

Revolutionizing Higher Education Internship: A Development of a Web-Based Platform to Improve the Relationship between Internship Seekers, Employers and Educational Institutions

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Abstract— Internship programme is a crucial element in the curriculum of a bachelor's degree in higher education institutions. It plays a pivotal role in providing students with an opportunity to experience both the academic and professional realms. With the proliferation of emerging technologies, internship placement for students can finally be made more efficient with the help of web-based services. This study aims to design a web-based internship system called “NU AIPO” System (National University Academic Internship and Placement Office) which aimed to streamline the internship placement process of student interns. This study utilized prototype modeling, wherein the system undergo revisions until the satisfactory system is achieved. After utilizing the user story approach, FIGMA platform was used in order to create the web-based design. The final NU AIPO System is composed of the following: Homepage, User Registration and Login, and Student Intern Interface. Overall, this study highlighted the internship processes; and how technology can play a significant role towards streamlining the procedure of getting an internship for the undergraduate students.

Keywords—e-learning, education, internship, placement, web-based system

I. INTRODUCTION

Internship programme is a crucial element in the curriculum of a bachelor's degree in higher education institutions. It plays a pivotal role in providing students with an opportunity to experience both the academic and professional realms. Moreover, it has the capability to serve as a conduit where students can gain understanding of the practical aspects of their future careers [1].

Internships present opportunities to undergraduate students. By undergoing through this programme, the practical knowledge and understanding of students are proven to have a significant increase. The students are provided with the chance to experience real-life work, and with this they obtain better preparation for professional life [2]. Moreover, this enables students to increase the probability of their employment [3].

A web-based system refers to a digital platform that can be accessed through the use of a web browser or an Application Programming Interface (API) [4]. Web-based platforms for education have been developed to address various challenges. An example of how web-based

application is used for education is [5]. They have proposed and designed a web-based system named “Mo”, and have been designed to serve as an effective platform for sharing of educational resources. Aside from facilitating the crowdsourcing of educational resources, Mo provides a comprehensive set of exercises and tests as well.

Operating as a higher education institution, the university is obligatory to uphold the principles stipulated in the CHED Memorandum RA 7722, referred to as the Higher Education Act of 1994 (CHED, 2023). Which outlines three core objectives for the university: enhancing degree programs to align with industry demands, fostering partnerships between academia and industry, and strengthening career guidance services. Internships in the Philippines had been shown and proven to be highly effective and had positive effects with regards to the employability skills, development, and the behavior of student interns about their future careers. Moreover, this is a necessary implementation that have resulted in positive experiences for student interns [6].

Technology has established itself as an essential instrument in the daily lives of people [7]. With the proliferation of emerging technologies, internship programme for students can finally be made more efficient with the help of web-based services. This study aims to design a web-based internship system called “NU AIPO” System (National University Academic Internship and Placement Office) which aims to streamline the internship programme by student interns.

A. General Objectives

This research aimed to design a web-based platform for placement office in a collaborative environment, that enables interns to efficiently manage their internship-related tasks and responsibilities. The goal was to simplify the process of internship activities and the efficiency of the NU AIPO Office.

B. Specific Objectives

This study aimed to achieve the following objectives:

1. Streamline internship program

- a) Enables student interns and other stakeholders to monitor and track their internship related activities.
 - b) Provide student interns with quick insights of their personal achievements, important submission, and notification that needs attention to complete the internship project.
2. Enhance Communication and Collaboration
- a) Design a software that allows different stakeholders to access and post important updates, guidelines, and process in one platform.
 - b) Facilitate systematic communication with stakeholders especially with industry partners.
3. Document Management and Requirements
- a) Simplify the process of submitting necessary documents and requirements.
 - b) Enhance the accessibility and availability of important document.

II. RELATED LITERATURE

This section of the paper delved into a comprehensive exploration of related studies. Through exploring these sources, this paper aimed to establish a solid foundation of existing knowledge, and highlight key concepts and findings that contribute to the understanding and advancement of the chosen research topic.

A. Related Studies

1. THE UNIVERSITY INTERNSHIP PROGRAM AND ITS EFFECTS ON STUDENTS' EMPLOYABILITY READINESS

The memorandum under order 2017-104 by the Commission on Higher Education (CHED) defines internship as a practical application of classroom learning in a regular work environment, as stated in the Article III. Article 1, Section 1 establishes that the primary objective of the internship program is to give students with the opportunity to supplement their formal learning with practical knowledge, skills, and attitudes, and to gain hands-on experience in a recognized Host Training Establishment (HTE). With that, internships have emerged as an approach to combine classroom learning with real-world experiences. The study aimed to analyze the internship program and its perceived impact on the readiness of university students for employment. Findings revealed that internships have a positive impact on the students' employability readiness. Particularly, the internship program was perceived as highly effective and it had positive effects on the development of employability skills and attitude towards future careers [8].

2. THE IMPLEMENTATION OF INTERNSHIP AS A COURSEWORK IN TEACHING AND LEARNING VOCATIONAL EDUCATION

Internship is a widely adopted practice in higher education institutions in the country of Malaysia. The program is implemented to enrich the learning experience as well as the technical abilities of students. Those who participate in the internship program are able to not only enhance their professional attributes, but as well as to establish professional networks and career paths. This approach serves as a means of connecting students with practical employment experience. Moreover, the findings revealed that internships improve the technical knowledge

and soft skills of students, while also gaining more knowledge through the guidance of onsite supervisors and engineers [1].

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

For the Electrical Engineering students enrolled at Universiti Teknologi MARA (UiTM) in Malaysia, Industrial training is a mandatory training that needs to be taken. To streamline the practical training process and offer greater accessibility, a Web-Based System of Internship Management has been developed. The portal provides features such as internship eligibility verification, registration, visit scheduling, and monitoring of the industrial internship program. By enabling online application status checking, the system promotes a more efficient process for students. Online pre-registration by students is also a key feature of the system. Moreover, students can enter information about the organisation they would like to apply for an internship program [9].

4. STUDENT INTERNSHIP PLACEMENT MANAGEMENT SYSTEM USING PYTHON

Managing the placement of internships can present a significant challenge for educational institutions, as it requires the handling of large amounts of data and communication with various stakeholders. The traditional manual approach is both time-consuming and prone to errors. The Student Internship Placement Management System (SIPMS) is proven to be an efficient solution to the significant problems faced by the training and placement department of a college. It ensures quick and effortless access to placement procedures and related activities, thereby streamlining the entire placement process. SIPMS reduces repetitive tasks through its system that allows for one-time registration, thus improving efficiency. Additionally, it verifies the eligibility criteria before accepting candidates. The SIPMS system was created utilizing the Python programming language and the Django web framework. It encompasses various components such as user administration, student profile administration, and placement process administration. User administration permits different levels of access, while student profile administration enables students to upload and manage personal and educational information. The testing and validation phase encompassed functional testing, performance testing, and user acceptance testing in order to guarantee that the system adhered to the required standards. Users' feedback indicated that the system had a positive impact on the placement process. The deployment phase involved the installation and configuration of the SIPMS system in the production environment, the migration of data from the previous system to the new system, and the establishment of user accounts and access levels. The phase of maintenance and support encompassed the continuous upkeep, updates to the system, resolution of software issues, training for users, and provision of assistance to guarantee the optimal and proficient utilization of the SIPMS system [10].

B. Synthesis

Educational institutions may encounter a considerable hurdle in the administration of internships' arrangement, as it involves the management of substantial quantities of data and the facilitation of communication with multiple

stakeholders. Internship programs implemented by CHED for higher educational institutions were proven to have a positive relationship with the overall improvement of student interns. These include improving their learning self-efficacy, real-life skills, professional attributes, technical knowledge, soft skills, and their skills to establish professional networks and career paths. Moreover, it was found to have a positive effect on the employability of students as well as their attitude towards their future careers. Meanwhile, the development of a web-based system for student interns has been proven to establish a more systematized procedure for students. Altogether, this synthesis highlights the significance of student placement and internship to improve the interns' skills, and the potential of technology to streamline the process of the internship program, ultimately making the whole procedure efficient and accessible to students.

III. METHODOLOGY

This section was composed of the methods that were utilized in conducting the study. It includes the Software Development Life Cycle (SDLC) model employed, and the data collection and techniques of the study.

A. Prototype Modeling

Prototype is a system that is designed to encapsulate the fundamental characteristics of a later system [11]. Meanwhile, prototyping model refers to a type of software development model in which a prototype is constructed, subjected to testing, and undergoes revision until a satisfactory prototype is achieved [12]. The prototyping model is composed of six (6) phases: requirements gathering; quick design; prototype building; initial user evaluation; refining prototype; and product implementation and maintenance.

B. Data Collection and Techniques of the Study

For data collection, a user story approach was implemented, which proved to be a highly valuable tool in defining the essential features for the NU AIPO System. The user story effectively guided the development process through highlighting the specific functionalities that the system should incorporate from a user's perspective [13]. Meanwhile, to be able to realize these envisioned features, a web-based design approach was conducted with the utilization of FIGMA platform. This enabled the creation of a visually intuitive and user-friendly interface, ensuring that the system's functionalities aligned with user expectations.

IV. DISCUSSION

This section of the paper outlined and describes the various features that constitute the NU AIPO system, including its homepage navigation, user registration and login processes, student intern interface, announcement and calendar tools, requirements submission section, and internship grades evaluation.

A. Integration, Features, and Functionality

NU AIPO aimed to serve as a centralized platform, effectively streamlining the monitoring and administration of all internship-related activities. The system was optimized to ensure efficient user experience, mitigating any potential

frustration that could arise from delays. The system's intuitive navigation system has been designed to enhance its user-friendliness. This feature enables users to easily explore various features and access related information promptly upon clicking.

1. HOMEPAGE



Fig. 1. Main Homepage

The Homepage serves as the central access point, facilitating users' navigation through different sections and features within the system. It will be the primary starting point, ensuring effortless exploration of various areas and enabling users to execute specific actions efficiently.

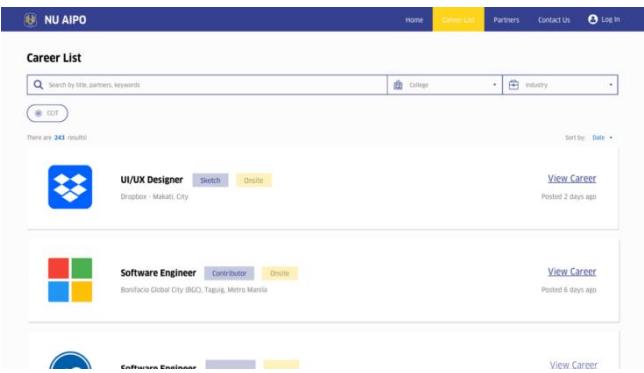


Fig. 2. Career List Page

A prominent feature on the Homepage is the Career List, which provides valuable insights into potential job

opportunities within the company or organization for students who have completed their internships.

Fig. 3. Partner Companies Page

Additionally, the Homepage showcases a distinguished Partner Companies section. Users will find a meticulously curated list of esteemed companies and organizations that maintain collaborative relationships with the National University. By clicking on any of these partner companies, users will be redirected to their official websites, offering insights into these significant collaborations.

Fig. 4. Contact List Page

To facilitate communication, the Homepage featured a Contact Us section. Users can utilize this section to submit inquiries, complaints, or recommendations, establishing direct interaction with the website or application administrators and the customer support team. Essential contact details, including email addresses, phone numbers, and physical addresses, are readily available, ensuring a convenient and efficient means of reaching the relevant personnel.

2. USER REGISTRATION AND LOGIN

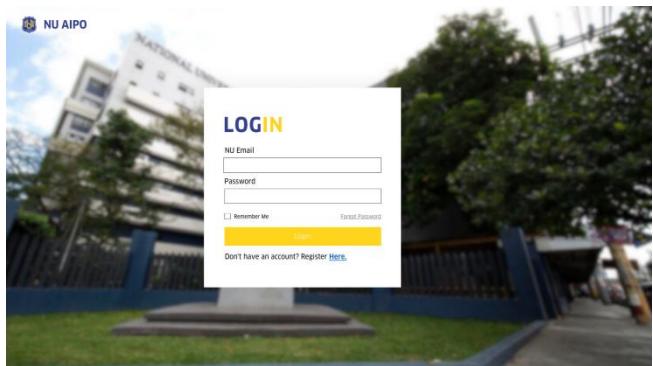


Fig. 5. Login Page

The User Login feature provides a secure way for registered users to access personalized features based on their designated roles, ensuring a seamless experience within the platform.



Fig. 6. Student Intern Registration

The User Registration feature is intended to facilitate the creation of accounts on the platform, granting users access to specific features based on their designated roles as a Student Intern. The primary objective of this feature is to streamline platform usage, ensuring utmost security and personalized experiences for all users. During the registration process, Student Interns will be required to furnish their Full Name, NU Email, Password, Repeat Password, Course Enrolled In, Respective NU Branch or Campus, and, if applicable, their Section.

3. STUDENT INTERN INTERFACE

Fig. 7. Main Dashboard

The student intern interface streamlines the internship experience, facilitate effective communication and collaboration, and will help student interns manage their tasks, documents, and progress throughout their internship journey. It provides a comprehensive platform for interns to maximize their learning and make the most of their internship opportunities.

a) ANNOUNCEMENT AND CALENDAR

This screenshot shows the 'Announcements' section of the NU AIPO system. It displays four recent announcements:

- Attend a Webinar**: Today. Reminds users to submit weekly reports promptly.
- Team Meeting Next Week**: Yesterday. Mentions a mandatory team meeting scheduled for next week.
- Attention Student Interns**: Yesterday. Invites students to participate in a survey regarding their schedule, current thoughts, and status.
- Offices are closed tomorrow**: 7/17. Informing users about the closure of office hours.

Fig. 8. Announcement Page

The announcement feature serves as a robust communication tool, establishing an efficient means of correspondence between the esteemed internship coordinators and the student interns. Through this section, critical updates, essential notifications, and any pertinent alterations pertaining to the internship program or platform were conveyed with precision and clarity, ensuring comprehensive awareness among all relevant stakeholders.

This screenshot shows the 'Calendar' section of the NU AIPO system. It displays the months of July and August with specific events listed:

- July:**
 - 8:00 am: Morning Assembly
 - 2:00 pm: Weekly Assessment
 - 4:00 pm: Coordinator Consultation
 - 6:00 pm: Team Dinner
- August:**
 - 8:00 am: Morning Assembly
 - 2:00 pm: Weekly Assessment
 - 4:00 pm: Coordinator Consultation
 - 6:00 pm: Team Dinner

Fig. 9. Calendar Page

Furthermore, the calendar feature provides a comprehensive overview of the student intern's entire duration within the internship program. By prominently presenting important events, significant milestones, submission deadlines, and other pertinent dates germane to the internship program, this feature functions as an invaluable resource, facilitating the meticulous organization of tasks and responsibilities for the interns.

b) REQUIREMENTS

This screenshot shows the 'Requirements' section of the NU AIPO system. It displays a grid of six required documents:

- (CCIT-FD-014) Parent/Guardian Consent Pre-Deployment**
- (CCIT-FD-001.003) Internship Agreement Pre-Deployment**
- (CCIT-FD-015) Internship Plan Pre-Deployment**
- (2021-AIPO-010) Weekly Activity Report Internship Duty**
- (2020-AIPO-010) Attendance Report Internship Duty**
- (2021-FD-00200) Supervisor's Evaluation Completion**

Fig. 10. Requirements Page

The requirements section provides a centralized platform for students to submit and track their internship documents. A comprehensive table displays all required documents and their submission status. Access to the documents is restricted to students and their designated internship coordinator for confidentiality. Pre-deployment requirements must be approved by the coordinator before gaining access to other documents. Additionally, it is a valuable resource center within the system, offering pre-designed forms, customizable templates, and informative manuals to assist users in their tasks and activities. After the internship, a survey will be conducted to gather feedback and evaluate the program's effectiveness. After two to three years of utilizing the intern tracker system, there will be a comprehensive survey to gather valuable updates from our former student interns.

c) INTERNSHIP GRADES

This screenshot shows the 'Internship Grades' section of the NU AIPO system. It displays a table of grade criteria and their equivalents:

Grade Criteria	Equivalent	My Grade
Internship Portfolio	5%	***
Completion of Preliminary Documents: <ul style="list-style-type: none"> • Report • Consent • Recommendation Letter • Medical Clearance • Internship Agreement • Internship Plan 	5%	***
Completion of the required S2S Academy Courses	5%	***
Weekly Internship Reports	20%	***
Reflection Paper	15%	***
From the Industry Supervisor as evidenced by the final evaluation report (Industry)	50%	

Fig. 11. Internship Grades Page

The internship grades feature provides valuable feedback and evaluation to student interns. The final grade is based on the following components: 35% Internship Coordinator's evaluation (including portfolio, preliminary documents, S2S Academy courses, and weekly reports), 15% Reflection Paper, and 50% Industry Supervisor's Evaluation Report. This ensures a well-balanced and rigorous assessment of the internship experience.

V. CONCLUSION AND RECOMMENDATIONS

This study highlighted the processes of internship; and how technology can play a significant role towards streamlining the manual procedure of getting an internship for the undergraduate students. Through the development of prototype of NU AIPO System, this aims to design a user-friendly and efficient platform that helps the student interns

to effectively manage their internship-related tasks and responsibilities. This objective is achieved through the provision of an accessible and user-friendly interface that is easy to navigate.

Future studies can focus on the NU AIPO system being immediately put into effect within the National University student community. Future studies can concentrate on evaluating the system's real-world impact and refining its features on the basis of student feedback, ultimately contributing to an optimised and technologically advanced internship experience at National University.

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