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CeDS Alumni Engagement System

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Abstract

Alumni are the individuals who represent the university outside of the educational environment. Alumni now play an important role for all current students and their university. From the study, Centre for Diploma Studies (CeDS), Universiti Tun Hussein Onn Malaysia (UTHM) do not have any suitable channel for them to collect, update and manage all their information regarding alumni data. This project offers a solution, which is to develop an alumni website to ensure that the institution can retain the relationship that benefits both. The parties involved in this project are alumni of CeDS. The system contains several internal functions that meet the needs of alumni such as creating an alumni account, viewing information, and updating the system, following alumni activities, searching and viewing alumni members. The study uses the Waterfall method which acts as a guideline throughout the development of this project. This project was developed using Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), JavaScript, and Hypertext Processor (PHP) as well as MySQL for the database. Visual Studio version 1.79.2 is used as a software that generates the codes to control overall programmes and build the interface for users to interact. After the testing was conducted, all the components and software have reacted as intended which produces the desired result which is the CeDS Alumni Engagement System. This project chooses Universiti Teknologi Mara (UiTM) as benchmarking for the alumni systems development to get more knowledge and information about what the alumni system usually has. After the project was completed, all the goals were achieved, and the outcomes complied with the objectives.

1. Introduction

UTHM has eight faculties and one centre which is the Center for Diploma Studies (CeDS). CeDS was offically established on November 4, 2009, and has an estimated total of 13000 alumni since the CeDS was established. This project develops an alumni engagement system for the CeDS Alumni. Alumni are the most important asset of any organization. They are the people who represent the college and university in the real world [1]. An CeDS Alumni Engagement System (CAES) helps institutions to strategically build and maintain their alumni network, by facilitating engagement, communitybuilding, networking, communications amongst many more functionalities.

And thus, a secondary array of positive marketing takes place. CAES can manage and centralize the alumni data. It also can combine to use it in any future endeavours, mainly donations and fundraising [2]. Alumni engagement strategies should start well before students graduate. This will help them to build more effective relationships and long-term networks.

CAES was developed as a website approach. Our objectives are to develop the Web Management System, to provide a suitable data storage and to carry out a survey and analysis of the effectiveness of the system. Therefore, the project scope is for the CeDS alumni and the diploma students of UTHM to maintain the relationship with the university. This project is designed to allow the alumni of CeDS alumni to create an alumni account, access information and update the system, follow alumni activities, search, and view alumni members. This study will be focusing on only the CeDS alumni as the system is designed for them. To summarize, this project will strive on building a powerful alumni website which will provide several benefits such as it could build a mutual relationship between students and alumni, having a career conversation and it could also enhance CeDS branding.

1.1 Literature Review

In this chapter, the developer has been done including the existing systems related to our project. These sources are taken from website, journals and articles that related to our project. We also include the comparison between existing system and features for guidance on the developer that should be done to get the best research results. In addition, the developer has got the inspiration from the best examples to improve the system by comparing between existing system.

Table 1 *Comparison between existing system*

System	Advantages	Disadvantages
MyAlumni UiTM	Offers information about the university such as vision, mission, principles, objectives, and activities.	Students cannot login or sign up into the website unless they are alumni.
National University of Singapore Alumni	Features include online event management, alumni community building, online member registration.	Lacks online fundraising feature.
Harvard Alumni	Has activities to bring together alumni and associate members.	The alumni cannot engage with one another or even the students

Table 1 shows a comparison between 3 existing systems with advantages and disadvantages. Thus, with the research on these existing projects, the developer built a web-based system which is CeDS Alumni Engagement System (CAES) for better improvement. Also, the system in the design of this system is user-friendly and give new approach to of information storage in system for CAES.

2. Methodology

Methodology is an important thing to ensure the development of the system runs smoothly and optimistically time consuming based on the System Development Life Cycle (SDLC). Furthermore, the development process is a top-to-bottom process that includes phases like planning, analysis, design, implementation, testing, and maintenance. The SDLC is one of several viable approaches to system development [3], [4]. CAES determined to use the Waterfall model due to the framework of the project seems to resemble the model and it is sequential.

The method that was used in this study is the Waterfall Methodology [5]. With the help of the guidelines of the waterfall methodology, this project will be finished by the intended objective requirement. Requirement analysis, design, implementation, testing, and maintenance are the five phases that make up this methodology. In this method, each phase must be completed before the next phases can begin. In this case, there will be no overlapping in the phases.

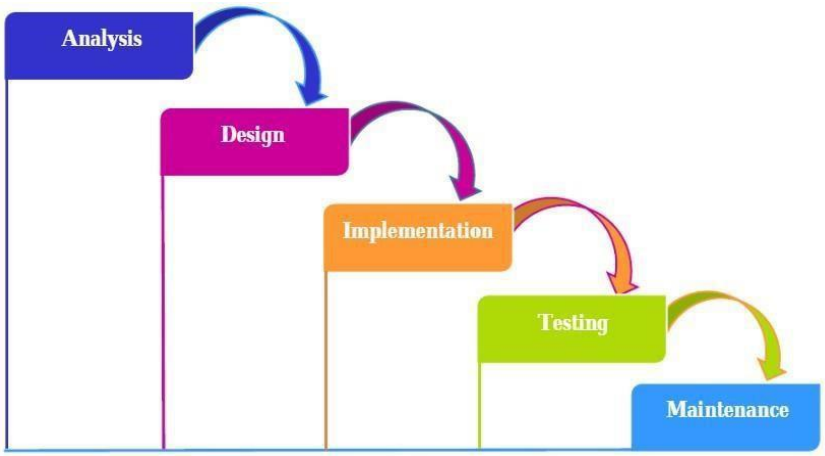

Fig. 1 *Waterfall methodology phases*

2.1 Analysis Phase

The analysis phase, also known as software requirement specifications (SRS) as in Fig. 1, is a comprehensive description of the behaviour of the software that will be produced. During this phase, both functional and non-functional requirements are identified. Purpose, scope, perspective, functions, software qualities, user characteristics, and database requirements are a few examples of functional requirements. This phase also focuses on defining the critical elements required for the alumni website, so that the project can provide useful and helpful information to alumni and end users. It includes researching and gathering information and expertise about the database, which will be used for the CeDS alumni.

2.2 Design Phase

The Design phase comprises the planning and problem-solving processes for software solutions. The phase is about designing software, which includes additional efforts to build software [6]. This CAES project has created a suitable interface for the alumni website and ensures that all the necessary requirements and solutions to the problem are specified. All diagrams such as context diagrams and data flow diagrams (DFD) were created during the website development process as an orderly framework that specifies the project objective and scope to ensure a smooth functioning system. This phase has been given a lot of attention because it could potentially make a big impact on the process of developing the CAES website. The components utilized in project design have a vital influence in determining the final design of the project.

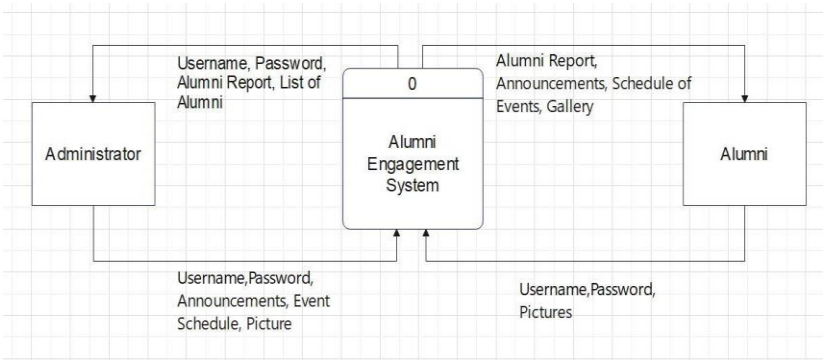

Fig. 2 *Context diagram*

2.3 Implementation Phase

This is the phase of the project where the results of the previous phases are produced. The implementation phase refers to the understanding of project requirements (refer Fig. 2) and the design of those specifications into a solid execution programme, database, or website via programming and deployment [7]. This is where the actual code is developed and compiled into an operating application, as well as the database and text files. The programming languages used to develop the system are HTML, JavaScript and PHP while MySQL is used as the database. This project takes the information from the previous stage and turns it into a functional system. The code applications are based on the needs and specifications of the alumni website, with some testing and implementation also taking place. If considerable changes are required during this stage, it may be necessary to return to the design step. After connecting all the components and compiling with code, iteration testing was performed to ensure that the project is working properly and to improve the system website. The outcome was tested and double-checked to confirm that the developer finished the project successfully. Finally, the project was analysed to confirm that it adhered to all the project's guidelines and objectives.

2.4 Testing Phase

This phase, also known as verification and validation, contains a procedure for ensuring that the project expectations match the original performance and specifications and that it fulfils its intended purpose. During this phase, problems and system malfunctions are discovered and rectified or redefined as needed. This phase goal is to ensure that the CAES website meets the requirements in the first phase of the life cycle. This phase concludes when it has been validated that the software meets the requirements. The CAES website functionality testing encompasses numerous testing factors such as user interface, database testing, client and server testing, and fundamental CAES website operations. It is carried out to test the functionality of each feature on the website.

2.5 Maintenance Phase

The final phase in the Waterfall methodology is the maintenance Phase. Right after a successful end of the testing process, the programme is made available for productive access. It is the process of adjusting a programme functionality after it has been delivered and deployed to increase output, correct errors, and improve performance and quality [8]. During this phase, additional maintenance behaviours such as adapting the system to its environment, accommodating new user requirements, and improving software stability can be conducted. The CAES will handle updates and the release of new versions of the alumni website as bugs are detected and user requests for modifications are received after the successful system has launched.

3. Result and Discussion

The results made are after the system is fully completed and ready for use by the users, in other word the outcomes of the techniques described in the experimental section [9]. Basically, the objective of this system is to develop the web management system. Therefore, because of the methodology phase, CAES is a system to collect data for all alumni that exists specifically for diploma students and has many features that can work well. Among them are job vacancy searches, finance such as Donations/*Sadaqah, Tabung Alumni* and Endowment and space to share useful information. Discussions were conducted by preparing 20 questionnaires set to targeted respondents. The respondent will evaluate and provide views on this system.

3.1 Results

A complete system that has been developed based on the objective and requirement is sketched and implemented, including the flow, functionality, database, and interface. The flow and functionality of the system and the additional features had been listed in the planning phases that will set the CAES from the other alumni systems. The Entity Relationship Diagram (ERD), which outlines the data that will be stored in the system, was used to design the database. To provide a premium, interactive interface that can motivate users to engage with the system, the interface has undergone numerous refining processes before achieving the final system. Fig.2 below shows the main page or dashboard for the alumni to interact with others. There are several other features that could help alumni to engage more with the website such as the post option.

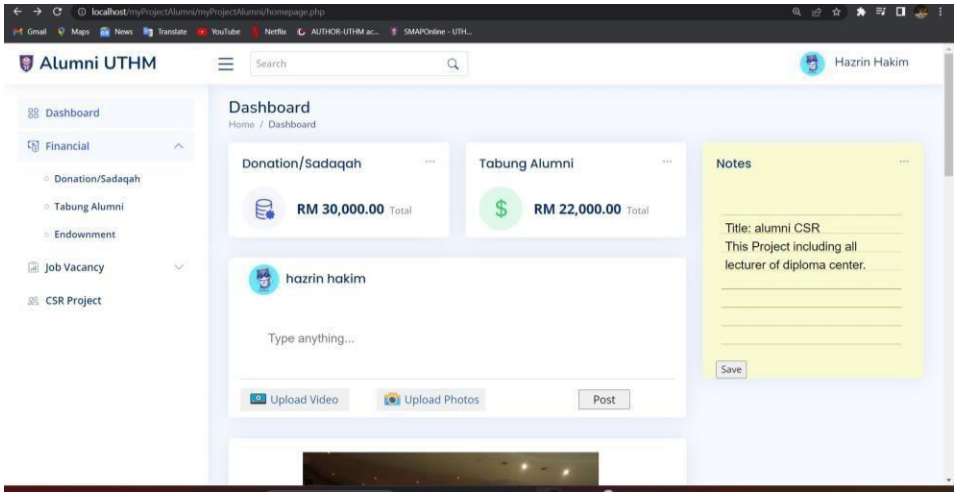

Fig. 3 *Dashboard*

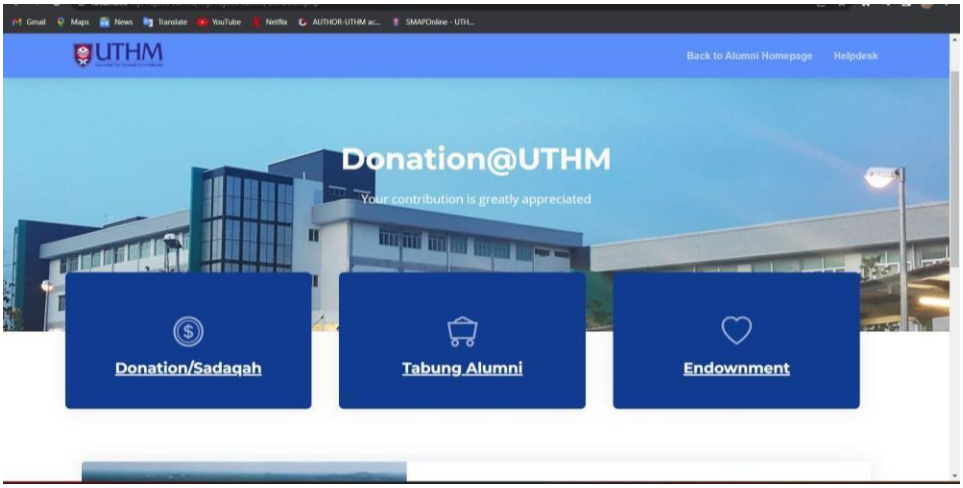

Fig. 4 *Donation/ Sadaqah page*

Fig. 5 *Tabung Alumni page*

Fig.3, Fig. 4 and Fig.5 show the highlighted features of the CAES which is the CSR Project that allows alumni to make Donation/*Sadaqah, Tabung Alumni*, and Endowment.

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3.2 Discussion

This project was systematically created, covering a wide range of functionalities that were smoothly integrated and met all the stated requirements. Rigorous testing and verification processes have guaranteed that all the key functions run smoothly and efficiently, producing the anticipated results. Following the administration of a well-designed questionnaire to acquire useful insights from users, an array of constructive feedback was obtained, revealing invaluable suggestions and recommendations for further improving the system. These insightful responses from respondents have acted as a critical stepping stone towards refining the system, better aligning it with their expectations, and raising the entire user experience to unsurpassed levels. Through the feedback, there are also several weaknesses and strengths that could be implied to add into the system. Fig. 6, Fig. 7, Fig. 8 shows the data that have been obtained through several questions asked from the form.

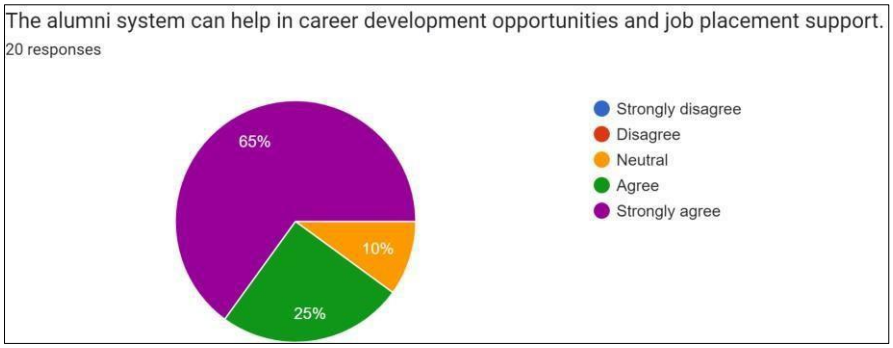

Fig. 6 *Career development opportunities and job placement*

In Fig. 6 shown, a total of twenty respondents were carefully selected and interviewed for this study to gain their perspectives on the significance of developing a CeDS Alumni Engagement System (CAES) for the Centre for Diploma Studies (CeDS) at Universiti Tun Hussein Onn Malaysia (UTHM). Three important questions were asked to these respondents to assess their viewpoints and identify the possible benefits of having a CAES in place. The findings showed a significant consensus among respondents, with the majority of them agreeing on the critical role that a CAES would play in improving the educational experience at CeDS UTHM. It was well-known that establishing CAES might provide several benefits not just to current students but also to alumni of the institution. The possible benefits were increased productivity, improved communication, simpler operations, and a more interesting learning environment.

4. Conclusion

In conclusion, the objective to develop the CAES had been successfully achieved by implementing all the needs of the alumni system in this project. Through the testing, this project was proven to reach the expected outcome which fulfilled the objective of this project. As for the future improvements, a few recommendations such as fixing bugs including maintenance to develop a better system for the alumni to interact in this system. As for this, the system could help Centre for Diploma Studies (CeDS), Universiti Tun Hussein Onn Malaysia (UTHM) in improving their engagement with fellow alumni. Furthermore, to make the system more efficient to use, evaluation will be conducted from time to time to fulfil the user satisfaction on the CAES. Following that, the CAES will be more dependable, effective and beneficial, and it may be used for further research.

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Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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