SOC Issue Tracking System

Lim Mui Hoon[1], Sharmila Mat Yusof[2,*]

[1,2]School of Computing, College of Arts and Sciences, Universiti Utara Malaysia, Sintok, 06010, Kedah, Malaysia
*Corresponding Author: ysharmila@uum.edu.my

Abstract: Staff and students at the university may face problems or issues such as problems related to building maintenance, class or lab problems, and electrical-related problems, to mention a few. Thus, they need to contact or seek help directly from the respective person responsible for handling and solving the problems or issues. Currently, the issues or complaint reporting system in UUM consists of the service desk and UUM IT help desk websites. These websites can help all UUM users report problems, including lecturers, staff, and students. However, the weakness of these reporting systems is their ineffectiveness, where the web-based system is not flexible and cannot be reached anywhere and anytime. In addition, the users who reported issues or problems cannot track the status of their reported issues or problems. Thus, this study aims to bridge the gap by designing and developing a mobile application for reporting and tracking issues directly to the responsible party using modern smartphones. Hence, a smartphone application can make reporting issues more effectively. The design and development of the application adopted the system prototype methodology. Firstly, the requirement gathering activity was done using the interview to elicit the functional requirements. After the functional requirements were determined, a prototype named SOC Issue Tracking System was developed based on the gathered requirements. The evaluation results reveal that SOC Issue Tracking System is useful and easy to use. SOC Issue Tracking System is simple but contributes to both staff and students at SOC. The respondents were also satisfied with tracking the issue status offered by the SOC Issue Tracking System. The study contributes toward understanding the system requirements of a mobile application for reporting help desk systems. It can be a reference model for researchers and developers in the area to develop the same application or to enhance the capabilities in reporting and tracking issue status. In future works, SOC Issue Tracking System can add a chat function for the responsible person who can directly contact the individual staff and add more responsible staff in each department to handle the issue reported by users.

1. Introduction

An issue tracking system, also known as an incident ticket or trouble ticket system, is a computerized system that manages and tracks lists of issues or complaints of a particular department or organization. The standard function of the Issue tracking systems is creating, updating, and resolving the issues reported by the organizational employees or customers [1]. The system also contains information about customers or employees, reported issues, resolutions to the issues, and other related data. The system could also allow an organization's management to monitor and evaluate the status and progress of the reported issues or complaints for employee or customer satisfaction.

Currently, the issues or complaint reporting system in Universiti Utara Malaysia (UUM) consists of the service desk and UUM IT help desk websites. These websites can help all UUM users report problems, including lecturers, staff, and students. However, the weakness of these reporting systems is their ineffectiveness of the web-based system that is not flexible and cannot be reached anywhere and anytime.

Corresponding Author: Sharmila Mat Yusof, Universiti Utara Malaysia, 06010, Sintok, Kedah, 0124399373

In addition, the users who reported issues or problems cannot track the status of their reported issues or problems.

School of Computing (SOC) is one of the schools under the College of Arts and Sciences (CAS) in UUM, which is situated in its building where the problems and issues need to be managed by the SOC management. In SOC, if there are issues or problems related to building maintenance, class or lab problems, or electrical-related problems, to mention a few, staffs need to directly contact or seek help from the respective person (i.e., JPP, Unit ICT). The weakness of this type of reporting system is that handling the issues or problems might take a long time and is not efficient. Sometimes, the staff do not know the responsible person to handle such issues or problems they are facing. Moreover, this ineffective management of the issues or problems faced by SOC staff might hinder their work, such as the lecturer cannot start his/her lecture on time due to an electrical problem where the projector cannot be on. Furthermore, the staff do not know the progress of the reported issues or problems. Besides, SOC management cannot efficiently monitor the progress or status of the reported issues or problems for the staff satisfaction and audit.

SOC Issue Tracking System is intended for SOC staff and students to make a complaint directly to the responsible party when facing some issues or problems at SOC. For example, staff can make a report or complaint about maintenance problems such as dirty floors, toilets, lab computer or electrical problems, etc. Due to this problem, the SOC Issue Tracking System can be an effective medium for staff to report issues or problems they are facing in SOC. The android application would be developed for this SOC Issue Tracking System. The android application would enable users to access the system anytime and anywhere when facing problems to overcome the current weakness of the existing web-based issues reporting system. Besides, the SOC management would be able to monitor the status and progress of the reported problems. The users can make a complaint using their smartphone by submitting related information regarding their issues or problems. The respective person would receive a notification about the issue and update the status in the system. The users can also track the progress of their complaints anywhere and anytime. Thus, this paper aims to bridge the gap by examining the prospect of smartphones as a tool for reporting and tracking issues directly to the responsible person. This study aims to design and develop a mobile application for reporting and tracking issues directly to the responsible person. The study contributes toward understanding the system requirement for the issue tracking application and could be a reference model for researchers and developers to improve the process for reporting and tracking issues at the organization. The following section describes the background and related studies. Next, each subsequent section explains the application's methodology, model and construct, prototype development, and evaluation. The last section of this paper concludes the study and proposes future works.

2. Background and Related Studies

This section discusses the SOC Issue Tracking background and academic work examining the effects of the SOC Issue Tracking System from the perspective of consumer science research. With modern technology, the world is now in a tremendous developmental state. Despite the daily use of text messaging, technology is more beneficial because it provides civilization in ways that have yet to be discovered. For example, new technology provided details increasing smartphones, contributing to establishing a new communication process and not need to send emails or phone calls and wait long for the answer. Instead, it was available irrespective of place and time (anywhere and anytime).

One can experience various computer issues, system information, infrastructure, or the request to receive. Someone might also have a question or a statement about which staff would like to notify the technical support. The department concerned will solve all the associated issues. For example, technical problems are more likely to be identified and replied to quickly. In the case of a dispute, the explanation may remain behind the lack of knowledge of where to go offer assistance or support requests. Reporting an issue of any kind needs electricity or phone calls that could confront a question first, provided that the system runs on telephone networks. These are ubiquitous these days, and reporting any issue should be simple and convenient.

There are also complaints issues. If a staff has a complaint about specific problems, there is also a sense of discomfort and shame which may lead to many other issues. SOC Issue Tracking System using mobile application allows for sending complaints without face-to-face communication; and suggestions that can be prioritized and organized. The comments will undoubtedly be treated and, if appropriate, replied to. The staff will be granted access to his grievances and suggestions status [4]. Various help desk and assistance systems are available in several areas to provide users with the information people need. Therefore, smartly designed help desk systems must be developed to help the user obtain the necessary information. The device should be easy to manage and accessible to several users [5]. Through new technical technologies, the production of a system based on the correct case for help desk operations is increasing significantly. Nevertheless, it needs the use of the advanced mobile system to organize, control, and resolve issues differently. It should also allow users to track the problem situation in the best possible way without having to refer to it repeatedly [6].

In 2005, Gonzalez et al. [8] developed a helpdesk architecture called the Knowledge Management-centric help desk to shorten the time required to resolve issues and improve the helpdesk power quality. Multi-touch Helpdesk Management System with Communication enables user and

customer assistance engineering to be worked on by concepts and methodologies within each issue outside its own so that they can be categorized into segments according to the large extent and significance to be solved [8]. Helpdesk automation through case-based thinking is a framework dedicated to solving customer problems by Case-Based Reasoning (CBR). It qualifies the issue and makes it possible for the appropriate person to do so without delay; the companies can control track of that and revert to all the problems at any time [9].

Additionally, when using a functional classification approach, Help Desk requests could be categorized based on their details. As a result, it decreased the time and energy needed to respond to these requests and reallocate to the appropriate authorities for requests [10]. According to Fajar and Shofi [12], the requirement analysis stage must be the most crucial application development process for creating an effective program. Another example is a paper ticket management system for paperless queue management. The program used service desk messaging tickets to replace the paper ticket and reduce paper use. It also reduced the waiting period and, in turn, reminded the user.

A complaint indicates a user's frustration with a good or service. The complaint may be an expressed or implied contact with the person responsible [12]. Complaint management may affect user satisfaction levels, so many organizations typically have a complaint handling process to enhance user satisfaction [13]. Procedures for handling complaints are described in Figure 1.
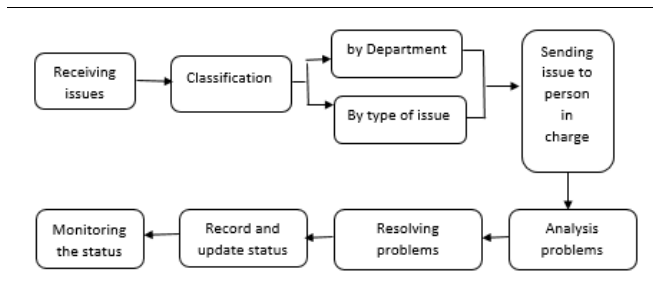

Figure 1. Process Management Issues

The existing help desk-related systems could be categorized into various forms, i.e. a documented method, contact centre, online request, and smartphone. Table 1 illustrates the correlation of primary SOC Issue Tracking System functions to existing systems. SOC Issue Tracking System areas of strength or developed functionalities track complaint status and automatically classify complaints to a department concerned.

Table 1. Comparison of the existing system

	SOC Issue Tracking System	E-Complaint (Web, Mobile App)	Paper Form	Call Center
Tracking issue status	Yes	Yes	No	Yes
Auto classify issue	Yes	No	No	No
Issue complaint procedure	E-form	E-form	Hand written form	Voice
Data collection	Database	Database	Paper, File, Document	Voice record

An E-Tickets technology [14] confirms user satisfaction with e-ticketing services chosen for this function as the predictor variables; furthermore, in the framework of fulfilment with e-ticketing by various scenarios regarding the quality of service offered to users. For example, an organization's Ticket Systems [15] may monitor, identify, record, and update various issues/problems [16]. Another similar example of reporting issues is through the service desk, which can be found in almost every organization.

3. Methodology of the Study

The project adopts the System Prototyping methodology [17]. Prototype methodology is a software development model in which a prototype is constructed, tested, and modified until the system's function is ultimately captured. The prototype creates a base for the final system to be produced. Model prototyping software is suitable when the system's requirement is unclear. The methodology consists of four main phases: planning, analysis, design, and implementation. The phase of the methodology is shown in Figure 2.
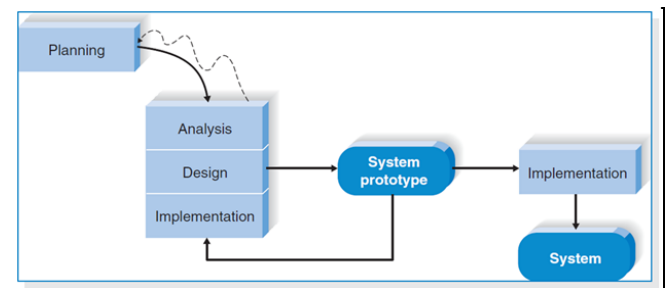

Figure 2. The System Prototyping methodology

A prototyping model begins with the planning, where the project's objectives and resource requirements such as users, tools, or budget were determined. This project aims to

provide a single platform for staff, students, and management at SOC to manage and track problems or issues around the SOC premise. Then, the system requirements were analyzed using interviews and document analysis. The requirement gathering has been conducted using interviews with individual management staff, lecturers, and students. The document analysis was done by studying academic papers (i.e. proceedings, journals, etc.) on the issue tracking system. The output from the requirement gathering technique was recorded and visualized using Unified Modeling Language (UML). The next phase, design, can be either a conceptual or a rapid design. For this project, a rapid design was developed. Then, a specific prototype was developed based on the information gathered from the rapid design. The proposed system was then presented for the assessment of the users. The assessment aims to get comments and feedback from users for corrections or further improvements. Based on the assessment activities, the developer improved the prototype according to user comments and feedback. The refined system was tested, finalized and implemented as the operational system.

4. Model and Construct of SOC Issue Tracking System

This section particularly discusses the requirement analysis and modelling of the application. A requirement gathering for the application was conducted by using two methods that are (1) interviewing selected staff and the responsible party who work at SOC and UUM, and (2) analysis of online related documents on current issue tracking systems. The interview was conducted with 5 SOC staff and three staff from the responsible departments (JPP, Unit ICT, UUM IT). A few pertinent questions were asked, including the mobile application's desired functionality, the desired features of a mobile application, the issues they reported, and how they reported the issues. The answers to the questions were recorded, and the requirements were documented. In addition, the respondents were actively involved during the construction (development) phase, where the prototype interface was shown to them to get their comments and feedback.

In addition, for the document analysis, the papers were searched through a search engine such as Google by using words specifically "issue tracking", "help desk system", "service desk system", problem software solution", for the secondary requirement selection method. Finally, the papers have been analyzed to obtain the requirements for a mobile application. Table 2 shows eight essential functions from the requirements gathering techniques done. The requirements include new user registration, login, manage issues, get notification, manage issues and task comments, check and track issue status and task comments, manage issue report and edit profile information.

Table 2. List of requirements for reporting and tracking issues

	Requirement Description	Priority
1	**REGISTER**	
1.1	Each new user should be able to register by entering their name, email, password, phone number, and position before logging in to the system.	High
1.2	If compulsory fields are not entered, an error message, "Please complete" will be displayed in a pop-up window.	Medium
1.3	All information shall be stored in the database.	Medium
2	**LOGIN**	
2.1	The system should be capable of allowing the user to sign in.	High
2.2	If email and password are correct the system will be able to display the main screen.	Medium
2.3	An error warning appears if the user entered an invalid email or password in a pop-up window.	Medium
2.4	The system should allow the user to select "REMEMBER ME" checkbox to remember the username and password.	Optional
2.5	The system will allow the user to reset their password when they have forgotten the password.	Optional
3	**MANAGE ISSUES**	
3.1.1	The system should allow the user to access the issue main page.	High
3.1.2	The system shall allow the user to select a menu first from issue, add, and profile selection.	High
3.1.3	The system shall allow the user to to touch (+) floating button on the smart phone screen to add an issue in the add new issue page.	High
3.1.4	The system shall allow the user to choose the issue photo, department category, issue title and add issue description.	High
3.1.5	The system shall allow the user to view the help information by click on "Help Info".	High
3.1.6	The system shall allow the user to view the issue at main issue page.	High
3.1.7	The user should be allowed to select an issue image to display the details of the issue.	Medium
3.1.8	The system shall allow the user to select the "EDIT ISSUE TITLE" button to edit the issue title only if "New" is the issue status.	Optional
3.1.9	The system shall allow the user select the "EDIT ISSUE CATEGORY" button to edit the issue category only if "New" is the issue status.	Additional
3.2.1	The system shall allow the user select the "EDIT ISSUE DESCRIPTION" button to edit the issue description only if "New" is the issue status.	Optional
3.2.2	The system shall allow the user select the "DELETE ISSUE" button to remove an issue only if "New" is the issue status.	Optional
3.2.3	The system will be able to remove the user selected issue.	High
4	**GET NOTIFICATION**	
4.1	The responsible person is able to receive the email notification immediately in his/her own smartphone.	High
4.2	The responsible person shall check the notification message and then log in to the system to do update data.	High
5	**MANAGE ISSUE STATUS AND TASK COMMENT**	
5.1	The system will display the staff added issue.	High
5.2	The system should allow the person authorized to choose a menu first from issue and profile selection.	High
5.3	The responsible person shall be allowed to select an issue picture to update the issue details.	High
5.4	The system shall be allowed the responsible person to select the "Update Issue Status" button to update the issue status.	High

5.5	The system shall be allowed the responsible person to select the "Update Issue Task Comment" button to update the issue status.	Medium
5.6	The system shall be allowed the responsible person to select the "DELETE ISSUE" button to remove an issue only if "Finish" is the issue status.	Optional
5.7	The system will be able to remove the issue selected by the responsible person.	Optional
6	**CHECK AND TRACK THE ISSUE STATUS & TASK COMMENT**	
6.1	The user shall be permitted to view the status of the issue and comment on the task all the time.	High
6.2	The user shall be allowed to edit the issue and delete the issue based on the condition of the status issue.	Optional
7	**MANAGE ISSUE REPORT**	
7.1	The system should allow the SOC Management to access the report page on the issue.	High
7.2	The system allows the SOC Management to choose a menu from the issue and profile.	High
7.3	The system will allow the SOC Management to view the report based on the chosen responsible department.	High
7.4	The system will allow the SOC Management to view the report based on the chosen issue status.	High
7.5	The system will allow the SOC Management to view the report based on the chosen month.	High
7.6	The system will allow the SOC Management to view the report based on the chosen year.	High
8	**EDIT PROFILE INFORMATION**	
8.1	The system will allow all users to view his/her profile.	Medium
8.2	The system will allow all users to change profile information.	Medium

The criterion set out in Table 2 was converted further into the usability of a software system. Furthermore, the next step is to visualize or model the application requirement using the correct framework and software. The specifications were visualized and modelled for this research using the Unified Modeling Language (UML). Two behavioural diagrams, use case and sequence diagrams, and a class diagram was constructed to illustrate the system's behaviours and describe the system's structural elements. The diagrams were created with Star UML. Figure 3 shows the Use Case diagram that shows the interaction between the use cases and the actor that can be used to report and track the issue. All eight major use cases, registered, log in, manage issues, get the notification, manage issue status and task comment, check and track the issue status & task comment, manage issue report and edit the profile information, was shown in the diagram.
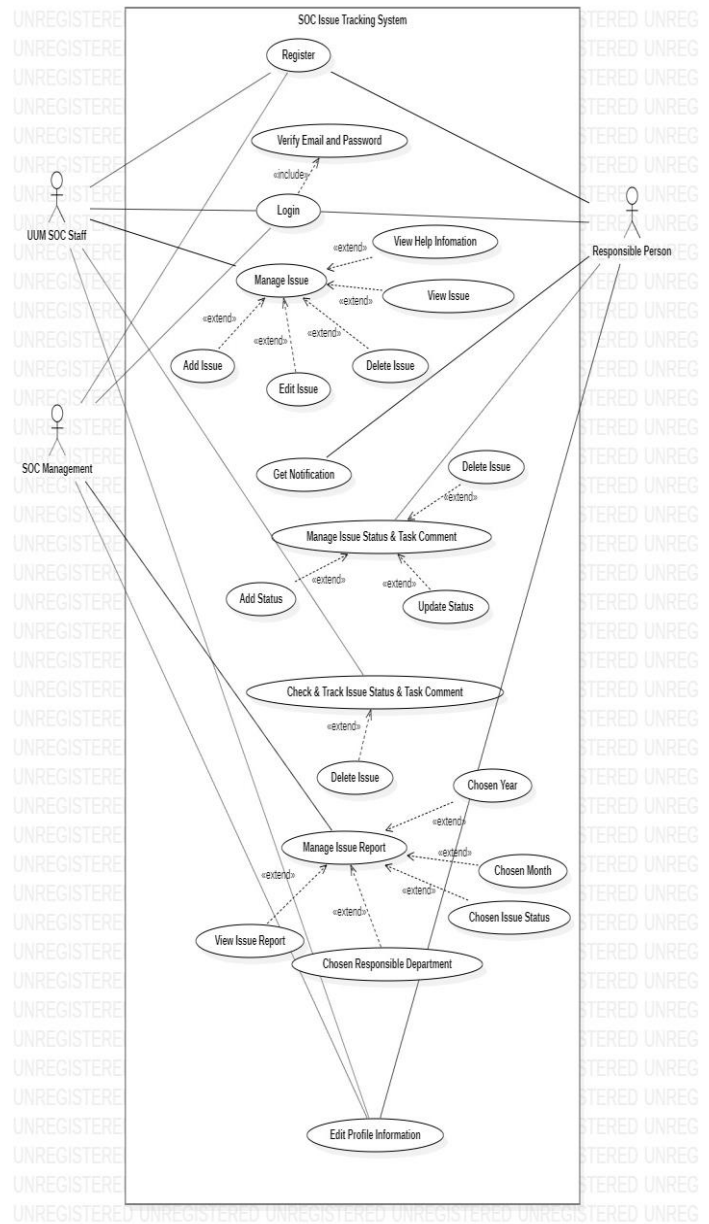

Figure 3. The Use Case Diagram

Then the details of the use cases were demonstrated using the sequence diagram. The application's dynamic characteristics. Figure 4 illustrates the dynamic behaviour of the tracking issues as an example.
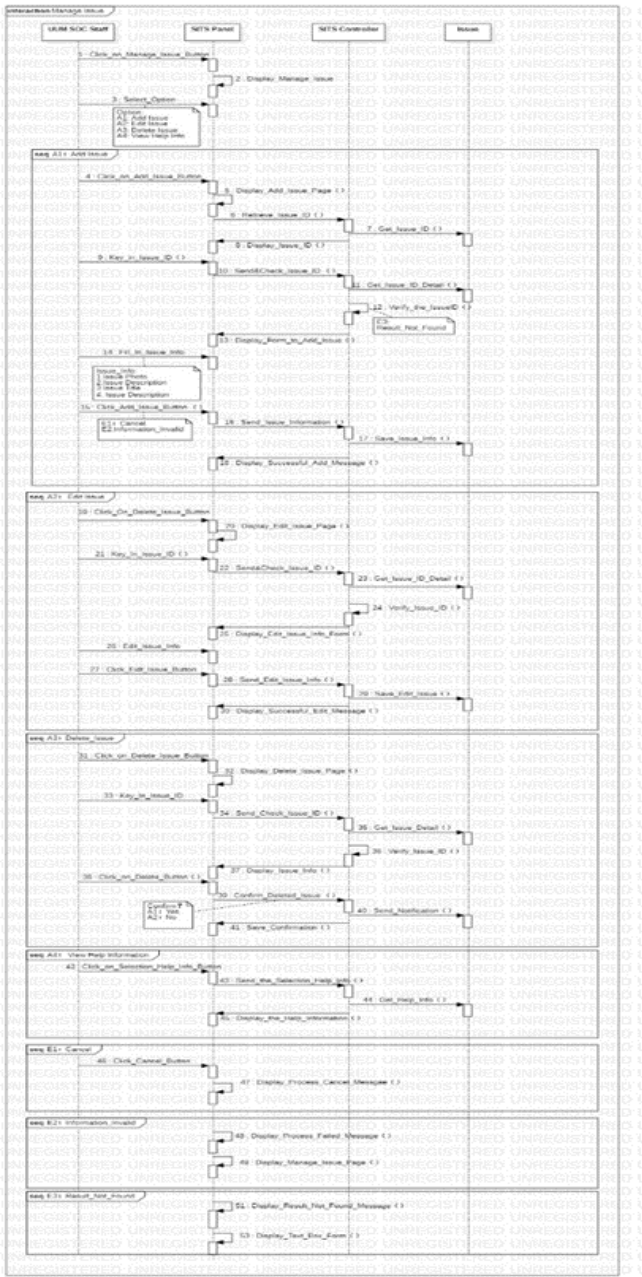
Figure 4. The Sequence Diagram

While the sequence diagram in Figure 4 presents the system properties and methods, the class diagram, on the other hand, shows the structural elements of the use case. The structural element of managing issues are shown below in Figure 5 as an example.
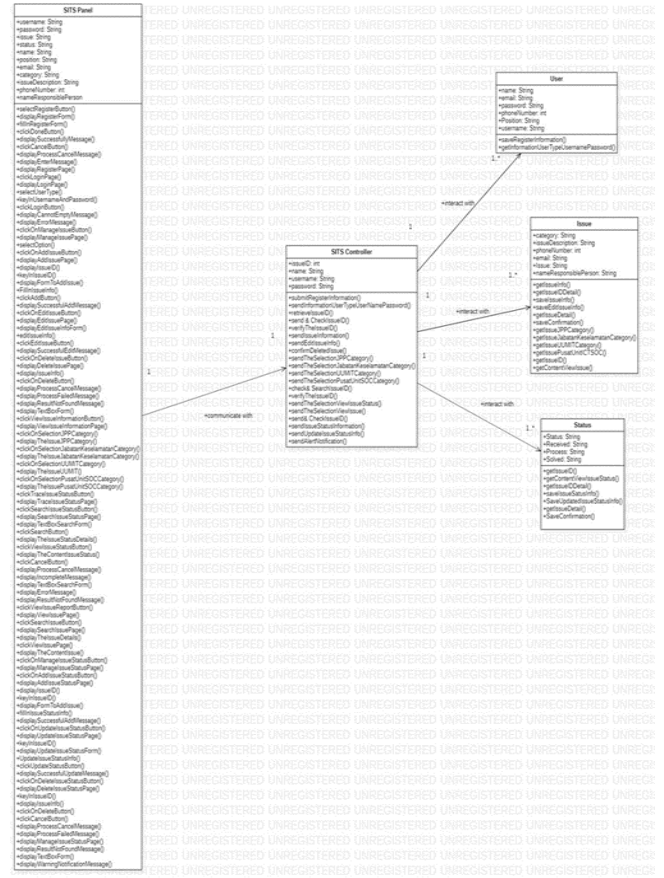

Figure 5. The Class Diagram

5. The SOC Issue Tracking System Prototypes Developments

A model of a mobile application named as SOC Issue Tracking System was created to report and monitor the issue. It reflects the specifications set out from the preceding paragraph. The building layout is indeed a conventional way to illustrate the system specifications because then the developer can gain required recommendations and feedback based on the user's prototype interaction experience. The primary development environment (IDE) tool was the Visual Studio Code and Android Studio. The hosting database creation method has also been used to support important components such as the authentication process, including file storage databases. Images display the SOC Issue Tracking System interface design selected in Figures 6,7,8,9, and 10.
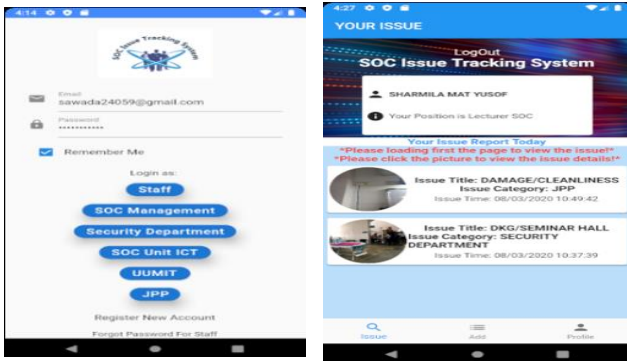
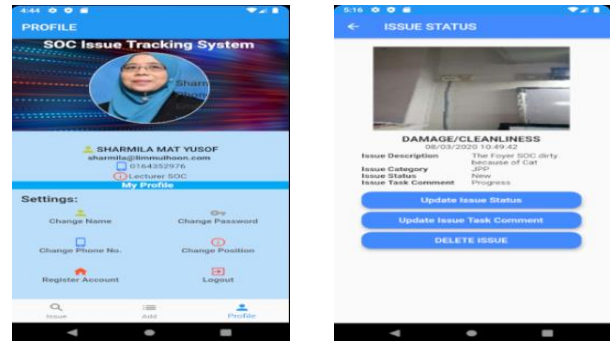Figure 6. Log-in interface (left) and the main menu (right)

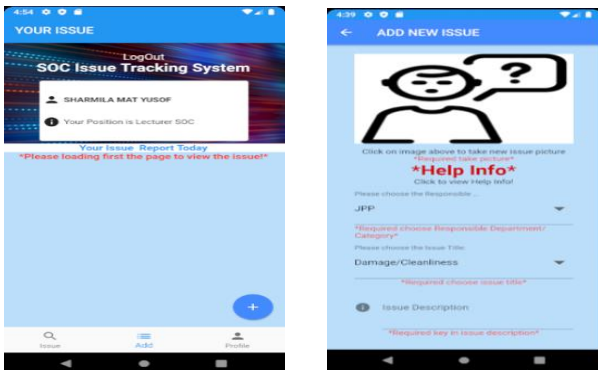Figure 7. Add main interface (left) and add new issue (right)

Figure 8. Help information interface (left) and issue details (right)

Figure 9. Profile interface (left) and issue status (right)

Fig. 10. Report issue interface

6. Evaluation of SOC Issue Tracking System

The functionality evaluation was conducted on 30 respondents, including staff at the UUM and a responsible person. At the SOC, UUM, the respondents were approached randomly and agreed to participate in the research voluntarily. The instruments used for the evaluation were the SOC Issue Tracking System and a post-task questionnaire. The post-task survey that contains 31 items in two parts has been used. Section A questioned the respondent's demographic details, while Section B asked the participants' perspectives on the SOC Issue Tracking System on a five-point Likert scale where one was highly disagreeable, and five were strongly agreed. The participants conducted the following step-by-step evaluation process: (1) read and signed a consent form, (2) interacted with SOC Issue Tracking as stated in the experiment procedure, and (3) answered the post-task questionnaire.

The functionality evaluation was completed by three respondents: the employees, the responsible person, and the SOC management. The participants were invited, and they participated in the research voluntarily. The tools used are the SOC Issue Tracking System and the interview questions. The interview questions consist of 31 items in two sections. Section A inquired for demographic details of the respondents, whereas Section B questioned the respondent's opinion on the SOC Issue Tracking System evaluation.

A review of the respondents' demographic data showed

that 83% are user SOC staff, 14% are responsible persons, and 3% are SOC Management. 53% were over 45 years old, 27% were between 36-45 years old, and 17% were between 21-25 years old. 63% among them were female, and 37% were male. The respondents also reported that 48% had made complaints most every month, 35% have made complaints weekly, and only 17% are never making any complaints; none make complaints daily. 73.33% of the respondents reported that they often receive complaints from staff, 23.33% of respondents reported that they are not sure they often receive complaints from staff, and only 3.33% reported that they did not receive complaints from staff. Most respondents (100%) said they had heard about the UUM service desk and the UUMIT help desk website. The respondents also reported that 60% of them had heard about SOC Issue Tracking System, 23.33% of them were not sure they had heard about SOC Issues Tracking System, and only 16.66% of them had never heard about SOC Issues Tracking System. 80% of them have thought the SOC Issue Tracking System is necessary nowadays in UUM, 20% are not sure, and none think SOC Issue Tracking System is not necessary nowadays in UUM. Most respondents (93.33%) answered that they need to have an application to report the issue directly to a responsible person; only 6.66% answered that they were not sure, and none answered that there is no need to have an application to report the issue to the responsible person. 40% of them reported that they think the existing process or system is not convenient for staff to make a report to the responsible person, 40 % of them answered that they are not sure, and only 20% of them reported that the existing process/ system is convenient for staff to make a report directly to the responsible person.

A review of the respondents' demographic data showed that one of the lecturers has reported to the responsible person before but needs to directly call the responsible person (i.e., JPP, Unit ICT, etc.) and the responsible person JPP, which is the assistant officer JPP. The information received is that when the staff has an issue, they can inform the Unit Call Center where an admin staff would entertain the call. After gathering all issues, admin staff will inform to JPP Department. An example of the reported issue was a light burn in the lecturer's office, the seminar hall air conditioning was not functioning, and the toilet is broken. One of the Security Department's responsible persons stated that when there was an issue at SOC, they would record the issues manually. They would take pictures and record the time in the logbook.

Throughout Section B of the question asked, a review was undertaken on the respondent's answers. The segment acquires the respondents' opinions regarding the SOC Issue Tracking System features. The respondents stated that the keying issue, register account, and help information are the functions easy to use for users to make complaints. The respondents stated that adding the new issue and viewing the updated issue status are the most suitable functions for the system. The respondents mentioned that this system is more systematic because they can choose the responsible department and directly report to the responsible person compared to using email, WhatsApp's, and phone calls where they need to wait a long time for a response. Using this application, they can make a complaint anywhere and anytime and track their complaints' status.

In Section B of the post-task survey, analysis was primarily conducted on data collected from the respondents. These findings explain the respondents' opinions regarding the ease of use and usefulness of using the SOC Issue Tracking System. It also measured the respondents' satisfaction with SOC Issue Tracking System. Tables 3, 4, and 5 recorded response frequency and ad-vocation. The respondents ranked the three usability aspects to four or five of the post-task levels. Rarely one or two of the respondents ranked. Some of them are classified as neutrals numbers.

The test results showed that the SOC Issue Tracking System would be beneficial and user-friendly. Besides, the respondents mentioned being pleased with the application function that facilitates reporting and tracking the issues directly to the responsible person. Furthermore, a review of respondents' opinions on the unique characteristics of the SOC Issue Tracking System reveals that most respondents agree to register, add new issues and report and track issues and also help manage the issue report more effectively. Furthermore, the respondents indicated that the user interface of the SOC Issue Tracking System has met their needs and can solve the problem faced. Further, they were impressed with the layout of the mobile application and intended to recommend the application to others.

7. Conclusion and Future Works

This article outlines the development and implementation of a mobile application for reporting issues directly to the responsible person. We intend to expand the functionality of the SOC Issue Tracking System by providing a chat message function to a responsible person who can directly contact respective users regarding the complaints made. In addition, for further improvement of the SOC Issue Tracking System, the interface can be improved by using simpler objects such as user icons to design the system and replace the words with icons. It will make users more straightforward about how to use the system. The users click on the simple icon to perform the system's function. Besides, the system can allow the person in charge of more than one to register to handle all issues reported by users because of maybe one person in charge of insufficient.

Table 3. The feedback of the respondents regarding the usefulness of soc issue tracking system

The items for the post-task questionnaire	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Average
SOC Issue Tracking System enhances my effectiveness on sending my issue.	0 (0.00)	0 (0.00)	2 (6.66)	15 (50.00)	13 (43.33)	3.37
SOC Issue Tracking System can solve my problem faced.	0 (0.00)	0 (0.00)	5 (16.66)	9 (30.00)	16 (53.33)	4.37
SOC Issue Tracking System meets my needs.	0 (0.00)	0 (0.00)	1 (3.33)	10 (33.33)	19 (63.33)	4.60
SOC Issue Tracking System gives me greater control over my work.	0 (0.00)	1 (0.03)	2 (6.66)	16 (53.33)	11 (36.66)	4.23
SOC Issue Tracking System enables me to report or update the issue more quickly.	0 (0.00)	0 (0.00)	1 (3.33)	9 (30.00)	20 (66.66)	4.63
SOC Issue Tracking System saves my time when I use it.	0 (0.00)	0 (0.00)	1 (3.33)	12 (40.00)	17 (56.66)	4.53
SOC Issue Tracking System does everything I would expect it to do.	0 (0.00)	0 (0.00)	5 (16.67)	18 (60.00)	7 (23.33)	4.06
SOC Issue Tracking System gives error messages that clearly tell me how to fix problems.	0 (0.00)	0 (0.00)	14 (46.67)	8 (26.67)	8 (26.67)	3.80
SOC Issue Tracking System is useful in overall.	0 (0.00)	0 (0.00)	0 (0.00)	20 (63.33)	10 (36.67)	4.33

Table 4. The feedback of the respondents regarding the ease of use of soc issue tracking system

The items for the post-task questionnaire	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Average
SOC Issue Tracking System is easy to use.	0 (0.00)	0 (0.00)	0 (3.33)	10 (73.33)	20 (23.33)	4.20
SOC Issue Tracking System is user-friendly.	0 (0.00)	0 (0.00)	5 (3.33)	19 (70.00)	6 (26.67)	4.23
SOC Issue Tracking is flexible.	0 (0.00)	0 (0.00)	11 (3.33)	12 (66.67)	7 (30.00)	3.87
SOC Issue Tracking System required the fewest steps possible to accomplish what I wanted to do in this system.	0 (0.00)	0 (0.00)	3 (10.00)	17 (40.00)	10 (50.00)	4.23
I can use SOC Issue Tracking System without written instructions.	0 (0.00)	6 (0.00)	14 (23.33)	5 (20.00)	5 (56.67)	3.30
I can easily remember how to use SOC Issue Tracking System.	0 (0.00)	0 (0.00)	5 (10.00)	13 (56.67)	12 (33.33)	4.23
Using SOC Issue Tracking System is effortless.	0 (0.00)	0 (0.00)	6 (20.0)	16 (53.33)	8 (26.66)	4.06
I don't notice any inconsistencies as I use SOC Issue Tracking System.	0 (0.00)	0 (0.00)	13 (6.67)	13 (60.00)	4 (33.33)	3.70
I can recover from mistakes quickly and easily when using SOC Issue Tracking System.	0 (0.00)	0 (0.00)	8 (26.67)	14 (46.67)	8 (26.67)	4.00
My interaction with the system would be clear and understandable.	0 (0.00)	0 (0.00)	5 (16.67)	16 (53.33)	9 (30.00)	4.13
I can use SOC Issue Tracking System successfully every time.	0 (0.00)	0 (0.00)	2 (6.67)	13 (43.33)	15 (50.00)	4.43

Table 5. The feedback of the respondents regarding the satisfaction of soc issue tracking system

The item for the post-task questionnaire	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Average
I am satisfied with SOC Issue Tracking System.	0 (0.00)	0 (0.00)	1 (10.00)	18 (73.33)	11 (16.67)	4.33
I would recommend SOC Issue Tracking System to my friends.	0 (0.00)	1 (0.00)	1 (10.00)	10 (63.33)	18 (26.67)	4.50
SOC Issue Tracking works the way I want it to work.	0 (0.00)	0 (0.00)	5 (3.33)	18 (56.67)	7 (40.00)	4.06
I feel I need to have SOC Issue Tracking System in my smartphone.	0 (0.00)	0 (0.00)	3 (3.33)	13 (33.33)	14 (63.33)	4.37
SOC Issue Tracking System is wonderful and pleasant to use.	0 (0.00)	0 (0.00)	2 (3.33)	16 (43.33)	12 (53.33)	4.33

In the future, this system may implement the function lost and found. When one user loses items around SOC, they can send the issue to the system, which all users can view. If someone knows where the item is, they can contact the person who lost it. The system was straightforward; it was agreed that it would benefit both staff and students, especially in SOC. In future, the application can be extended to be used by other schools at UUM.

8. Acknowledgements

9. References

[1] D. Falessi, F. Hernandez, & F. Khosmood. (2018). Issue Tracking System: What Developers Want and Use. Proceedings of the 13th International Conference on Software Technologies (ICSOFT 2018), USA, PP. 543-548.

[2] Saif, A., & Umar, l. (2009). The Current State of an Information Technology Maintenance Department in a University Context: Challenges and Recommendation. 2019 9th IEEE International Conference on Control System, Computing and Engineering (ICCSCE).

[3] Stone, K., & Spies, J. (2015). Design and implementation of an automatic staff availability tracking system. 2015 International Conference on Computing, Communication and Security.

[4] Ramesh, B., & Dhar, V. (1992). Supporting systems development by capturing deliberations during requirement engineering. IEEE Transactions on Software Engineering, 18(6), 498-510.

[5] Andrews, A., & Lucente, J. (2014). From Incident Reports to Improvement Recommendations: Analyzing IT Help Dask Data. 2014 23rd Australian Software Engineering Conference, 94-103.

[6] Ho Kang, B., Yoshida, K., Motoda, H., & Compton, P. (1997). Help desk system with intelligent interface. Applied Artificial Intelligence, 11(7-8), 611-631.

[7] Stefani, A. & Xenos, M. (2001). A model for assessing the quality of e-commerce systems. Proceedings of the PC-HCI 2001 Conference on Human Computer Interaction, 105-109.

[8] Gonzalez, L. M., Guachetti, R. E., & Ramirez, G. (2005). Knowledge management-centric help desk: specification and performance evaluation. Decision Support Systems, 40(2), 389-405.

[9] Bouwman, H., Vos,H., & Haaker, T., (2008). Mobile service innovation and business models. Berlin Heidelberg: Springer Verlag.

[10] Akella, R, Xu, Z., Barajas, J., & Caballero, K. (2009). Knowledge sciences in services automation: Integration models and perspectives for service centers. 2009 IEEE International Conference on Automation Science and Engineering, 71-78.

[11] Veena, G., Peter, A.S., Rajkumari, K.A., (2016). A Concept-Based Model for Query Management in Service Desks. Advances in Intelligent Systems and Computing, 255-265.

[12] Fajar, A. N., & Shofi, I. M. (2016). Goal Model to Business Process Model: A Methodology for Enterprise Government Tourism System Development. International Journal of Electrical and Computer Engineering (IJECE), 6(6), 3031.

[13] Customer system. 2017 [cited 2017 2]; Available from: http://www.financepractitioner.com/dictionary/customer-complaint.

[14] Complaint system. 2017 [cited 2017 2]; Available from: https://en.wikipedia.org/wiki/Complaint_system.

[15] M. K. Qteishat, H.H. Alshibly, and M. A. Al-ma'aith, "The impact of e-ticketing technique on customer satisfaction: an empirical analysis," J. Inf.Syst. Technol. Manag., vol. 11, no. 3, 2014.

[16] H. H. Thimm, "Supporting Environmental Compliance Managers by Ticket Systems-An Industry Survey, Deployment Options and a Reference Business Process," Int. J. Environs. Sustain., vol. 6, no. 1, 2017.

[17] M.Harcenko, P. Dorogovs, and A. Romanovs, "IT Service Desk Implementation Solutions." Sci. J. Riga Tech. Univ. Comput. Sci., vol. 42, no. 1, pp. 68-73, 2010.

[18] A. Dennis, B. H. Wixom, and R. M. Roth, System Analysis and Design, 5nd ed. Reading, MA: Addison Wesley, 2012. [E-book] Available: Safari e-book.

[19] A. M. Lund, "Measuring usability with the use questionnaire," Usability interface, vol. 8, pp. 3-6, 2001.