

Web-Based Application System for Monitoring Alumni Active Status on Social Media

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Abstract— Alumni are graduate from a college or university. Every university wants to stay in touch with all their alumni. Contact information is usually provided by alumni during graduation. After getting a job, alumni usually move from family home to a location near the workplace. Alumni contact information such as new addresses and phone numbers are usually not updated by alumni. However, after graduation, alumni are usually still using the same social media account used during the study. The university can use social media to communicate with their alumni. Alumni status in social media should be active in order to be contacted by the university. A web-based application system for monitoring Alumni Active Status on Social Media was developed to help the university to monitor their alumni active status on social. This system allows university to store the social profile information of their alumni. The university can easily update the events of university and interact with alumni on social media. There are three groups of user for this system: admin, lecturer and alumni. The main objective is to develop a system to monitor the active status of alumni on social media using Rapid Application Development (RAD) methodology. This methodology consists of several phases such as requirements planning, user design, construction and cutover. The results of the evaluation suggested that this system is useful and easy to use. The respondents also satisfied with this system that can give benefits to the university, lecturer and alumni. The study contributes towards an understanding the system requirements and user interface of a web-based application of System Monitoring Alumni Active Status on Social Media. It can be a reference model for developers and researchers in the area to develop a similar web-based application enhancing the capabilities in creating and monitoring the active status of alumni on social media.

Keywords— *Web-based application; social media; alumni; monitoring system*

I. INTRODUCTION

Social media is one of the medium that university and alumni can interact and communicate easily. In particular, social networking systems allow users to communicate more efficiently and associate themselves with other users, thus creating a web of connections among the users of the social networking system [1]. It can be easier for the university and alumni to interact to each other through this system. Users commonly share information with one another via the social networking system [1]. So, the staff also can easily update the current events at university to the alumni through the System

Monitoring Alumni Active Status on Social Media (SMAASSM) as one of the social networking systems.

Alumni of UUM-SOC are the students who graduated from School of Computing (SOC), University Utara Malaysia (UUM). Normally, the SOC staff always loss contact with the alumni after they graduated from the university. Furthermore, the school also unable to maintain the alumni current contact information after they graduated from the university. Besides, the alumni also not know the current events at the university after they graduated. The link between a university and its graduates is broken once they finish their studies [2]. These are the reasons to develop this system. The active status of SOC alumni on social media can be monitor easily through this system. The main objective is to evaluate the usability of System Monitoring Alumni Active Status on Social Media (SMAASSM) that was developed using Rapid Application Development (RAD) Methodology.

This system was developed for SOC staff to monitor the SOC alumni active status on social media through their Facebook or WhatsApp. The system can easily store and update the contact information of the alumni after they graduated from the university. Using this system, SOC staff can also make announcement easily to the alumni for any events.

II. BACKGROUND AND RELATED STUDIES

SOC alumni is the students who graduate from School of Computing, University Utara Malaysia who already conferred with degrees in Information Technology. Bachelor of Science (Information Technology) have four majoring such as software engineering (SE), computer networking (CN), artificial intelligence (AI) and information management (IM).

SOC always missed contact with the alumni after they graduated. The school also unable to store and maintain the contact information of the alumni after they graduated from the university. The school need a system that can monitor the alumni active status on social media through their Facebook or WhatsApp account. In this system, SOC staff can monitor and make announcement easily to the alumni for any event. SOC alumni themselves can update the information through the system effectively.

Users utilize social networking systems because social networking systems allow them to create connections with

friends and interact with each other. Social networking systems allow users to view other user's profile, organize events, and invite friends to participate in those events [3]. A system for monitoring alumni active status on social media known as social networking system shall be easier for the administrative staff of the school or university to monitor the alumni active status on social media after they graduated from the university. Social networking systems also allow a user to share information with other users, for example, by posting content on the social networking system [3]. This system also can detect the information of the alumni such as their name, email address, contact number, and home address.

Social networking systems often make use of user-defined groups of connections. For example, a user may wish to publish information to certain user-defined groups of the user's connections in the Social networking system [4]. The functionality for SOC staff can send message to the alumni based on the group of connection on the social media through this system. It will be easier for them to update the current event at the school or university to the alumni through this system effectively. Social networking systems provide various mechanisms to allow this user interaction, including tools or functionality allowing users to schedule and coordinate activities or events including groups of users. [5]. This system is specific for the alumni from School of Computing (SOC) in University Utara Malaysia (UUM). All the alumni from UUM-SOC can use this system after they graduated from the university.

This system is mainly developed for several types of users and different type of users carrying different roles and accessibilities. The group of user list such as system admin, staff and alumni. For system admin, this group of the user categorized as an expert user. They also have the experience with using web-based application and understand well on the flow of the system. Besides, they have full accessibility to the whole system which allows them to create, update and delete the account for the user. For staff, this group of the user only can access the system with id that provided from the admin. The user must update personal information to the system and store in the database. They should have an enough experience in using web-based application and familiar to the system function.

System admin and SOC staff are allowed to manage alumni such as view status of alumni (active or not) on the social media. They are also allowed to send message to the alumni, delete message and receive message from alumni on the social media through this system. WhatsApp has grown in popularity due to its benefits such as, being able to send real-time messages to an individual or groups of friends simultaneously, low-cost and privacy [6]. As for the purpose of sending and receiving messages either between groups or individuals, WhatsApp provides various functions, for instance text messages, audio files, attached images, link to any websites and video files which can be shared [7]. It is one of the mediums to interact to other people easily on the social media. In addition, Facebook is the most popular social networking site in the world providing the opportunity to maintain and establish relationships, to share media contents and experiences with friends, and to easily communicate with them [8]. Based on this system, it can be easier for SOC staff to maintain the relationship with the alumni after they graduated on the social media through their Facebook account.

Another types of user – Alumni, can only access this system using the ID provided by the system administrator. They must update their personal information in the system. This information will be stored in the database. This system uses phpMyAdmin as the database. phpMyAdmin database is a popular and free open source tool used for administration of MySQL with a web browser [9]. It can be easier for SOC staff to maintain the data of the alumni easily using this database system. The user should have an enough experience in using web-based application and familiar to the system function.

III. METHODOLOGY OF THE STUDY

Methodology defined as the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge.

Rapid Application Development (RAD) is life cycle strategy which is intended to provide a development much faster and get the results with better quality compared with the results achieved through traditional cycle [10]. The project methodology that the developer used in this project was Rapid Application Development (RAD) for methodology model. Rapid Application Development (RAD) consists of four phases which is requirements planning, user design, construction and cutover. These phases are aimed at structuring development tasks so that each phase can be implemented properly.

Process of Rapid Application Development (RAD):

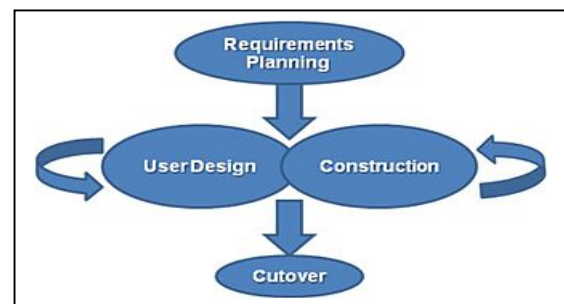


Fig. 1 Process of Rapid Application Development (RAD) Methodology

A. Requirements Planning Phase

In requirement planning phase, developer needs to understand about the problem statement. It can be easier to overcome the solution with existing application and to identify the processes that will be supported by the proposed application. In this project, a developer should discuss the selected title which is System for Monitoring Alumni Active Status on Social Media with the project supervisor. Then, need to identify the problem of the application and study the problem to overcome the issue efficiently.

B. User Design Phase

In this phase, the user will interact with systems analysts and develop models that represent all system processes, inputs and outputs. For this project, interface sketches and database designs are generated using technique such as storyboards or any software such as stars UML as a framework before the

project is fully developed. This phase also should to analysis the use case that the system needs such as login and so on. Before that, a developer needs to build a flow charts, use case diagrams, sequencing diagrams to understand the project's journey. At the end of this phase, after choosing the best design, document of design is generated.

C. Construction Phase

For construction phase, the users continue to participate and can still suggest any changes or improvements as actual screens, or report are developed. The tasks are programming and application development, coding, unit-integration and system testing. Through this phase, the development of project begins with creating of the source code using the programming language like java, html and others. In the next steps, testing will be performed on the system. Developers need to make sure that the system can be used and displayed properly so that it can runs smoothly without any problem. The developer has to make sure that the project meets the objectives.

D. Cutover Phase

During the cutover phase, the tasks performed involve data conversion, full scale testing, system change over and user training. Developer should test the system that has been developed and conduct a survey among users who will use the system. After that, developer must identify the weaknesses or the lack of the system. The result from this survey can help the developer to improve the system efficiently. At the of this phase, the report was prepared.

IV. DESIGN AND DEVELOPMENT

The first phase of RAD is requirement planning phase. The requirement for this 'System Monitoring Alumni Active Status on Social Media' was divided into two which are functional requirement and non-functional requirement. The table 1 shows the functional requirement of the system and table 2 shows the non-functional requirement of the system. Three priorities are specified for the requirements that are Mandatory (M), Optional (O) and Desirable (D). Listed below describe the functional requirements of the system:

- M – Mandatory requirements
(The system must do)
- D – Desirable requirements
(The system preferably should do)
- O – Optional requirements
(The system may do)

A. List of Requirements

Table 1 FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENT OF SYSTEM MONITORING ALUMNI ACTIVE STATUS ON SOCIAL MEDIA

ID	Functional Requirement Description	Priority
1.0	Login	
1.1	Admin can login with username and password.	M
1.2	Staff can login with username and password.	M
1.3	Alumni can login with username and password.	M
1.4	Staff or Alumni can reset the password once they forgot.	M
2.0	Manage User	
2.1	Admin can search user (Staff and Alumni).	M
2.2.	Admin can add user account (Staff and Alumni).	M
2.3	Admin can delete user account	M

	(Staff and Alumni).	
2.4	Admin can update user information (Staff and Alumni).	M
2.5	Admin can view all user information (Staff and Alumni).	M
3.0	Manage personal info	
3.1	Staff and Alumni can update their information.	M
3.2	Staff and Alumni can view their information.	M
4.0	Manage alumni	
4.1	Admin, Staff and Alumni can view the status of alumni who are active or not on the social media.	M
4.4	Admin can delete staff and alumni message while staff and alumni can only delete their own message.	D

ID	Non-Functional Requirement Description	Priority
1.0	Performance	
1.1	The system must response to user request or user input not more than 5 seconds.	M
2.0	Reliability issues	
2.1	For a single user, the system should crash no more than once per 10 hours.	M
2.2	If the systems crash, it should behave perfectly normal when reloaded again.	M
3.0	Usability issues	
3.1	System should be able to process within 20 second.	M
4.0	Security	
4.1	All the user must have own account to use this system.	M
4.2	The system must ensure every user have unique ID.	M
4.3	The system only allows member login once the username and the password are match.	M

B. Use Case Diagram

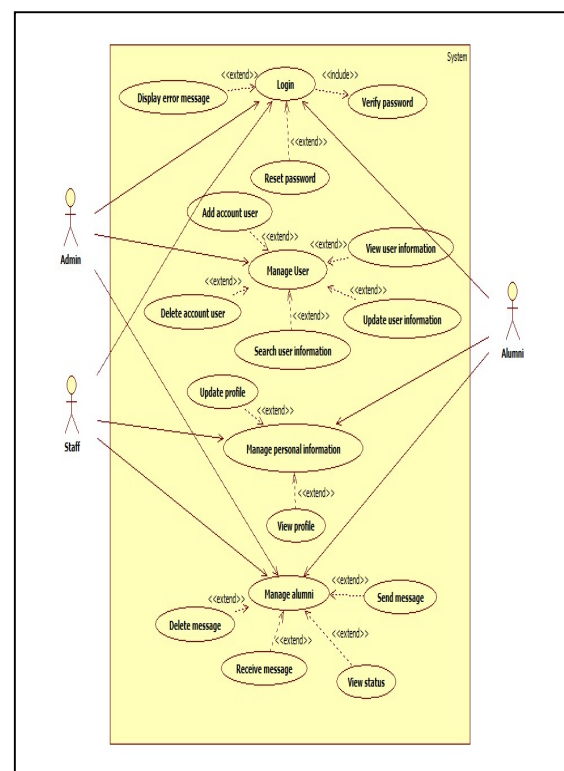


Fig. 2 Use case diagram for System Monitoring Alumni Active Status on Social Media

The use case diagram is detailed out to show the dynamic behavior of the system. The operation includes add, update, delete and view all the details.

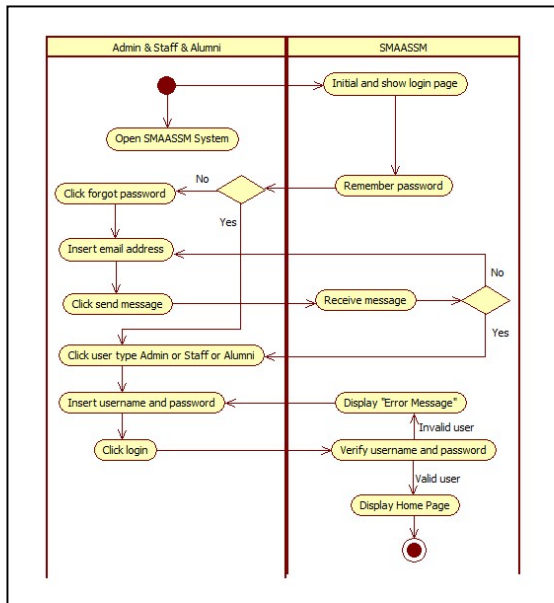


Fig. 3 The activity diagram of a System Monitoring Alumni Active Status on Social Media. for register and log in activity.

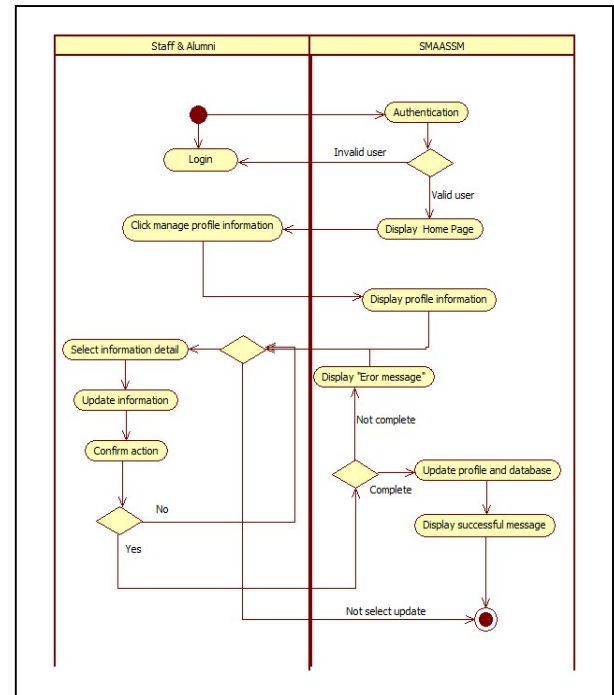


Fig. 5 The activity diagram of a Monitoring Alumni Active Status on Social Media for update personal information in activity

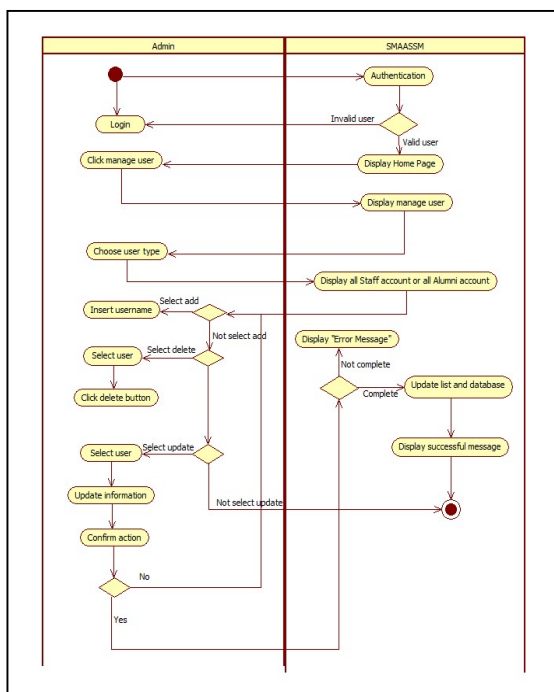


Fig. 4 The activity diagram of a System Monitoring Alumni Active Status on Social Media. for add user account in activity.

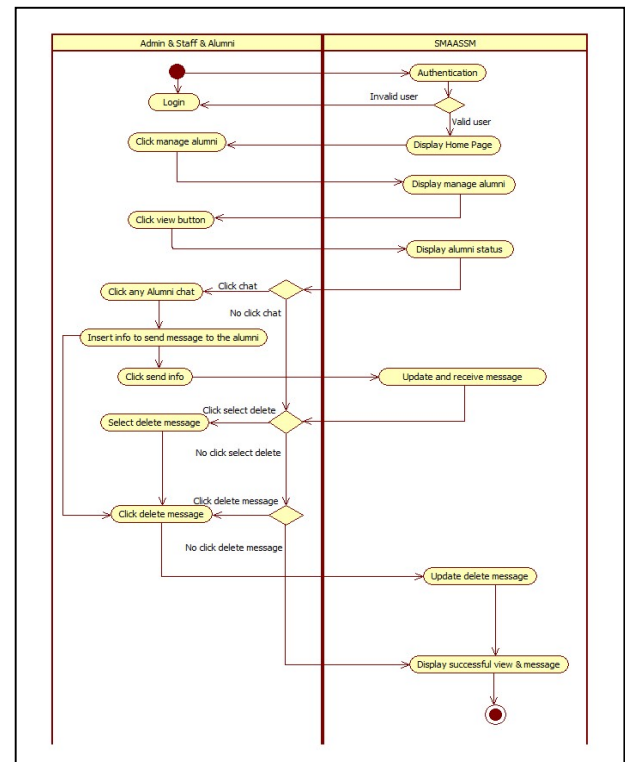


Fig. 6 The activity diagram of a Monitoring Alumni Active Status on Social Media for monitor alumni active status in activity

C. Class Diagram

The structural components in this system are represented in a class diagram as illustrated in Figure 7. The class diagram in Figure 7 shows the attributes and operations of the application in this system.

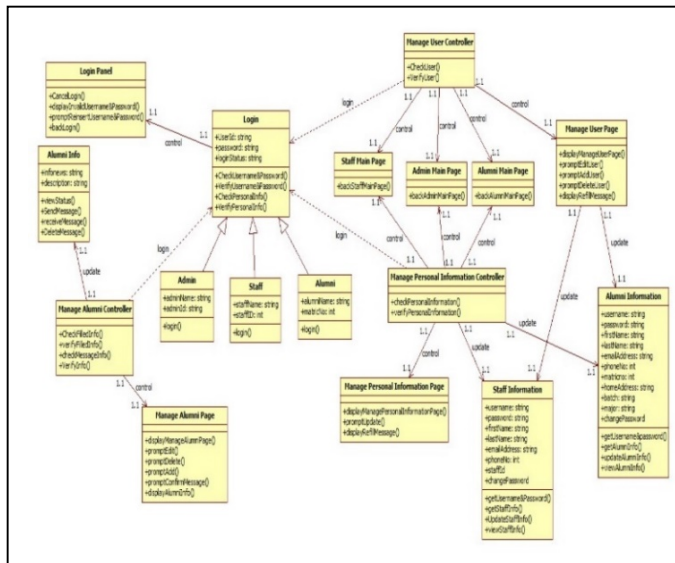


Fig. 7 Class diagram for System Monitoring Alumni Active Status on Social Media

V. PROTOTYPE DEVELOPMENT

A prototype of System Monitoring Alumni Active Status on Social Media (SMAASSM) was developed. It represents the requirements explained in the previous subsection. This system was developed as the web-based application using JavaScript, XAMPP, HTML, CSS, SQL Server and PHP. System Monitoring Alumni Active Status on Social Media should present information in a way that is easy to understand. Screenshots in Figures below show the selected interfaces of the system.



Fig. 8 Interface for admin to login the system

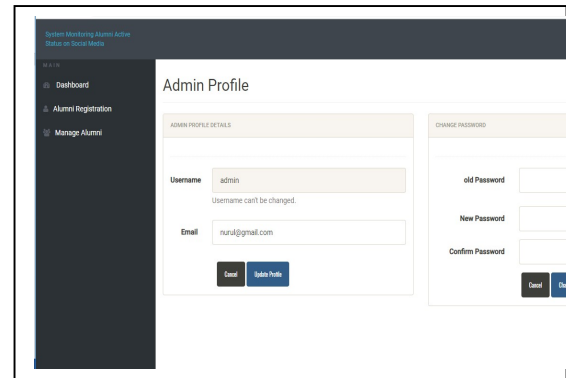


Fig. 9 Interface for admin to update the profile info

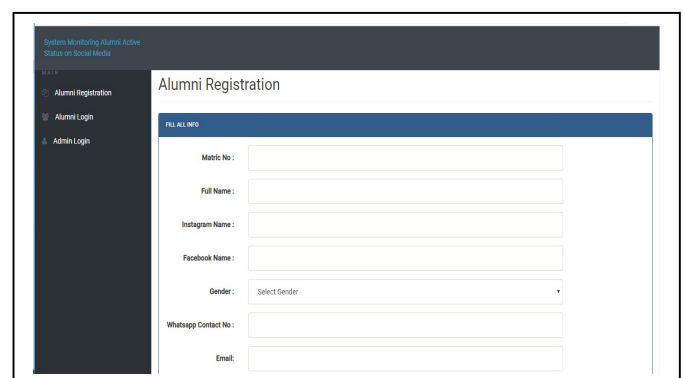


Fig. 10 Interface for admin to register alumni account

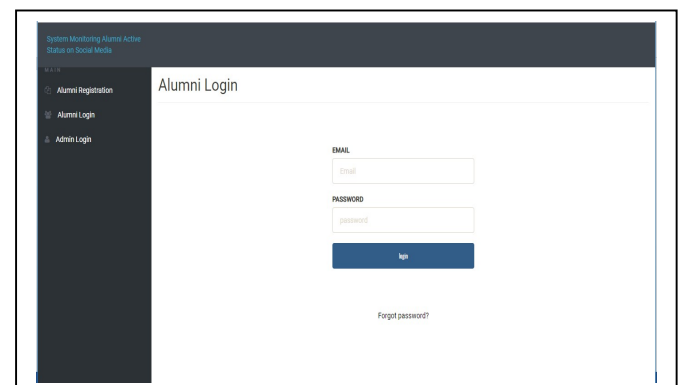


Fig. 11 Interface for alumni to login the system

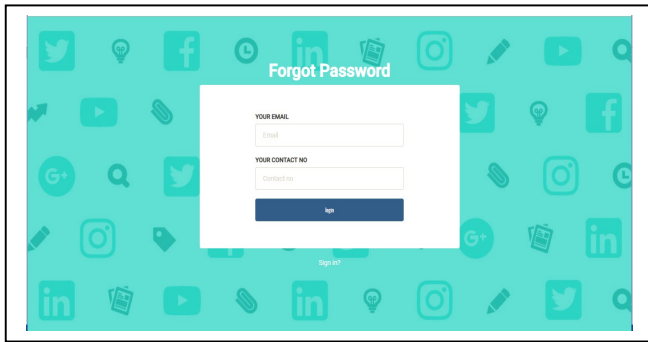


Fig. 12 Interface for alumni to insert email and contact no if forgot password

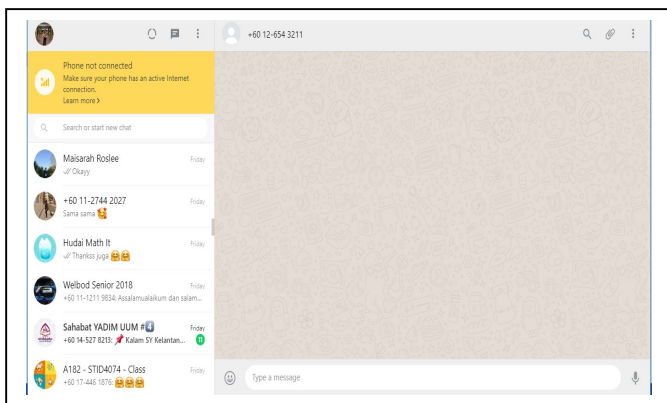


Fig. 13 Interface for admin and staff to monitor the active status of alumni through their WhatsApp

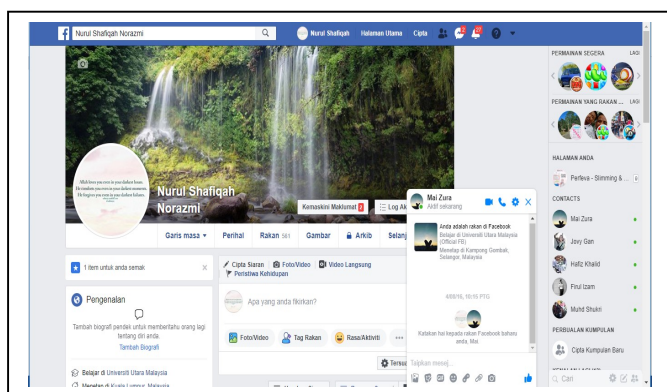


Fig. 14 Interface for admin and staff to monitor the active status of alumni through their Facebook

VI. EVALUATION

Type of evaluation used is Usability Testing Evaluation. With Usability Testing, can uncover 'the why' behind participant interactions. By understanding this intention, this evaluation can improve experiences, driving greater satisfaction and loyalty. This evaluation testing in term of usefulness, ease of use and usefulness of the system. In terms of usability will be assessed through how the system works from beginning to the end. Therefore, users will evaluate whether the system is easy

to use or not. The Objective of the evaluation for System Monitoring Alumni Active Status on Social Media:

- To evaluate if this system fulfils their purpose in term of usefulness for the System Monitoring Alumni Active Status on Social Media.
- To evaluate if this system fulfils their purpose in term of ease of use System Monitoring Alumni Active Status on Social Media.
- To evaluate if this system fulfils their purpose in term of satisfaction for the System Monitoring Alumni Active Status on Social Media.

This evaluation was conducted on 20 participants from UUM which had picked randomly. Based on data collected, majority of the respondents are female respondents with the age range 21 to 25 years old.

The descriptive statistics of the results derive from the responses or evaluation:

A. The Evaluation Setting

A usability evaluation was conducted on 20 respondents, consist of lecturer and alumni from University Utara Malaysia, School of Computing. The respondents were approached randomly at Dewan Muadzam Shah (DMS) during I-RIA event. The instruments used for the evaluation were the web-based application of System Monitoring Alumni Active Status on Social Media and a post-task questionnaire. The post-task questionnaire has two sections. Section A asked the respondents about the demographic information while Section B asked the respondents opinion about this system in a seven-point Likert scale where one represents strongly disagree, and seven represents strongly agree. The respondents performed the following step-by-step procedure for the evaluation: (1) read and signed a consent form, (2) interacted with the web-based app as stated in the experiment procedure, and (3) answered the post-task questionnaire.

B. The Respondent's Demographic Information

Analysis of the respondents' demographic information revealed that both 50% of them were male and female. 60% of the respondents aged between 21-25 years old. 95% of the respondents used internet daily and 20 respondents (100%) have their own account of social media such as Facebook and Instagram. It shows that the social media is the medium to interact and communicate easily to other people. Furthermore, 20 respondents (100%) have WhatsApp contact number. This mean that the people nowadays use WhatsApp to communicate effectively to each other and easily get information from other people on social media through WhatsApp. In addition, Furthermore, 20 respondents (100%) think that keep information in the system is much better for nowadays. This mean that the people use the system to keep and store the data information through the system easily.

VII. THE USABILITY OF THE SYSTEM

An analysis was conducted on the respondents' responses in Section B of the post-task questionnaire. The section measures the respondents' perception towards System Monitoring Alumni Active Status on Social Media usefulness and ease of use. It also measured the respondents' satisfaction towards System Monitoring Alumni Active Status on Social Media.

Graph 1, 2, 3 and 4 reported the frequency and average of the responses. The respondents rated five or six of the post-task scales for the three aspects of the usability. None of the respondents rated one or two.

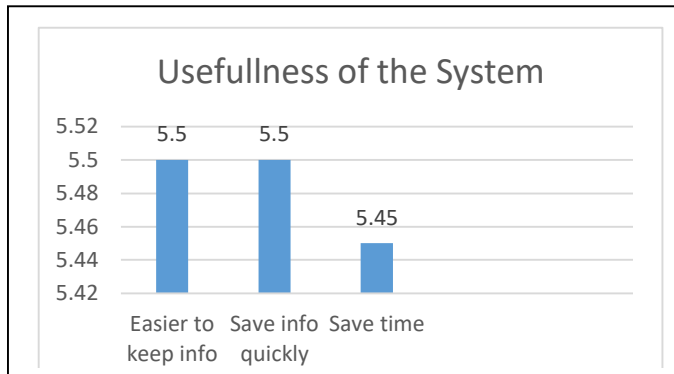


Fig. 15 Usefulness of the system

Figure 15 shows the usefulness of the system based on questionnaire and its average of each item.

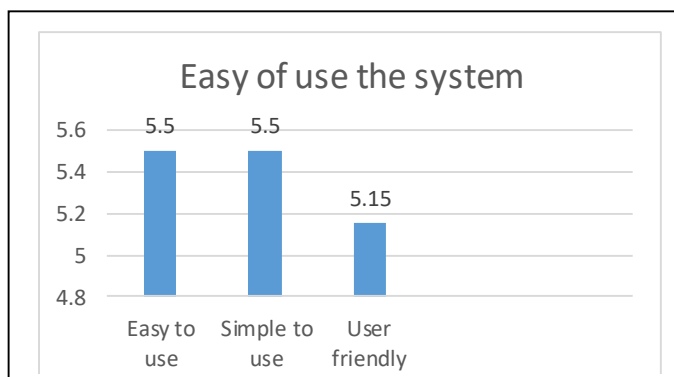


Fig. 16 Ease of use of the system

Figure 16 shows the system ease of use based on questionnaire and its average of each item.

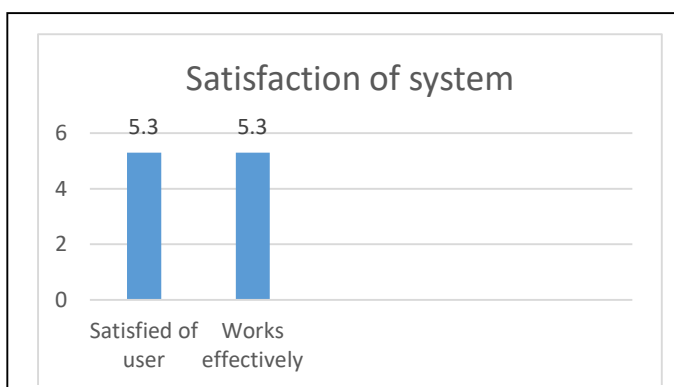


Fig. 17 Satisfaction of the system

Figure 17 shows the satisfaction use of the system based on questionnaire and its average of each item.

VIII. CONCLUSION

This paper described the design and development of System Monitoring Alumni Active Status on Social Media to monitor the active status of alumni on the social media through their account social profile such as Facebook, WhatsApp and Instagram. The study is expected to provide the solution for SOC-UUM to maintain the current contact info of the alumni after they graduated. In the future work, the developer plan to expand the functionality of the system where the other schools in UUM also can use this system effectively. The limitation of this system is the user need to Internet connection to access the system. Furthermore, new functionality need to be added to the system. Therefore, developer need to do some improvement for the system as the future works so that the whole system will looks easier for system admin, staff and alumni.

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