J. Pakkirisamy, S. Rai, W. Kone, and L. Li, "Development of a Web-based Alumni Management Information System," 2020.