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A Comparative Study on Internship Systems of Asian Universities: Educational Elements in Placement Software from Universitas Komputer Indonesia, Universiti Teknologi MARA of Malaysia, and National University-Manila of Philippines

Angelique D. Lacasandile
College of Computing and Information Technologies
National University Manila
Manila, Philippines
adlacasandile@national-u.edu.ph

Glendora V. Tiu
Academic Internship and Placement Office
National University Manila
Manila, Philippines
gvtiu@national-u.edu.ph

Erika Mae L. Valencia
Academic Internship and Placement Office
National University Manila
Manila, Philippines
emlvalencia@national-u.edu.ph

Rachelle F. Marcoso
College of Computing and Information Technologies
National University Manila
Manila, Philippines
marcosorf@students.national-u.edu.ph

Adrianne Bleu R. Canivel
College of Computing and Information Technologies
National University Manila
Manila, Philippines
canivelar@students.national-u.edu.ph

***Abstract*—The emergence of digital technologies has led to the development of various applications, including web-based systems. These systems have been extensively adopted and integrated in diverse ways. In light of this, the National University Academic Internship and Placement Office (NU AIPO) designed the NU AIPO Internship web-based system, which aims to facilitate internship tracking and enable student interns to efficiently manage their internship-related activities. This study aims to perform a comparative analysis between the NU AIPO System and two (2) more similar internship tracking systems: the Web-based internship information system from Universitas Komputer Indonesia, and iMAPS from University Teknologi MARA of Malaysia. In order to obtain data, the study utilized the competitive analysis comparison chart. Analysis revealed that all systems share key features, such as: User Registration, Student Login, Coordinator Login, Announcements, and Requirements and Submission. The Internship Information System of Universitas Komputer Indonesia has integrated a Payment feature. iMAPS from UiTM has demonstrated in their paper an ongoing development of their system. Lastly, NU AIPO System introduced the following features: Calendar, Contact Us, and Career List.**

Keywords—comparative analysis, e-learning platform, information technology, internship, web-based system

I. INTRODUCTION

Internships, in the modern times, have gained recognition as a valuable means of improving and ensuring the employability of graduates. As students are compelled to guarantee that they depart from full-time education possessing a curriculum vitae that demonstrates their employability, there has been highlights on extracurricular work-related activities (ECAs). These curricula involve volunteering, institutional award programs, and work experience placements; all of which are intended to optimise the chances of securing a job [1]. This is where internships come into play.

[4] indicated in their study that graduates with internship experience receive 12.6% more invitations to job interviews. They further suggested that providing students with the opportunity to undertake internships is a highly effective approach for universities to improve the labour market outcomes of their graduates. In addition to this, [5] indicated that internships have the capability to improve students' employability opportunities through equipping them with the necessary skills to navigate the complexities of the work environment. Internship positively influences the overall comprehension, motivation, and aptitudes of the graduates.

Skill gap is a significant challenge the Philippines is experiencing. It is reported that Filipino college graduates faced an average of one (1) year solely in search of employment. On the other hand, high school graduates endured an even longer duration of up to three (3) years [2]. One of the primary causes of this gap is the lack of industry-relevant skills among many graduates. Other causes include; underdeveloped schools, outdated curriculum, limited opportunities, insufficient coordination among stakeholders concerning skills and training, and inadequate accreditation of training programs. With this, the Commission on Higher Education (CHED) proposed the On the Job Training (OJT) or internship program aimed at bridging the gap between the academic knowledge and practical skills [3].

Meanwhile, with the proliferation of emerging technologies, this has led to the development of numerous applications, including web-based systems. These systems have been widely adopted and incorporated in various ways, such as in the development of environmental and water resources web applications [6], as well as in students' and employees' health declaration before entering their campus [7]. In addition to this, health status and symptom burden of patients with heart failure can now be measured with the help of web-based mHealth application [8].

National University Academic Internship and Placement Office (NU AIPO) System is an internship web-based system for the National-University (NU) Manila of Philippines. This system aimed to (1) provide an easy way for student interns to manage their internship-related activities; and (2) to streamline the process of student intern tracking for the NU AIPO. This research study aimed to provide a comparative

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analysis between the NU AIPO System and other internship web-based tracking systems by doing an exploration of their similarities as well as differences; identifying strengths and weaknesses of each along the way.

In today's ever-changing educational and professional environment, where internships hold great significance in improving the employability of graduates, it is crucial to not only acknowledge the importance of internships but also continuously enhance the systems that support them. The objective of investigating the similarities and differences among different internet-based internship information systems and identifying their strengths and weaknesses serves a dual purpose. Firstly, it empowers educational institutions and stakeholders to make well-informed decisions regarding the adoption and improvement of such systems, ensuring that they meet the evolving requirements of students and employers. Secondly, it benefits students and universities by promoting a more streamlined and effective internship experience. This research endeavors to illuminate these crucial aspects, ultimately making a valuable contribution to the progress of internship programs and, consequently, the employability of graduates.

II. Review of Related Studies

This section of paper encompassed a comprehensive review of related studies that have been carefully researched and analyzed to gain a deeper understanding of the specific concepts as well as to provide more background and information to the study.

A. Related Studies

1. WEB-BASED INTERNSHIP INFORMATION SYSTEM

The implementation of an internship program is one of the crucial processes in educational institutions. By offering students an opportunity to gain work experience in industries, employers play a significant role as well. However, the existing internship system is not entirely computerised, leading to errors and difficulties in processing data. Manual recording of certain processes has made it challenging to manage tasks such as payment, submission, collection, and appraisal of internship-related information. Additionally, the lack of an integrated data storage system has resulted in longer durations for the preparation of reports. Moreover, dissemination of information about work practices remains limited, with oral notifications or bulletin board postings being the primary modes of communication to students. The development of an internship information system can address these challenges. The system developed aids: treasures in managing payment and transactions; chief executive in selection of companies where students can carry out their internships; supervisor teachers in distributing application of internships, managing school and company scores; and students with easy access to internship information. The system can streamline the process of report preparation and data collection [9].

2. DEVELOPMENT OF INTERNSHIP MONITORING AND SUPERVISING WEB-BASED SYSTEM

The industrial training internship program is a requirement for the students taking Diploma of Electrical Engineering in the Universiti Teknologi MARA (UiTM) of Malaysia. The students enrolled here are required to complete a total of eight (8) weeks of internship, which can be carried out in either government or private sector organizations, This training serves as an opportunity for the students to be immersed in the actual working environment and provide them with insights and experiences whilst simultaneously aiding them in their development. With this, A web-based system of internship management called iMAPS has been developed for their Industrial Training course. The web-based system was developed to computerize the whole process of practical training and make it accessible online, providing convenience and efficiency for both students and coordinators. Through the portal, students can check their eligibility for internships, register, and monitor their progress in the industrial internship program. The system's integration with a database allows coordinators to manage and monitor the application process. Features include a pre-registration stage for students, and an online system assessment for supervisors to evaluate trainees. For the testing of the system, it will involve a limited number of students acting as users. Since the system is not yet a finished product, it is expected that there will be numerous changes until it can meet the requirements of students, coordinators, industrial supervisor, and visiting lecturer [10].

3. IMPACT OF INTERNSHIP ON EMPLOYABILITY OF UNDERGRADUATE ENGINEERING STUDENTS: A CASE STUDY

Internship is a program designed to provide practical training to undergraduate students, where they will be deployed to different industries so they can obtain real-life experience in the professional and work industry, Internship aims to enhance students' abilities to apply the knowledge acquired from the curriculum to real life scenarios. Additionally, internships offer opportunities for developing essential skills such as teamwork, communication, and leadership. The study sought to evaluate the effect of internships on the employability potential of undergraduate engineering students. Findings revealed that individuals who had the chance to participate in an internship in the industry exhibited a higher degree of employability compared to those who did not. Over the course of the previous five years, the mean employability for students who had undergone an internship was 53%, while the average performance rating for students who succeeded in the industry by means of internships was 82%. Findings also determined that internship is crucial and significant for undergraduates to foster their development and employment capability. The results propose that internships play a significant role in enhancing the employability of undergraduate engineering students [11].

4. DESIGN AND IMPLEMENTATION OF WEB-BASED MANAGEMENT SYSTEM INSTEAD OF MANUAL PROCESS EFFICIENTLY IN ATI, GALLE

It is of utmost importance for academic institutions to implement web-based systems, as these systems enable the faculty to update their knowledge and expertise in order to effectively address the challenges posed by the manual systems currently employed by these institutions. These systems facilitate various activities and offer numerous

advantages. The increasing adoption of web-based systems can be attributed to the growing demand for such systems in line with advancements in information technology. However, the lack of a suitable database or ATI management system software poses a significant challenge, as all documentation work is currently done manually despite the presence of computers and internet facilities. Consequently, the institute's academic environment faces several issues, including higher expenditures on stationary supplies, the need for ample storage space for documents, reduced security for important records, time-consuming information retrieval for students, and difficulties in conducting analysis. Additionally, limited communication capabilities result in weak relationships between parents and lecturers, hindering parental awareness of their child's progress. Moreover, the issuance of character certificates and educational qualification certificates is a complex and time-consuming process that lacks a proper data repository [12].

B. Synthesis

The studies indicated that there are certain challenges inherently present in the manual internship processes, which involve errors, delays, and communication limitations. In order to address these challenges, web-based systems have been developed which have the ability to streamline operations for students, educators, supervisors, and administrators. Moreover, studies have also demonstrated a strong relationship between internships and improved employability, thereby highlighting the practical value of such experiences in preparing students for successful transitions into the job market. This collective evidence supports the adoption of web-based internship tracking systems that will provide efficient management and contribute to students' employability skills development.

III. METHODOLOGY

This section contains the methods that were utilized in conducting the study. It included the data collection, research design, and the utilization of competitive analysis comparison chart; all of which are necessary to address the objectives and research questions involved in the study.

A. Data Collection

In order to obtain the necessary data for this study, the researchers did a search and selection process to identify and isolate two (2) comparable and similar internship tracking systems within the Asian context, particularly in the Philippines and neighboring regions. Following the evaluation of options, the two selected systems which were deemed most suitable were the following: Web-Based Internship Information System; and Development of Internship Monitoring and Supervising Web-Based System. The aim of this careful data collection is to ensure a balanced exploration between all the features, functionalities, and attributes.

B. Research Design

In order to effectively analyze the difference between the three (3) systems, the study utilized the Comparative Analysis Research Design. Comparative analysis is a significant approach that refers to the observation of two or more similar entities to determine their shared characteristics as well as their differences. This technique is widely employed across various disciplines and fields to aid in comprehending the commonalities and distinctions between products [13].

C. *Competitive Analysis Comparison Chart*

Competitive Analysis

	Products	Product Quality	Rate	Segments - Covered	Sales after services	Trust	Advertisment	Customer Feedbacks	Transportations - Location concern	Sales points	Stability	Vision / Mission	Applications covered
Self													
Competitor - I													
Competitor- II													
Competitor - III													
Competitor - IV													
Competitor- V													
Total													
* Rank Each factor - 1 To 10 according to research & analysis of market													

Figure I. Competitive Analysis Matrix [14]

For the methods of the study, a Competitor Analysis Comparison Chart is utilized. A competitor comparison chart is a tabular representation that compares a product or enterprise against similar brands based on a predetermined set of attributes. The process of conducting a competitive analysis involves research on dominant competitors to acquire an understanding of their areas of expertise, shortcomings, offerings, and marketing tactics. The primary objective of this is to comprehend their successful practices and areas of improvement and leverage this knowledge to strengthen one's own system [15].

For the analysis of the study, the aforementioned matrix was utilized as the guide. Two (2) of the studies present in the Review of Related Studies section will be compared with the NU AIPO system, resulting in a total of three (3) studies altogether. The focus was to identify and list down the key features of each study. Subsequently, the observed features were compared with those of NU AIPO System.

During the implementation of comparison matrix, rows were used to represent each of the systems under consideration. On the other hand, the columns were dedicated to the various key features outlined. If a feature was present in a system, it was marked with a check, signifying its inclusion. Conversely, if a feature was not found, it was denoted with a cross, indicating its absence.

This systematic approach enabled the clear visualization of the alignment as well as the disparities between the key characteristics of the three studies. By employing competitive analysis matrix, valuable insights and data were obtained, paving the way for a comprehensive and informative analysis.

D. Comparison Chart

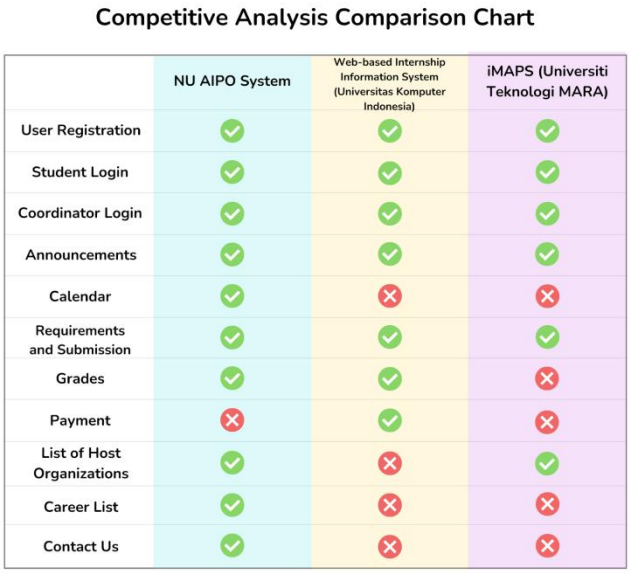

Figure II. Comparison Chart of NU AIPO system, Internship Information System from Universitas Komputer Indonesia, and IMAPS from UiTM of Malaysia

The figure above shows the competitive analysis comparison chart between the following: Web-based Internship Information System from Universitas Komputer Indonesia, iMAPS from Universiti Teknologi MARA of Malaysia; and NU AIPO System of National University Manila from Philippines. The following features are observed: User Registration, Student Login, Coordinator Login, Announcements, Calendar, Requirements and Submission, Grades, Payment, List of Host Organizations, Career List, and Contact Us.

The mentioned figure encapsulated a total of eleven (n=11) significant features, which were evaluated across the three systems. This comparison sought to uncover the attributes of each system by highlighting the presence or absence of these features in their respective contexts.

The Web-based Internship Information System from Univertas Komputer Indonesia showcased a different feature profile. Four (n=4) out of 11 key features were notably absent, which are the following: Calendar, List of Host Organizations, Career List, and Contact Us. The remaining seven (n=7) were found to be present in the said system

On the other hand, the iMAPS system exhibited its distinctive feature distribution. Among the 11 key features, five (n=5) were notably absent, including Calendar, Grades, Payment, Career List, and Contact Us. Conversely, the remaining six (n=6) features were present within the iMAPS system.

Lastly, the NU AIPO system exhibited an inclusion of (n=10) features, leaving only one (n=1) feature, which is Payment. The system exhibited coverage among the following: User Registration, Student Login, Coordinator Login, Announcements, Calendar, Requirements and Submission, Grades, List of Host Organizations, Career List, and Contact Us.

E. Observed Features

TABLE I. OBSERVED FEATURES

Features	Description
User Registration	Where users can generate individual accounts to access specific features based on user roles
Student Login	Portal for student interns to log in and access their internship-related information and tasks
Coordinator Login	An exclusive login area for internship coordinators to manage and oversee the internship program
Announcements	Platform for communicating important updates, notifications, and/or policy changes to users
Calendar	A visual representation of key dates, deadlines, meetings, and other events relevant to the internship program
Requirements and Submission	Section for viewing the necessary requirements and submitting any document that may be needed for the internship
Grades	Where students can view their grades/feedback, and where coordinators can assess and provide feedback on the performance of student interns
Payment	Where financial transactions related to the internship program are processed
List of Host Organizations	List of companies and organizations collaborating with universities for internships
Career List	Potential job opportunities within partnering companies
Contact Us	Section for user inquiries, feedback, and communication with platform administrators

The table above showcases the features observed and their respective descriptions. The table provided serves as the foundation for creating the comparison chart, demonstrating the similarities and differences of the three (3) systems.

F. Features and Description from Web-based Internship Information System of Universitas Komputer Indonesia

TABLE II. OBSERVED FEATURES AND DESCRIPTIONS OF WEB-BASED INTERNSHIP INFORMATION SYSTEM OF UNIVERSITAS KOMPUTER INDONESIA

Features	Description
User Registration	The process for students to create an account to log in
Student Login	The process for students to enter the system with their access
Coordinator Login	Where supervisors can obtain access after entering the system
Announcements	Management of news/announcements regarding internship
Requirements and Submission	Where internship submissions as well as collection of reports occur
Grades	Where students can view their grades, where coordinators can provide feedback and evaluation
Payment	Where the treasurer can manage payments made by the students

Table 2 consists of the observed features within the Web-based Internship Information System from Universitas Komputer Indonesia, Significantly, the inclusion of Payment feature stands out, allowing the treasurer to efffectively manage student payments. This highlights the facilitation of the aforementioned system to the essential financial transactions involved in the internship programme.

G. Features and Description from iMAPS of Universiti Teknologi MARA of Malaysia

TABLE III. OBSERVED FEATURES AND DESCRIPTIONS OF IMAPS FROM UNIVERSITI TEKNOLOGI MARA OF MALAYSIA

Features	Description
User Registration	Uploading of students' names to the iMAPS

Student Login	Can access the system to update their personal information
Coordinator Login	Where coordinators can log in to have access to monitoring
Announcements	Students can be informed regarding the status of their application
Requirements and Submission	This is where students can upload the necessary files for internship applications
List of Host Organizations	Shows the host organization that offers the internship programme

Table 3 outlines the distinct features within the iMAPS system, each accompanied by its description. Overall, these features highlights their dedication to align the functionalities with the study's objectives: fostering transparent communication, streamlined application processes, and a user-friendly interface for both students and coordinators.

H. Features and Description from NU AIPO

TABLE IV. OBSERVED FEATURES AND DESCRIPTIONS OF NU AIPO SYSTEM

Features	**Description**
User Registration	Where either coordinators or students can register for an account
Student Login	Provides a portal for registered student interns to access their personalized features
Coordinator Login	Provides a portal for registered internship coordinators to access their personalized features
Announcements	Where users can see announcements. Coordinators have an exclusive feature to create an announcement
Calendar	A virtual calendar where users can set reminders, meeting, and deadlines
Requirements and Submission	Where students can track their internship documents and submit the necessary ones; where coordinators can monitor the submission of student interns
Grades	Where students can view their grades, where coordinators can provide feedback and evaluation
List of Host Organizations	Shows partnered companies and host organizations for internships
Career List	Provides a list of potential jobs
Contact Us	Users can use this section to submit inquiries, complaints, or recommendations

Table 4 provides the comprehensive overview of the key features present within the NU AIPO system. The mentioned system was able to cater to the needs of both student interns as well as internship coordinators, including user registration, customized login portals, announcement management, interactive calendar, internship document monitoring and submission, transparent access to grades and feedback, list of partners and host organizations, potential careers, and a direct "Contact Us: channel for user engagement.

IV. DISCUSSION

This section discusses the similarities and differences found between the NU AIPO System and two (2) more internship tracking systems.

The comprehensive comparison between the three internship tracking systems have resulted to significant implications that offer valuable insights into their strengths, weaknesses, and potential areas for improvement. The observed similarities and differences across the systems shed light on their functionalities and align with the objectives of their development, providing essential considerations for future improvement of their systems.

Upon observing the comparison chart, it was acknowledged that all the systems analyzed share five (5) common features. Said features are the following: User Registration, Student Login, Coordinator Login, Announcements, and Requirements and Submissions. It may be inferred from this observation that these five features are the necessary ones any internship tracking must have. These are crucial for the effective functionalities, providing backbone of user engagement, communication, and document management. Consequently, any future system development must acknowledge these features as essential building blocks for their own system.

The distinctive inclusion of the Payment feature within the Web-based Internship Information System from Universitas Komputer Indonesia implies a notable advancement in digital financial transaction and its security. As highlighted by [8], this feature streamlines the payment process and offers an organized platform for treasurer oversight, thereby improving the financial efficency of the internship program. This insight carries significant implications for the institutions seeking to develop their own tracking system.

In the case of iMAPS system, the concise feature distribution can be noted with their objective primarily focusing on students applying for specific internship programs. However, while the system is tailored to meet a specific phase of the internship process, it highlights the limitations of their system. The ongoing development phase of iMAPS, as noted in [9], emphasizes that the system is still under consideration for further assessment and evaluation until it perfectly meets the user requirements. This highlights the significance of iterative design cycles, user feedback integration, and continuous improvement to ensure that the system evolves in accordance with the user needs and technological advancements.

The NU AIPO System's integration of the Calendar feature is a crucial step towards the enrichment of the system's functionality. It provides a dynamic scheduling tool that significantly aids in organizing and coordinating a wide range of internship-related activities such as; meetings, deadlines, and reminders. This aligns with the observations made by [16], which highlight the efficacy and usefulness of digital calendars in setting up alerts and reminders to enhance scheduled events. Several learning management systems (LMS) utilize the Calendar as well, such as Microsoft Teams [17], and Canvas LMS [18]. Therefore, the inclusion of such feature serves to greatly enhance user engagement, improve time management, and contribute to the overall efficiency of the internship experience.

The incorporation of Calendar functionality within the NU AIPO system is intended exclusively for internship-related activities. This exclusivity guarantees that students and employers can efficiently manage and align the said tasks without any confusion. Moreover, this feature allows employers to access and collaborate with NU students for internship coordination, fostering a more focused and productive engagement.

Aside from the Calendar, NU AIPO also integrated in their system the following: Contact Us, and Career List; which can be observed as notably absent from the other two systems. The distinctiveness of this integration highlights the effectiveness of user-centric design and comprehensive feature inclusion in enhancing user experiences. Through the career list, users can browse through available careers and their respective descriptions. Meanwhile, the inclusion of

Contact Us feature facilitates seamless communication, where users can immediately place any concern, inquiry, or feedback without leaving the site, as noted in [19].

While the Payment feature can be notably seen absent from the NU AIPO System, it can be acknowledged that there were no internship transactions involved in their internships. This is due to the internships in National University being free from any additional charge, and that their internships occur with their partner companies.

In conclusion, the implications of the study facilitate a comparative study, observing and highlighting the similarities as well as difference of the systems. These implications paves the pathway for refinement and enhancement. The observations derived from this study emphasizes the essential features that establish an effective and comprehensive internship system.

V. Conclusion And Recommendations

The study conducted a comprehensive comparative analysis of NU AIPO along with other two (2) research papers: the Web-based Internship Information System of Universitas Komputer Indonesia, and Development of Internship Monitoring and Supervising Web-Based System from Universiti Teknologi MARA of Malaysia. The analysis revealed common foundational features which are: User Registration, Student Login, Coordinator Login, Announcements, and Requirements and Submission. The Internship Information System of Universitas Komputer Indonesia had their Payment feature. iMAPS from the UiTM, on the other hand, demonstrated their ongoing development. Lastly, the NU AIPO System introduced the following features: Calendar, Contact Us, and Career List; This study's findings highlight the significance of technology in transforming internship procedures, promoting collaboration, and enhancing the readiness of students for the job market.

Future studies can focus on enhancing the current systems by integrating the missing features identified in this analysis. This will effectively improve the three systems with additional features. It is recommended to have a development of new tracking system that combines these identified features, while also introducing new key concepts or aspects not yet introduced in this study.

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References

[1] O'Connor, H., & Bodicoat, M. (2017). Exploitation or opportunity? Student perceptions of internships in enhancing employability skills. British Journal of Sociology of Education, 38(4), 435-449.

[2] Song, T.K., & Tang, J. (2016). Managing skills challenges in Asean-5 final report, 93

[3] Patacsil, F. F., & Tablatin, C. L. S. (2017). Exploring the importance of soft and hard skills as perceived by IT internship students and industry: A gap analysis. Journal of Technology and Science education, 7(3), 347-368.

[4] Baert, S., Neyt, B., Siedler, T., Tobback, I., & Verhaest, D. (2021). Student internships and employment opportunities after graduation: A field experiment. Economics of Education Review, 83, 102141.

[5] Kapareliotis, I., Voutsina, K., & Patsiotis, A. (2019). Internship and employability prospects: assessing student's work readiness. Higher Education, Skills and Work-Based Learning, 9(4), 538-549.

[6] Ramirez, C. E., Sermet, Y., Molkenthin, F., & Demir, I. (2022). HydroLang: An open-source web-based programming framework for hydrological sciences. Environmental Modelling & Software, 157, 105525.

[7] V. K. Caballa, C. E. Correa, K. Z. Itulid, D. L. J. Borgoña and R. R. Guadaña, "NU SAFE Faculty: A Microsoft PowerApps Application for Health Monitoring in National University Philippines," *2022 13th International Conference on Information and Communication Technology Convergence (ICTC)*, Jeju Island, Korea, Republic of, 2022, pp. 1320-1325, doi: 10.1109/ICTC55196.2022.9952794.

[8] Baik, D., Reading, M., Jia, H., Grossman, L. V., & Masterson Creber, R. (2019). Measuring health status and symptom burden using a web-based mHealth application in patients with heart failure. European Journal of Cardiovascular Nursing, 18(4), 325-331.

[9] Hasti, N., Lesari, S., & Gustiana, I. (2019, November). Web-Based Internship Information System. In IOP Conference Series: Materials Science and Engineering (Vol. 662, No. 2, p. 022090). IOP Publishing.

[10]binti Jaafar, A. N., binti Rohafauzi, S., bin Mohd Fauzi, F. D. H., & bin Amron, M. T. (2017, December). Development of internship monitoring and supervising web-based system. In 2017 IEEE 15th Student Conference on Research and Development (SCOReD) (pp. 193-197). IEEE.

[11] Krishna, B. V., & Babu, J. S. (2021). Impact of Internship on Employability of undergraduate Engineering Students: A Case Study. Journal of Engineering Education Transformations, 34(4).

[12] Attanayake, D. N. P., & Thilanka, R. G. S. (2021). Design and implementation of web-based management system instead of manual process efficiently in ATI, Galle. *International Journal of Scientific y Research Publications (IJSRP)*, 174-180.

[13] Liza, U. (n.d.). Comparative analysis: What is it & how to conduct it. *QuestionPro.* https://www.questionpro.com/blog/comparative-analysis/#:~:text=Comparative%20analysis%20is%20a%20way,good%20decisions%20about%20key%20issues.

[14] Needham, K. (n.d.). *Competitive Analysis*. Carnegie Mellon University. https://www.cmu.edu/swartz-center-for-entrepreneurship/assets/Olympus%20pdfs/Competitive%20Analysis%20.pdf

[15] Lyons, K. (2022). What Is a Competitor Analysis & How to Do It (with Template). Semrush Blog. https://www.semrush.com/blog/competitive-analysis/.

[16] McManus, D. (2022). Unlock enhanced productivity with digital calendars. Nylas. https://www.nylas.com/blog/unlock-enhanced-productivity-with-a-digital-calendar/#:~:text=The%20benefits%20of%20using%20a%20digital%20calendar&text=Setting%20up%20alerts%20and%20reminders,links%20to%20enhance%20scheduled%20events

[17] *Manage your calendar in Microsoft Teams - Microsoft Support*. (n.d.-b). https://support.microsoft.com/en-gb/office/manage-your-calendar-in-microsoft-teams-46ef12a4-0aaf-45ae-91a8-b3315d69f64d

[18] *How do I use the Calendar as a student?* (2023, June 17). https://community.canvaslms.com/t5/Student-Guide/How-do-I-use-the-Calendar-as-a-student/ta-p/534

[19] Adames, I. (2023). Contact Us Page Examples: 44 Designs For Inspiration. *Search Engine Journal*. https://www.searchenginejournal.com/examples-contact-us-pages/378518/