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CHAPTER I

INTRODUCTION

The Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities is a web application that helps universities to track alumni employment, manage records, and analyze employment trends through graphical data visualization for informed decision-making and planning. It serves as a centralized database that stores alumni employment records while also connecting graduates with job opportunities to support their professional growth. By strengthening collaboration between universities, alumni, and industry partners, the system supports career growth, enhances alumni engagement, and improves employment prospects. Alumni are the most important parts to an institution's development, representing the school beyond campus. According to Gopakumar, V. T. (2023), alumni act as ambassadors, serving as reflection of the quality of education provided through their professionalism evidenced by employment. Engaging with alumni strengthens and improves educational programs and enhances the institution's reputation.

Educational institutions struggle to maintain a connection with their alumni because some may become disconnected due to changes in their personal information or could be the length of time that has passed since they graduated, which may have caused them to lose interest or just feel disconnected. According



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to Laila M. Alegado (2015), these are the common issues including a lack of communication with graduates because of the outdated graduate profiles. This makes it difficult for the school to reach out and determine the current employment status of alumni if some unemployed or some find employment in their chosen fields or end up in jobs unrelated to their courses. Educational institutions must adapt modern technology to enhance alumni engagement, recognizing it as an opportunity to track employability that also offers career services to meet the evolving needs of graduates. According to Sadi, S., et al (2015), they currently live in a modern society where most people use smartphones to stay connected, informed, entertained, and perform tasks efficiently. The system presents an opportunity that needs to be utilized for school institutions as it provides opportunities for unemployed graduates seeking jobs. It also allows the institution to do things faster in tracking of alumni employment status or whereabouts.

The development of the Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities is to keep in touch with the graduates, and aid the alumni searches to identify whether graduates are employed or not. As stated by MihirJayavant (2018), the alumni tracking system web-based application helps to track former students which can improve the tracking of graduates in a modernized way, making it more advanced and faster in



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tracking of alumni. It can aid in providing alumni data or information to college faculties, which eventually makes the overall process more efficient.

The system can be used as a reliable and convenient system wherein, the school institution tracking alumni information seems a burden especially when it comes to track the employment status of graduates. It aims to establish a web application that effectively engage with the graduates and keeps alumni records. Thus, develop a communication among alumni which leads to have a better network to the institution. Moreover, this web application will enable graduates to maintain communication and stay updated on group discussions or job postings.

Statement of the Problem

The present undertaking tries to analyze the technical requirements needed in the development of an Alumni Career Link: A Smart Tracking System bridging Graduates and Employment Opportunities, develop and implement a reliable, accessible web application that connects graduates with employment opportunities, tracks their employment status, and provides value to all users. Specifically, the present study seeks to answer the following questions.

1. What are the specific requirements needed on the development of an Alumni Career Link: A Smart Tracking System bridging Graduates and Employment Opportunities



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2. What are the technical features needed that the system must acquire in order for the end-users to gain satisfaction with the developed system.
3. How usable is the development of an Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities for Central Philippines State University-San Carlos?

Objectives

The project aims to increase alumni engagement, intellectual and human resources according to Tulankar, S., & Grampurohit, B (2020), as alumni sustaining schools through donations and voluntary efforts. By implementing the system, it focusses on alumni records to keep all the alumni information in easiest way, better communication to stay in touch with the alumni and determine the employment status while saving time for manual data entry. The system will allow the university to trace alumni information and can be monitor employability. Alumni can also interact with the potential employers and post multiple jobs to help alumni find employment in their specific skills or in their field of study.

Specifically, this project aims to:

1. To create an application to assess the university in managing alumni employability data, including maintaining records, verifying employment



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information, analyzing employment trends, and improving response rates to tracer studies.

2. To develop an application that will effectively store, monitor, and manage alumni employment records.
3. To consolidate all the collected alumni employability data and presents it through graphical charts to support decision-making and university planning.
4. To provide a centralized repository of alumni employment records that ensures data accuracy, allows efficient access for university personnel, and supports long-term tracking of graduates' career progress.
5. To facilitate career services for alumni by connecting graduates with employment opportunities and strengthening collaboration between the university.

Significance of the Study

The result of the study will help the university to stay connected with its alumni and intended to improve the tracker system of the school. It saves time and efforts of the school to track the alumni. This project study will benefit the following.

The CPSU San Carlos campus Administration. This study will help university administrations



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especially the Research Office in tracking alumni whereabouts and can easily informed if there's a school related event. This can also benefit the university for its future decision making and strategic planning.

The Alumni. Former students can easily access of job opportunities and find employment. This ease of access encourages alumni to update their account to stay informed about relevant news.

CPSU San Carlos Campus. This study will help San Carlos campus to have a diverse way to track the alumni information and determine the employment status which can lessen their workload or manual data entry.

Future Researchers. This study will serve as relative information for other researchers and can serve as basis in developing their own web applications and tracking system for creating their own version of the Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities for future use.

Scope and limitations

The study focuses on developing an application to assist the university in managing alumni employability data by enhancing record-keeping, employment verification, employment trend analysis. The system will serve as a centralized platform for storing, monitoring, tracking and managing alumni employment



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records while providing graphical analytics to support university planning and decision-making. Additionally, the system aims to connect alumni with job opportunities to find their employment.

This web application will be implemented at CPSU San Carlos Campus to assist in tracing the employability of its alumni. However, it will not include alumni records from other CPSU campuses. Employment status updates will be entirely self-reported by alumni, as the system does not have an automated verification process. The accuracy and completeness of employment data will depend on alumni willingness to update their records, and any updates will be at their discretion. Additionally, the system will not detect or prevent falsified information submitted by users. Furthermore, while the platform facilitates job opportunities by connecting alumni with potential employers, and it does not guarantee direct job placements.

Definition of Terms

Admin. In this study, it is a person who oversees the system and manages its contents.

Alumni. In this study, it refers to a former student who have attended or graduated from the educational institutions.



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Career Link. In this study, it refers to career opportunities designed to help alumni find jobs while connecting with potential employers.

Database. In this study, it refers to a storage component of the system where files and data are stored, organized and managed.

Repository. In this study, it refers to a central location where all resources are stored and managed.

Tracker. In this study, to find out the employment status and whereabouts of alumni.

Users. In this study, it refers to a person who uses the system and interacts with it.

Web App. In this study, refers to the network connections and accessibility of the system via web browsers



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CHAPTER II

REVIEW OF RELATED LITERATURES AND SYSTEMS

This chapter provides a review of related literature and studies that will help the researchers gather basic data and references for the current study. Important facts were provided by the researchers that presents a comprehensive summary of existing research and studies to support the significance and relevance of the Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities' creation.

Foreign Literature

According to the Thomas, G. G., & Wagiu, E. (2019), graduate is one of the important supports in the development of a university. Graduate have a role to assist universities in developing the university into the community through collaboration in academic terms which also stated by Anggraeeny, L., Oktafia, R., & Hidayatulloh, H. (2020), the alumni are the representatives of the institution's quality, greatly influence community perceptions and school choices. The study explores alumni contributions to extracurricular activities, advocacy for school quality, networking, mentoring, event support, and curriculum evaluation and observation. In relation, the study highlights how important role of alumni in educational institutions. The proponent used this as a basis in implementing an



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alumni tracking system that can enhance the school institution's visibility and reputation, ultimately contributing to its growth and success.

According to D. Yuniarto, A. Subiyakto, E. Firmansyah, I. Fadil, A. Sani and M. Irfan, the use of Information Systems for Alumni Tracking has become a major dilemma. But the Tracer Study Information Systems in private higher education found that the system is not fully effective yet an unable to provide satisfactory solutions for alumni tracking. The purpose of this study is to determine the success of using tracer study. As stated by Safi'i, Priyo Priyantoro (2019), one way to find out the condition of alumni is to do a tracer study. Tracer study or alumni tracking is information gathering activities of alumni regarding the competencies needed by stakeholders as material for the process of improving education. It serves as a valuable reference for the researcher's system to focus on developing or improving an alumni tracking system with job opportunities to better serve the needs of both the institution and its alumni.

According to Ali Fikri Hasibuan and colleagues (2022) emphasize the role of alumni in evaluating teaching quality at Medan State University. They conducted a study using surveys and data analysis to assess alumni skills and job status. Findings indicated that graduates were well-prepared for jobs, quickly found employment, and satisfied their employers. This study highlights the importance of



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understanding alumni outcomes for improving educational programs. The proponent used this as a basis to develop a system that consolidate all information of former students in CPSU San Carlos campus to determine graduates career paths after leaving the university.

According to Akbar, R., Imilda, Sarboini, & Junaidi. (2022), the socialization of e-tracer study for college of alumni aimed to educate alumni about the significance of mapping graduates as a quality measurement standard for universities. In relation of the Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities is to facilitate a communication platform to have a better engagement of alumni, such as group chats to inform alumni about upcoming school activities.

According to Setyaningsih, R., Hustinawaty, Abdullah, & Prihantoro, E. (2022), the study aimed to improve higher education management. The university's Alumni Bureau requiring effective communication management. The study identified a communication management model comprising adjustment, communication planning, action, and evaluation at boarding university. It somehow related to the researchers' system because it aims to enhance how universities interact with alumni and manage the information. The researchers seek to make tracer studies more effective in engaging alumni and collecting data, which aligns



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with the goal of the proponent system to create a platform for alumni information and communication, providing opportunities to help the employability of graduates.

According to Julianto Sampun (2022), the study conducted at the State University of Surabaya aims to identify and understand the satisfaction levels of graduates who participated in the PPG program from 2018 to 2020. By using interviews and questionnaires which is manual methods to collect a data from PPG graduates in the Madiun, Ngawi, and Magetan areas, as well as from the principals of schools where these graduates teach. The researchers used this study as a basis to implement a system that would make the study much more efficient. It helps to collect data and stay in touch with the graduates.

LOCAL LITERATURE

According to Kathleen B. Solon-Villaneza, (2015). this study found that the majority of alumni are employed in fields related to their degree in which also stated by Tayco, R. O., Supat, P. S., & Estrop, C. P. (2022), that study shows the most of the respondents are presently employed and work locally related to the courses they have taken in college. It helps the researchers to develop a web application system to trace alumni employment status and determine the job alignment of graduates. It also supported in this literature by Pentang et al., (2022), the results found out that many were being employable with their related courses. The researcher's



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system is an important aspect to also find out the employment status of the CPSU graduates, it is essential for universities to maintain a connection and trace the job alignment.

According to Maria Theresa B. Kalaw (2019), the presented tracer study aims to determine the graduates' employability and academic skills. The researchers used this study as a basis to improve university alumni tracking by determining the employment status and job alignment. In accordance of Evan Carlo B. Deblois (2021), the study aimed to document the graduates' profiles, the alignment between their courses and employment. The proponent learned from this study to develop a system that administrator can determine the job alignment of the graduates by collecting the data.

According to Grace L. Lopena & Dennis V. Madrigal (March 26, 2023), in this literature, the presented study evaluates the success of degree programs in business management by examining the employment performance of its graduates, as they provide and uphold the satisfaction of the school. Similarly, Abulencia et al., (2021), aimed to determine the extent of satisfaction and adequacy of the knowledge and skills that graduates have obtained from its university. The proponent learned from this study to examine the employment outcomes of the graduates and what specializations or alumni have obtained during their colleges.



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According to Leah Wilfreda E. et al. (2014) conducted a tracer study of BEED-SPED 2007-2013 graduates from the University of Bohol's Teachers College that tracked the progress of graduates from the Bachelor of Elementary Education with a specialization in Special Education (BEED-SPED) program. The purpose of this study was to examine how well the SPED program prepared its graduates for their careers.

According to Penera, L.K., T., Beduya, N.L., Mantos, T.L. & Gulbe, I.L. (2021), in this literature, the findings indicate the majority graduates of Cebu Technological University-Daanbantayan Campus are employed with permanent status. The researchers learned how important the alumni tracking system to track the alumni employability and to determine if the university significantly contributes to graduates' success by providing employment opportunities and evidence of such contributions, it is essential to consider various factors. Not only should the university demonstrate that it helps graduates secure employment, but it should also actively provide job opportunities for job seekers. This creates an opportunity to assist alumni in finding employment.

According to Jonathan L. Dela Cruz (2022), in this literature, the tracer study of Graduate School about graduates' profiles, employment status and employability characteristics identifies that graduates of State Higher Education



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Institution in the Philippines have a very high employability rate based on the result of descriptive statistics used to analyzed the data of graduates. The researcher's system learned from this study how important it is to have a connection with alumni to know their employment status.

Foreign System

According to the MihirJayavant (2018), Alumni Tracking System is an online-based application that helps to enhance the tracking of college graduates and provides alumni data to college faculties. It aims at developing a mobile application and web portal which will be useful for the college to monitor the alumni's and for the alumni to update their current status and get notified about the college activities which also stated by Bista B. et al., (2021), the alumni portal and tracking system integrates and manages alumni data, providing a portal for alumni to update their information. Both systems are enhancing alumni engagement, improves data management, and aids in understanding alumni trajectories. In relation, the proponent system aims to have an alumni engagement that provides a job portal for alumni to find their employment and can update their information making it easier to collect and update alumni. The proponent system is also a web-based application to develop communication between graduates and the institution, where administrators of the school can communicate with alumni,



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enhances alumni engagement and update current status. In accordance of Suresh Kumar T. et al., (2019), this system is a platform were enabling them to connect and stay updated.

According Sadi, S., Rachmawati, D. L., & Khannan, M. S. A. (2015). the development of the technology has become increasingly rapid with almost everyone currently having a handphone. With the widespread use of Android smartphones, presenting an opportunity for institutional development especially in tracking alumni. To address this, Sadi, S., Rachmawati, D. L., & Khannan, M. S. A. (2015), developed an Android app to track alumni includes maintaining updated contact information, tracking career progress, and facilitating communication between alumni and the institution. This system is similar to the researchers' system which is to track former students and enhance institution's ability to stay connected with its graduates and supports alumni networking with career services using technology.

According to the Miftahul Khair (2016), this system efficiently collects and organizes alumni data, facilitating better information dissemination to alumni, current students, and faculty members. It serves as a communication, providing useful information to its users and tracking the career progress and employment status of alumni. Similarly, Sucipto, S., et al (2020), the system collects data,



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accessibility, communication, usability, and overall performance in assessing alumni achievements in Vocational Schools in Kediri. In relation, the proponent system aims to improve communication between schools and alumni. By collecting the data on graduates according to P W Yunanto *et al* (2021), the system provides valuable feedback for improving the education process, curriculum and student activities, improving the quality of graduates and enhancing the education process. Additionally, making it more effective to track alumni and monitor the achievements and progress of the graduates.

According to P. Kumar, S. Swetha and M. Sundari (2023), the Secured Web-based Alumni Network and Information Systems focus on facilitating communication, providing opportunities for career advancement, fostering mentorship, and ensuring security. The system aimed to strengthen the relationship between the college and its alumni while benefiting current students. This system recognizes the value of keeping in touch with graduates that focus on communication and engagement through an online application. In relation to the researchers' system aims to maintain a connection to communicate alumni, and providing opportunities for career advancement.

According to IJSRD or the International Journal for Scientific Research & Development (2015), the student alumni system provides the way in which alumni



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can stay connected with school which has been very important part of their memory. It somehow related because SAS will give announces for further opened new avenues of job. This study is a similar of the researcher's system which can also serves as a platform that gives announcement through group chats and inform graduates.

Local System

According to Aramil, J. A., et al., (2015), the research developed a web application to help the alumni officer resolve the tedious and time-consuming method of managing and retrieving alumni data and to provide affiliate companies a means of disseminating job opening information to Letran alumni applicants. In relation to the development of alumni tracking system is to lessen the burdened of school faculties in tracing the alumni whereabouts and employment status. It manages alumni information to easily track alumni data. Additionally, the system provides employment opportunities information for those job seekers.

According to Arbaja, J. S., Sarmiento, J. R., & Bausa, M. E. (2023), this system helps the institution effectively track, manage, and analyze alumni data, ultimately contributing to better educational strategies and outcomes. To trace the ACI alumni employment status, work alignment, and job whereabouts, as well as collect a high rate of data collection from the alumni utilizing an internet-based



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system for alumni records. In relation, the proponent system can facilitate tracking of alumni employment status, collect and manage information.

According to Jenny Rose V. Wenceslao (2022), the App-based Alumni Tracer System with Statistical Support was specifically developed for the purpose of bridging the gap between alumni and the schools with the use of a computer-based solution employing web and mobile technologies. This system is for maintaining communication and monitoring alumni status. It gathers and manages alumni data through web and mobile interfaces. It related to the researchers' system because it maintains connection of the graduates and its school institutions, manage alumni information, and monitor employment status. By the development of alumni tracking system, the university get a simple way to keep track of the alumni data.

According to Etcuban, J. O. & Durano, D. S. (2015), databases for alumni are vital to every learning institution. The data and information are needed by the school to communicate, verify, archive and research the alumni. The study aimed to design and develop an alumni database of the University of Cebu that would provide solutions to problems in tracing alumni. The proposed system would enable users to register as well as generate information for the purpose of tracing the whereabouts of the alumni. This system managing alumni information and



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facilitating communication and engagement between the university and its alumni. In relation of the proponent system aims to keep in touch with the graduates, manage relationships, gather necessary information and keep the records to aid administrator or the school faculty trace the employability and determine how effectively instructions in the college are, through the achievements of its graduates.

According to Alegado, L.M (2015), the internet is a powerful tool for connectivity. It has become the avenue for most people to exchange information, knowledge, and apparently, almost everyone is present on the web. This study is a web system designed to help graduates stay in touch and get information within school institutions programs. In relation to the Alumni career link: A smart tracking system bridging graduates and employment opportunities aims to have a better communication between graduates and institution, to stay connected and updated on relevant activities of the campus.

According to Jenny May T. Cinco and Raphy A. Dalan, (May 2019), the Web-based Alumni Network and Database Information System with Mobile Application system aimed to design, develop and evaluate to facilitate the network of alumni and a database system with the application of web technology and mobile phone. Alumni can build their network in the website or in the mobile apps



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in order to develop a network. The information of the alumni will be saved in the database for several purposes. The proponents used this as a basis of their study to implement a system that tracks alumni and effectively connecting in alumni, manage information, and stay updated in every news to enhance alumni engagement.

According to Glenn Trinidad (2023), the purpose of the system is to determine the importance of developing a web-based alumni tracing and job search system for tracking and monitoring alumni records, allowing for easy access to information about former students and to provide job search or opportunities for CTU Naga Extension Campus, help alumni in finding relevant job opportunities after graduation. It related to the researcher's system that monitor and tracks employment status of graduates and provide job opportunities to help alumni of the campus find relevant jobs or use their specific skills.

According to Joery et al., (2023), the Online Monitoring and Tracking System for Dormitory aims to provide a centralized platform. This system is used to enhance student monitoring which also related to the system of Borlio et al., (2015), aimed to create a tracking system to monitor the current location of visitors or students inside the University. In relation of Capili-Kummer, M. G., & Corpuz-Batuga, M. L. (2021) system, was developed to centralized a platform for alumni



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monitoring to gather up-to-date information of graduate's employment status and maintaining alumni information using web-based system. Then send notifications through alumni registered email address. The proponent's system is somehow related to this system that also a platform to maintain alumni information. It enhances alumni communication, interactions between alumni and the university, track whereabouts and employability.

According to Adrian Regalado Date (2023), the alumni management system is a web-based platform designed to enhance communication between former students and their institution. It helps colleges maintain strong alumni networks by keeping detailed records and promoting ongoing relationships. Columban College Inc. values this connection, as alumni represent the school post-graduation. The system provides alumni with updates, events, and job opportunities, which similar to the researchers' system that also provides job opportunities, maintain a strong connection of the graduates and enhance communication while also keep the records of alumni.



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CHAPTER III

METHODOLOGY

This chapter presents the methodology that will be used in this project, providing a detailed explanation of the design method, and discussing each phase of the chosen model. The flow of the study will also be explained as well as functional and non-functional requirements, system workflow, flowchart, system architecture, and diagrams. Additionally, this section will describe the environment of the study, the instrument and data gathering procedure.

Design Method



Figure 1. agile model (Software development life cycle)



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The Agile methodology is a project management approach that involves breaking the project into phases and emphasizes continuous collaboration and improvement. It promotes collaboration among team members and encourages regular feedback and improvement throughout the project lifecycle. The researcher followed the phases of agile methodology. By breaking the project into phases, it allows for better planning and organization of tasks.

In the planning stage, the proponents collaborate with their adviser to collect information with the underlying problems of manual work at research office. Interviews were held with the research coordinator in order to understand the whole process of taking the tracing the alumni to the advantage of the researchers. Based on the collected information, the researchers will come up with a great plan on how to solve the problem of tracing the alumni in a better and efficient manner. This stage of planning is very important, making sure that all resources to be used are fully utilized, and the proposed solution is tailored to the needs of Central Philippine State University. All in all, the planning stage is a very crucial stage in the research process since it lays the groundwork for successful solution of the identified problem.

The second stage is the stage of design. prototyping is utilized to visually conceptualize the system. It aims to create a system that not only meets functional requirements but also delivers an intuitive and visually appealing user experience for the Alumni Tracer Management System of Central Philippine State University.



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Development phase. The proponents will begin developing the system using Vuejs(JavaScript framework), Tailwindcss, and primevue for the front-end, and Express js (Node. js framework) and Firebase for the backend. This phase marks the transition from design to the creation of a functional and interactive system. Collectively, the combination of this technologies ensures a visually appealing and responsive front-end interface.

The testing stage is of major importance in making sure that the system is fit to meet the end-user's requirements. Some of the identified issues related to the system were dealt with, making sure the system functions at an optimum level and meets the requirements of the end-users through beta testing and surveys.

During deployment. After thorough development and testing of the system, the next step is to deploy it online. This stage ensures that the system is made available to who has account to the alumni trace management system. This ensures that end-users can access and benefit from the system's features, marking the completion of the development process.

It also focuses on the review of specific functions and errors to ensure the system functions optimally. Developers can look at the system functions with regard to identifying and fixing issues with the system before the system is released to the end-users. This review also needs to cover UI functions, security functions, and performance functions. The errors review also needs to include deployment errors,



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compatibility errors, and logical errors to ensure that the system is stable and secure.

Input-Process-Output

The diagram in Figure 2 shows various information to input and process so that desired output will be obtained.

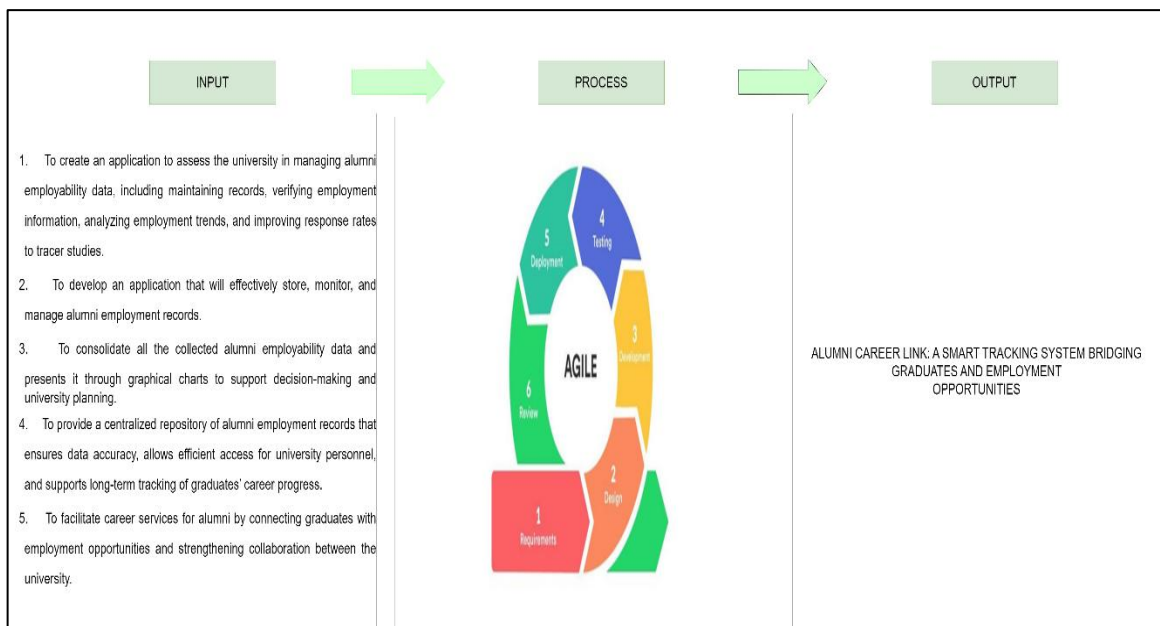


Figure 2. Flow of the study



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Functional Requirements

The functional requirements highlighted the specific functionalities that the system should be able to perform, successfully.

- Description of the database entered into the system are:
 - a) Alumni information
 - b) Admin Information
 - c) Reports

Interface Requirements

1. Accept text and numeric data entry
2. Design is responsive to some browser

Regulatory/Compliance Requirements

- Only admin can use the full functions of the system
- Only registered alumni can login
- All data that be entered in the system should be accurate

Security Requirements

- Admin is the only can create account for users

Check the functional and non



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Non-functional Requirements

This refers to the faculties that are non-functional. This includes the following:

Security

- **Login Requirements** - the user must provide valid credentials

Performance

- **Response time** - system load run to 5~10 seconds to display on the screen.
- **Query and reporting time** - fast retrieval and display of alumni information to answer any admin query or support report generation requirements with a time out of not more than 10 seconds to result in quick accessibility to the super admin and admin.

Capacity

- **Storage** - the system must handle and manage the voluminous amount of attendance data produced through scanning of the students, to perform without problems and to have easy access to information at any time.

Availability

- **Hours of operation** - the system is always available.
- **Location of operations** - operational site will be at Central Philippines State University campuses.



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Reliability

- **Mean time between failures** - the system operates reliably and consistent with minimal downtime and interruptions.
- **Mean time to recovering** - the system can be restored to normal operation quickly.

Recovery

- **Recovery process** - depends on the nature of the failure and a type of system being recovered; the process is well defined but can vary.
- **Recovery time scale** - depends the type of failure, complexity of the system, and the recovery process.
- **Backup frequencies** - should be determined according to the criticality of the data and should be tested regularly on the probability that it works as it is intended.
- **Backup generation** - it should be available and accessible to be restored.

Compatibility

- **Compatibility with shared applications** - visual studio code
- **Compatibility with third party applications** - google chrome



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- **Compatibility on different platforms** - the system is designed to provide compatibility with desktop computers, targeting super admin, admin and alumni across different system.
- **Conformance to architecture standards** - the system must be used in the place that has a good internet connection to make it function correctly.

Maintainability

- **Conformance to design standards** - HTML, CSS, JAVASCRIPT
- **Conformance to coding standards** - FIREBASE, JAVASCRIPT

Usability

- **Look and feel standards** - scree resolution for at least 1366x768 for proper viewing of screens.
- **Internationalization / localization requirements** - language – English



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Workflow – Manual Process

This chart illustrates the manual process in tracking alumni.

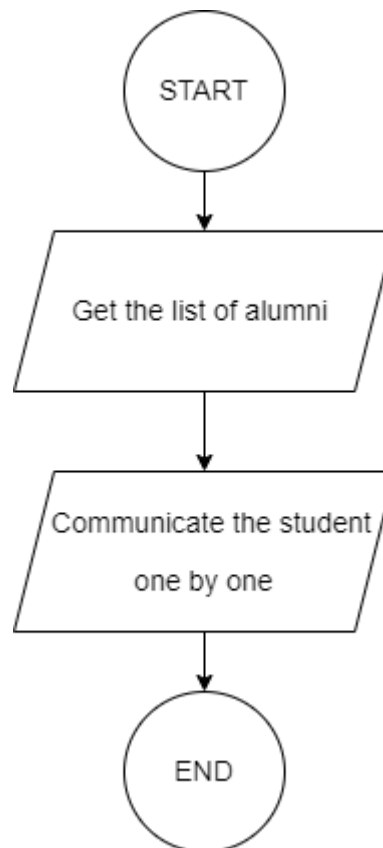


Figure 3. Workflow Diagram



Proposed Flowchart

This flowchart shows the process of data, where it should start and how it ends.

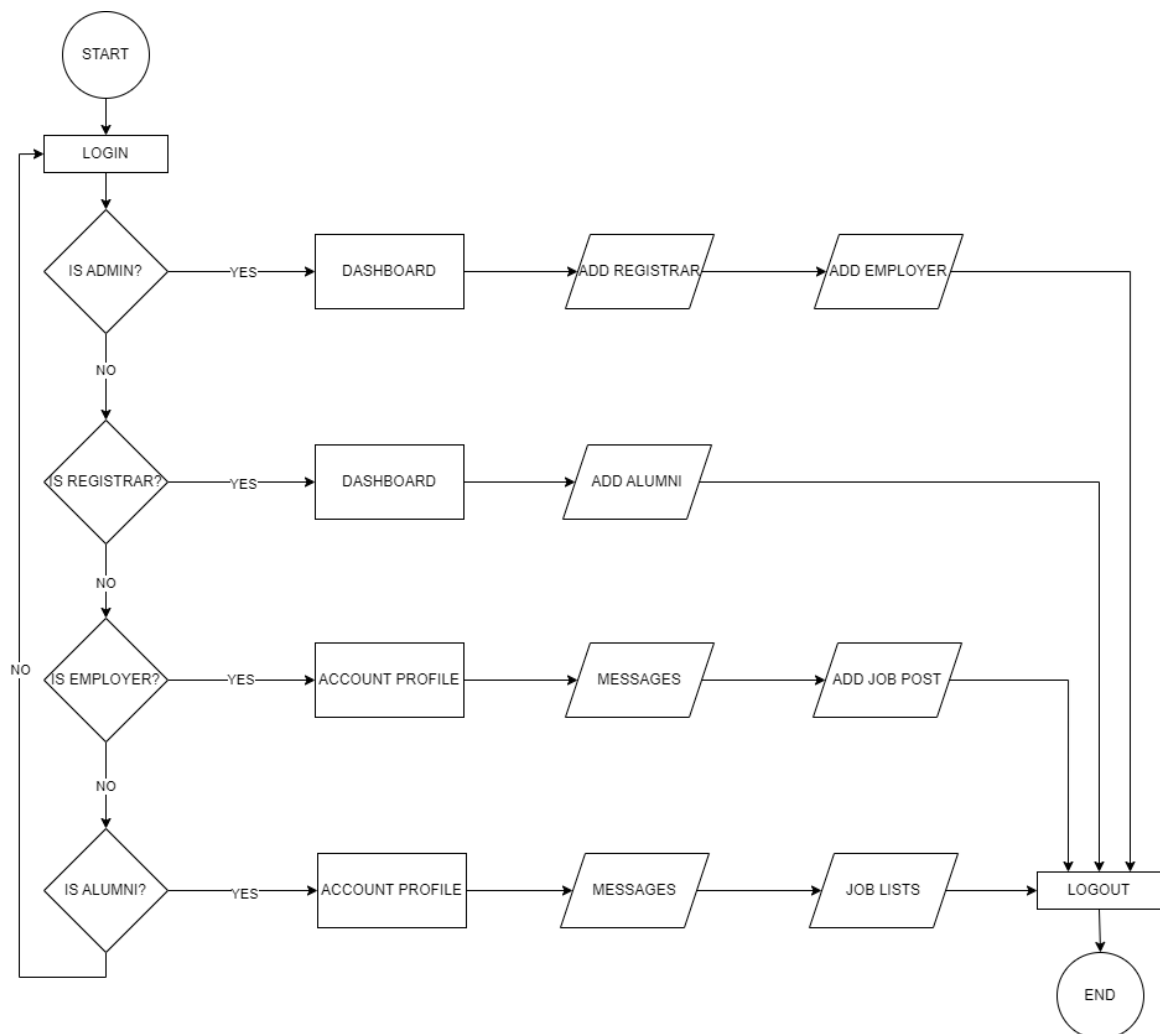


Figure 4. Flowchart Diagram



System Architecture

System architecture refers to the design and structure of a computer system or software application.

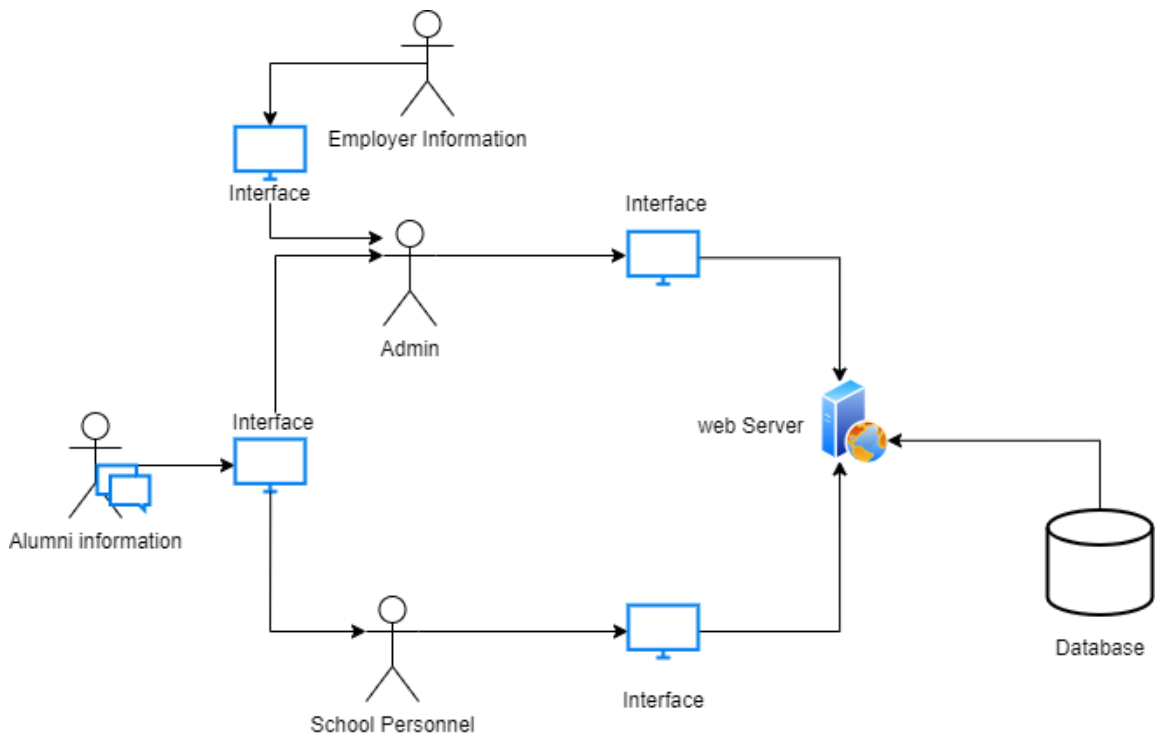


Figure 5. System Architecture



Context Diagram

Context diagram illustrates how the data processed by the system in terms of input and output.

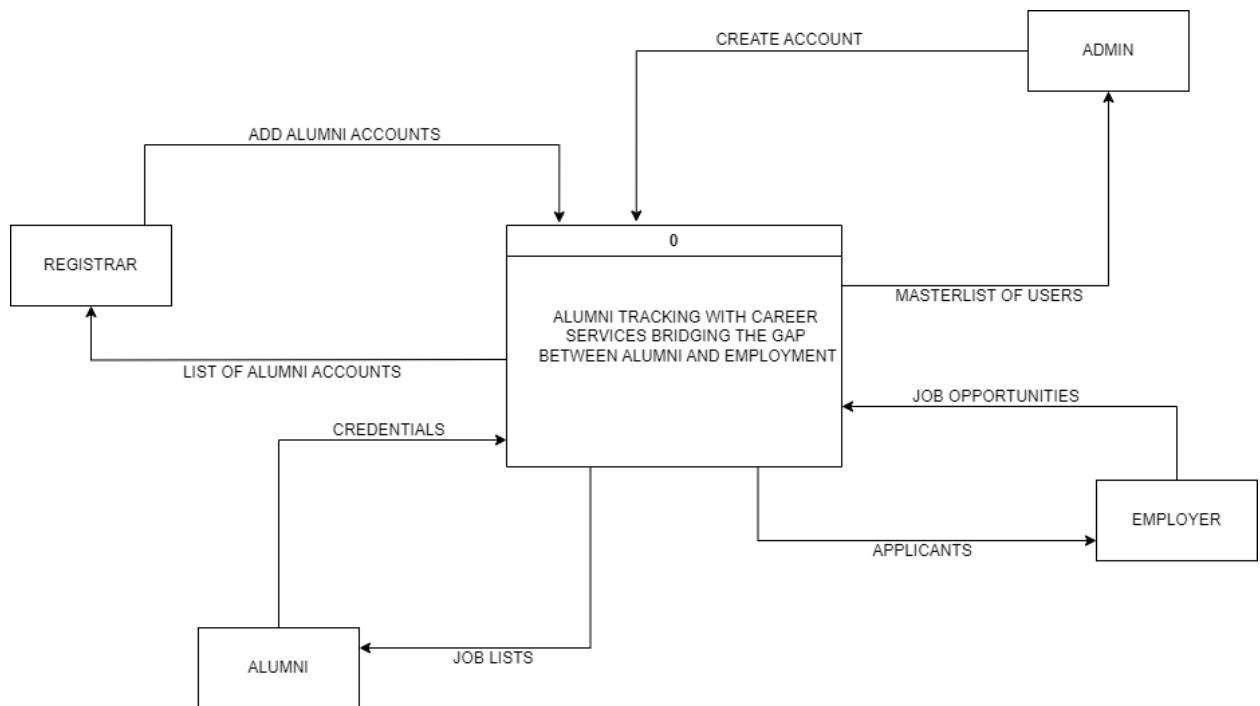


Figure 6. Context Diagram



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Data Flow Diagram

A data flow diagram is a graphical representation of the flow of data through an information system.

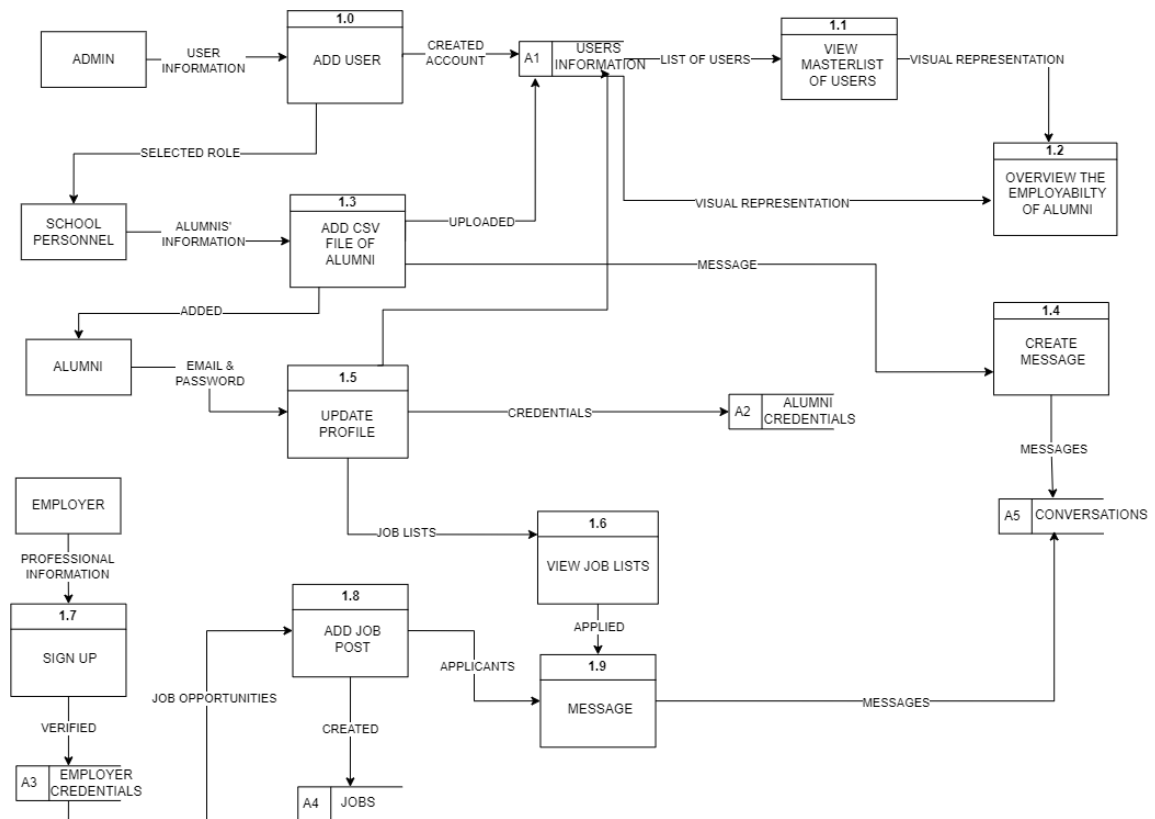


Figure 7. Data Flow Diagram



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Entity Relationship Diagram

This diagram shows the relationship of the entities in the database.

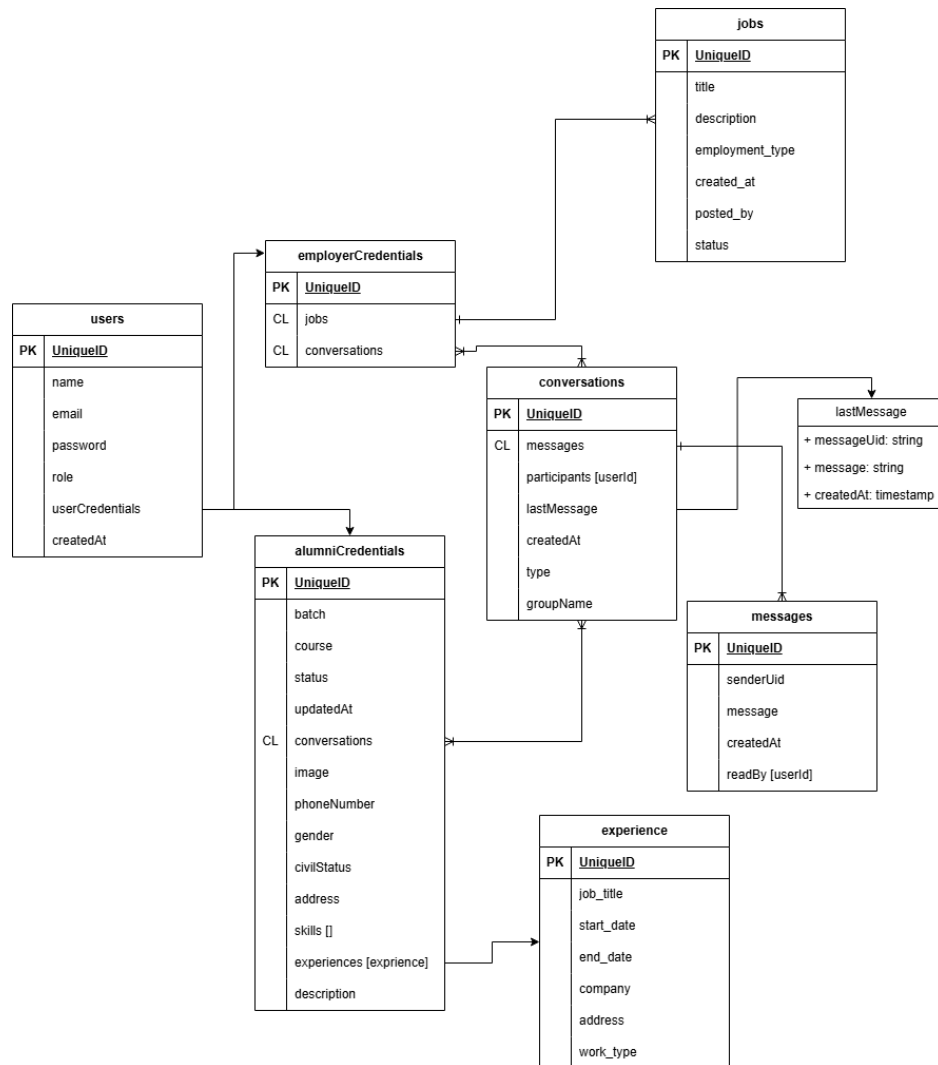


Figure 8. ERD of the System



Use case Diagram

A use case diagram is a visual representation of how users interact with a system to achieve specific goals or functions.



Figure 9. Usecase Diagram



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Respondents

The respondents are the former students, school personnel, and admin of the Central Philippines State University, San Carlos Campus to ease in searching alumni information and track employment status.

Table 1. *Distribution of Respondents*

Respondents	Population
Alumni	150
School Personnel	2
Total	152

Environment

The proponents conducted the study at the university's location, specifically at Don Justo V. Valmayor Campus in San Carlos City, Negros Occidental. The study focused on the university where the system will be implemented and utilized.



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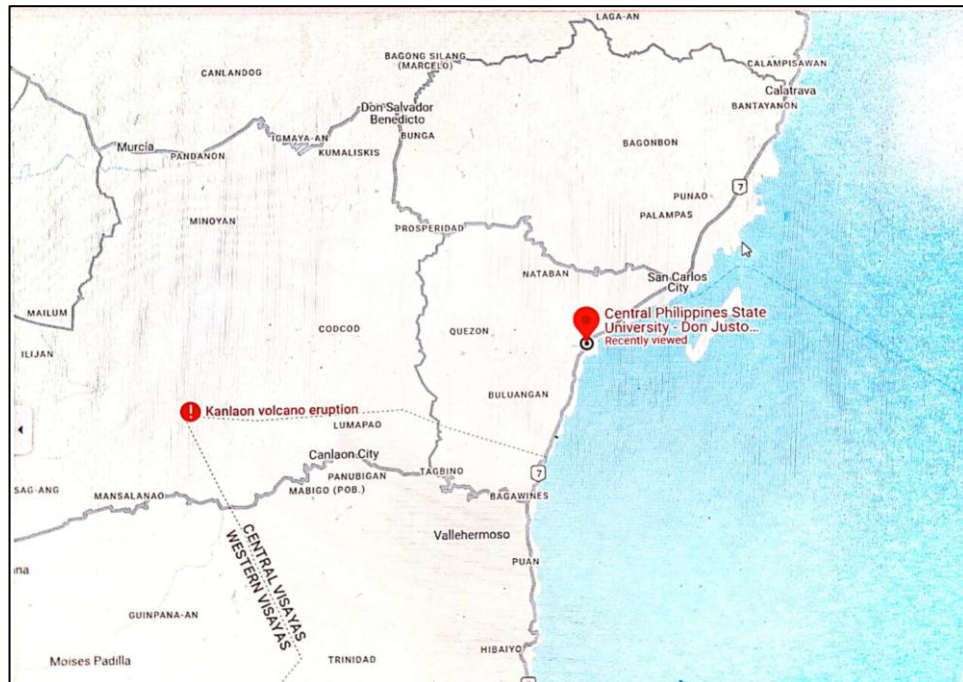


Figure 10. Environment of the study

Data Gathering Procedures

The primary data were obtained directly from sources through an evaluation form based on the PIECES Software Evaluation Framework, as assessed by end-users and IT experts. To conduct the study, the proponents utilized a survey method by distributing questionnaires to collect respondents' ratings of the system.



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Research Instrument and Statistical Treatment of Data

How effective and efficient is the Alumni Career Link: A Smart Tracking System bridging Graduates and Employment Opportunities using PIECES Software Evaluation Framework Questionnaire. This standardized questionnaire was used in evaluating the end-users and IT (Information Technology) Expert's satisfactory rating on the effectiveness, efficiency, and usability of this web application. The areas consist of performance, information, economy, control, efficiency and services were evaluated to assess the functionality of the develop system. For each question in each area, the respondents answered based on a structured 5-point Likert Scale with the verbal description: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree. Items were total score and weighted mean.

Table 2. *Likert Scale*

Rating	Weighted Mean	Verbal description
5	4.21-5.00	Strongly Agree
4	3.41-4.20	Agree
3	2.61-3.40	Neutral



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2	1.81-2.60	Disagree
1	1.00-1.80	Strongly Disagree

The following statistical formula was used in the treatment of data gathered from the respondents.

The data was evaluated using weighted mean adapted from Likert Scale.

$$WM = \frac{(f_4 * 4) + (f_3 * 3) + (f_2 * 2) + (f_1 * 1)}{N}$$

Where,

WM = weighted mean

f = frequency

N = population



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CHAPTER IV

RESULTS, CONCLUSIONS, & RECOMMENDATIONS

Results and Discussion

The evaluation results provide an insightful analysis of the system's performance, focusing on key areas such as effectiveness, efficiency, and usability of the Alumni Career Link: a smart Tracking system bridging Graduates and Employment Opportunities. These aspects were assessed and evaluated by end-users and IT (Information Technology) Experts. The findings reveal how well the system met its intended goals, how effectively it supports users in completing tasks, and the overall satisfaction of users with their interactions. By evaluating the system from multiple perspectives, the results offer valuable information on its strengths and areas for improvement, ensuring that the system evolves to better meet the needs of its users. The following sections discuss the detailed evaluation results and their implications for future system enhancements.

The Effectiveness, Efficiency and Usability of the Alumni Career Link: a smart Tracking system bridging Graduates and Employment Opportunities in Central Philippines State University San Carlos Campus assessed and evaluated by end-users and IT (Information Technology) Experts



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Table 3. *Results of the End-Users on PIECES Software Evaluation in terms of Performance throughout and response time.*

Indicators	Weighted Mean	Interpretation
1. The web system quickly processes my employment information updates.		
2. The system allows me to apply for jobs efficiently, even outside my field.		
3. The system's group chat feature works smoothly without delays.		
Overall Weighted Mean		



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Table 4. *Responses of the End-Users on PIECES Software Evaluation in terms of Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities in terms of Information, Input, Output, and Data Storing.*

Indicators	Weighted Mean	Interpretation
1. The system accurately reflects my employment updates.		
2. The group chat feature delivers useful updates from CPSU staff.		
3. The system ensures my job applications are sent correctly to employers.		
Overall Weighted Mean		



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Table 5. *Responses of the End-Users on PIECES Software Evaluation in terms of Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities in terms of Control & Security.*

Indicators	Weighted Mean	Interpretation
1. My personal and employment data are securely protected.		
2. I can control what information I share in chats or with employers.		
3. The system prevents unauthorized access to my profile.		
Overall Weighted Mean		



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Table 6. *Responses of the End-Users and IT Experts on PIECES Software Evaluation in terms of Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities in terms of Efficiency.*

Indicators	Weighted Mean	Interpretation
1. The system makes updating my employment info is quick and simple.		
2. The system streamlines applying to jobs, even outside my field.		
3. The system is compatible with various devices, including tablets and PCs.		
Overall Weighted Mean		



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Table 7. *Responses of the End-Users and IT Experts on PIECES Software Evaluation in terms of Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities in terms of Service.*

Indicators	Weighted Mean	Interpretation
1. The system is easy to use and navigate		
2. It is always accessible without any issues.		
3. The system improves my overall experience as a CPSU alumnus		
Overall Weighted Mean		



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Table 8. *Grand Mean of the Responses of the End-Users on PIECES Software Evaluation for Effectiveness, Efficiency and Usability of the developed Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities*

Indicators	Weighted Mean	Interpretation
1. Performance throughout and response time.		
2. Information input, output and data storing.		
3. Control and Security.		
4. Efficiency		
5. Service		
Overall Weighted Mean		



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Implementation Plan

Implementing the alumni tracking system with career services will simplify the process of tracking alumni information and their employment status, compared to manually entering data and individually reaching out to alumni. The system can store all records of alumni, tracks employment status, provide career services and fosters connections. The researchers plan to conduct training and orientation sessions to minimize system errors and guide end users on how to use the alumni tracking services bridging the gap between alumni and employment properly. These sessions will include hands-on demonstrations and user-friendly guides to ensure that both faculty and graduating students, who are about to leave the school and will soon be considered alumni, are comfortable with the system. Alumni will be able to manage their profiles, apply for jobs, while employers can post job openings and track alumni applications. This makes it easier to track the whereabouts of alumni, ensuring that the school personnel can access this information whenever needed.

The proponent is currently working on a system that will benefit both the school and the alumni. This system will make it easier for faculty members to monitor alumni employment status without the need to contact them individually. It will generate reports about alumni career progress and manage their personal information. The system will also include a job posting feature, where alumni can



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RESEARCH INSTRUMENT AND STATISTICAL TREATMENT OF DATA									
CHAPTER 4									
RESEARCH AND DISCUSSION									
IMPLEMENTATION PLAN									
GANTT CHART									
BUDGET RECOMMENDATION									
TESTING									
EVALUATION									
FINDINGS									
CONCLUSIONS									
RECOMMENDATIONS									
REFERENCE									
APPENDICES									

Budget Recommendation

The table shows the budget recommendation for the implementation of the system.

Recommended Budget for the Implementation of the System

PARTICULARS	SPECIFICATION	QUANTITY	COST/UNIT (Php)	TOTAL (Php)
Hardware	Desktop	1	25,000.00	25,000.00
Software				
GRAND TOTAL				



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The budget recommendation outlines the estimated costs for developing the Alumni Career Link system. This recommendation budget will help the beneficiaries-such as Central Philippines State University-San Carlos Campus to prepare how much they need for the implementation of the system.

Testing and Evaluation

Testing

Testing involves verifying whether a product or service meets its specified requirements and functions as intended. The system underwent testing to identify any defects, errors, or bugs, ensuring it satisfied the needs and expectations of both end users and administrators at CPSU San Carlos Campus. **Put a picture of a framework that u used during testing and give short explanation**

Evaluation

The Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities is a web application that helps administrators at CPSU San Carlos Campus in monitoring the whereabouts of graduates and tracking their employability. To ensure the system operates effectively and meets its objectives, it underwent extensive testing. These tests evaluated key aspects such as system features, speed, ease of use, and security. The goal was to confirm that the system



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functions reliably, securely stores end users' personal data, and enables administrators to track alumni employment status while supporting decision-making and planning through data visualization. Testing verified that the system performs flawlessly and data is stored accurately. The system can maintain their information consistently. The job board, integrated into every alumnus profile, also the job postings uploaded by the employers approved successful in testing with no instances of missing or incorrect listings. It makes sure every graduate can access to all employment opportunities. The career tracking functionality, which monitors or track the employment status by the updated employment statuses by alumni, performed very well. The post jobs and check profiles worked smoothly too. Test shows that the job posted shows in every alumnus job board. Overall, the system works like it should, a tool for CPSU San Carlos Campus administrators to easily track alumni employment status or whereabouts that also give alumni opportunities by jobs posting.

Findings

The testing process aimed to verify that the Alumni Career Link: A Smart Tracking System Bridging Graduates and Employment Opportunities meets its goals of tracking alumni employment, managing records, and facilitating decision-making through data visualization for CPSU San Carlos Campus administrators. It



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evaluates core functionalities such as data entry, employment tracking, graphical visualization, speed, ease of use, and security. Testing was conducted using a combination of manual assessments by administrators and end-user feedback via survey questionnaires, focusing on real-world usability and system performance.to determined.

Prior to the system's implementation, administrators relied on manual record-keeping to keeps information and track alumni employment. This approach resulted in data redundancy, and inconsistent records. Tracking alumni whereabouts and employment status was time-consuming, and manual data compilation for reports occasionally led to errors. The Alumni Career Link successfully addressed these issues. It accurately stored alumni data, provided real-time employment tracking, and generated graphical visualizations for trend analysis. Testing confirmed that features like job opportunity and user dashboards functioned as intended. Speed and ease of use were rated highly, with administrators noting significant time savings compared to manual methods. Security tests verified that personal data was secured and protected against unauthorized access and no high-severity issues were identified, indicating the system's overall stability and reliability.

To assess the system's effectiveness, administrators and alumni tested its features and provided ratings via a survey questionnaire. The system was



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evaluated based on functionality, usability, speed, security, and support for decision-making. Results showed a grand mean rating of 3.63 out of 4, corresponding to a "very effective" assessment. Respondents praised the system's ability to streamline employment tracking, enhance data accuracy, and provide actionable insights through visualizations, significantly improving upon the previous manual processes.

CONCLUSIONS

The findings confirm that the Alumni Career Link performs reliably, meeting its goal of bridging graduates with employment opportunities while supporting CPSU San Carlos Campus administrators in decision making and easily track alumni by providing a simple, reliable system. The transition from manual methods to this tracking system has markedly improved efficiency, data quality, and alumni engagement, positioning it as a valuable tool for institutional development.

RECOMMENDATIONS

The Alumni Career Link: a smart tracking system bridging graduates and employment opportunities at CPSU San Carlos Campus, built to connect graduates with employment opportunities, performed strongly during testing. Its user profiles worked smoothly, the job board was easy to access, and the tracking



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of graduates' employment status met the basic needs of both alumni and administrators, leaving them satisfied. To make it even better, I recommend enhancing the job board with notifications to ensure alumni never miss out on job openings. For further improvement, adding a search button and personalized alerts would be great—these features would help graduates quickly find the right opportunities by notifying them whenever a new job matching their skills is posted. This enhancement would make the system easier to use, more helpful, and more likable, keeping it great for connecting grads to employers.



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APPENDICES



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Appendix C. Sample Input-Output Reports



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Appendix D Evaluation Tools

Questionnaire for End Users



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Appendix E. Evaluation Results



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Appendix F. Photos during the conduct of Evaluation with the system beneficiaries



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Appendix G. Screen Layouts



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Appendix H. Source Code