Development of Meeting Management System for Faculty of Technical and Vocational Education

Siti Nur Azyan[1]**, Hashima Hamid**[1]*****, Ahmad Rizal Madar**[1]

[1]Faculty of Technical and Vocational Education,
Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, MALAYSIA

*Corresponding Author Designation

Abstract: Meeting management is an important aspect of planning, organizing, directing, coordinating and controlling activities. Today, meeting management has become a complex one that requires a systematic and efficient management system. Therefore, the development of this web-based Meeting Management System is intended to facilitate the management of meetings at the Faculty of Technical and Vocational Education as well as to refine the existing meeting management system, especially in terms of confirming attendance. The Meeting Management System includes aspects of faculty staff registration, department registration, new meeting registration and attendance confirmation. The system was developed by using Adobe Dreamweaver CS6 software for programming, MySQL for databases, and XAMPP as an internal browser. The development of this system uses the Waterfall model which is used as a guide in the development process so that it meets the characteristics and objectives set. Once the system was developed, it went through several tests by users and experts. This system is found to have several capabilities in helping to systematically organize faculty meetings. According to experts, the system is easy to use and easy to understand. Experts also think the presence verification function needs to be further enhanced to make this system a more complete system. The Meeting Management System can help the Faculty of Technical and Vocational Education of Universiti Tun Hussein Onn Malaysia in managing meetings more efficiently, especially for users and also faculty and administration staff .

Keywords: Management Sytem, Meeting, Registration , Attendance List

1. Introduction

We are now in the phase of the information wave or so-called information era, an era in which most workers are involved in the creation, distribution and use of information technology. Over the years the use of information technology has grown exponentially as the country progresses. The development of information technology has impacted communities around the world, including Malaysia (Razak, 2011)

The era of information technology with the use of computer technology is well-suited for operating an organization involved management of the staff or employee attendance management. Attendance management is the act of managing attendance or presence in a work setting to minimize loss due to employee downtime and it also a major part of today's human resource systems; take organization towards better human resource practice, systems and excellence, hence regular attendance and punctuality are expected of all employees or candidates in a work setting especially in attending a meeting that was handle by organization (McKeehan,2002)

Moreover, in many institutions, and academic organizations, attendance is also a very important criteria which is used for various purposes. These purposes include record keeping, assessment of students, promotion of optimal consistent attendance in class and also recorded staff attendance meeting This traditional method involves the use of sheets of paper or books in taking attendance. This method could easily allow for impersonation and the attendance sheet could be stolen or lost. Taking attendance is time consuming and it is difficult to ascertain the number of students that have made the minimum percentage and thus eligible for the exam. Thus, there is a need for a system that would eliminate all of these trouble spots.

In order to obtain a good result of recording the attendance of staff meetings , currently widely used various methods of attendance, either by manual recording or using the attendance machine that many in the market in which each attendance machine uses a method that is different to identify the person. Each of these systems has its drawbacks and its advantages. The manual attendance system does not need to build the infrastructure and installation and also does not need to purchase expensive equipment, but accuracy is doubtful. Based on preliminary research from developers, it was found that the Faculty of Technical and Vocational Education, University of Tun Hussein Onn Malaysia had already used a website system or other word digital platform for all faculty's staff consisting of lecturers and administrators especially when one meeting was held. Generally, attendance by the staff during the meeting is carried out manually using the attendance sheet. There are several scenarios of this manual method that the staff will mislead on. It is because the staff only decided to make up 100% of the attendance.

In addition, attendance by using the attendance sheet is difficult to manage since the attendance sheet can be lost or destroyed. On the other hand, the entire attendance process can be time consuming, which will delay the meeting longer. Hence this paper proposed a system that is able to overcome the problems of absenteeism so that it can be more effective.

According to the problem statements, hence the objectives of this project are designed as follows:

- Designing the meeting management system for Faculty of Technical and Vocational Education, UTHM.
- Develop a meeting management system for the Faculty of Technical and Vocational Education, UTHM.
- Test the feasibility/functionality of the meeting management system for the Faculty of Technical and Vocational Education, UTHM.

2. Literature Review

Attendance management is the act of managing attendance or presence in a work setting to minimize loss due to employee downtime. Attendance management is a major part of today's human resource systems; take organization towards better human resource practice, systems and excellence, hence regular attendance and punctuality are expected of all employees or candidates in a work setting. Unsatisfactory attendance caused by unscheduled absences and tardiness cause a disruption in work, affects productivity, and creates morale problems when workloads are shifted to other employees (McKeehan,2002). Attendance Management falls into two categories namely; Conventional and

Automated methods. Conventional methods include time sheet, attendance register and time clock. Time sheets are documents, electronic or otherwise that record what time was spent by the employee on what tasks. Attendance register is an official list of people who are present at an institution or organisation. Time clock which is a mechanical (or electronic) time piece used to assist in tracking the hour worked by an employee of a company. Automated methods include Barcode system attendance system, magnetic stripe attendance system, Radio Frequency Identification (RFID) and the biometric attendance system and etc (Ononiwu G. C and Okorafor G. N , 2012) . Hence this system was designed to be used in the Faculty of Technical and Vocational, developer was to make some comparison with several existing systems in the market in order to look at the gaps.

Table 1 shows a comparison between two existing systems, the Lecturer's Attendance Verification Manual System and the UTHM FPTV eOffice System with the system to be developed. Through the study, the similarities and differences between the systems being studied can be seen with the systems being developed.

**Table 1: Comparison of existing systems with proposed system**

Features \ System	Manual	eOffice	Attendance Verification System
Online Technology	None	Have	Have
Login User	None	Have	Have
List of Meetings	None	Have	Have
Agenda Meetings	None	Have	Have
Attendance Verification	None	None	Have

Among the two existing systems, one system still does not use online and still uses manual methods to fill in the presence list. Meanwhile, eOffice uses the same technology online as the system that will be developed also using the technology online.

The eOffice system uses the user login method as the permission to access the user's site by the system. To access the homepage users need to enter no. ID and password to access the homepage. For the system to be developed, the Tun Hussein Onn University Faculty of Technical and Vocational Education Management System also has user logins and user manuals provided.

3. Methodology

This proposed system introduces a new automatic attendance management system by using the Waterfall Model adapted form Royce (1970) as shown in Figure 1.
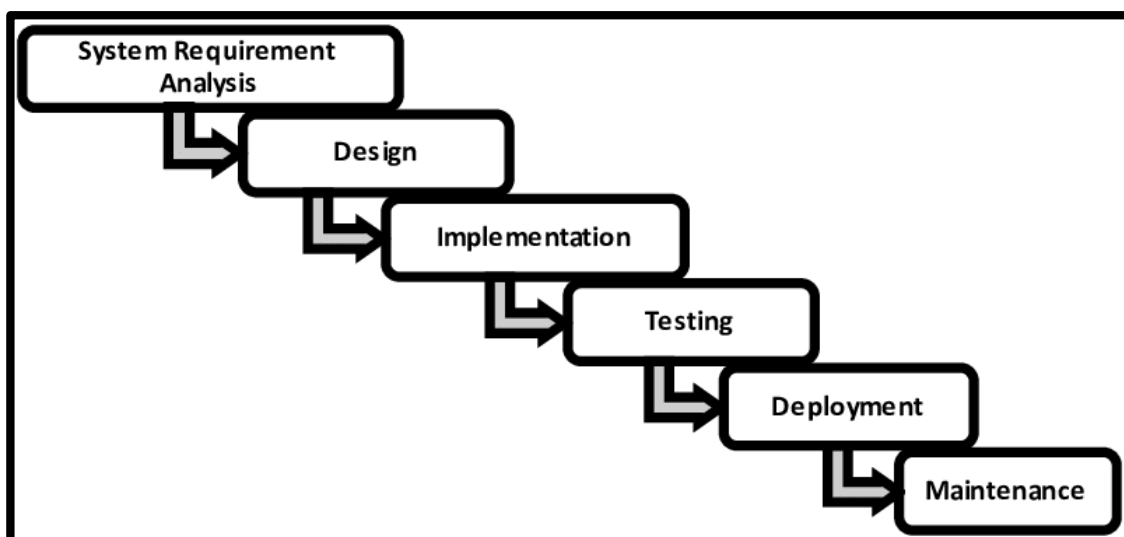
Figure 1: Waterfall Model (adapted from Royce, 1970)

The Waterfall model is a classic model used in software engineering. This model is one of the oldest and most widely used models in government projects and has been widely applied by large private companies. Because this model emphasizes early planning, it ensures design weaknesses before the project is developed. In addition, its intensive documentation and planning make it work very well for projects where quality control is of paramount importance (Nabil & Govardhan, 2010).

The model consists of six (6) phases. The phases are the system requirements analysis phase, design phase, implementation phase, testing phase, feedback phase and maintenance phase. The phases in this model are linear, moving phases where the output of the first phase flows into the second phase and then in line. Therefore, each phase needs to be completed before moving on or on to the next phase.

The system requirements analysis phase is the beginning phase of this methodology. This phase is a study conducted to understand the problems identified and to determine the requirements of this system. In this phase, developers have carried out a number of activities including user analysis, content analysis, software analysis and detailed hardware analysis. At this stage it is important to determine the capabilities and requirements for the development of this meeting management system. Tabel 2 and Table 3 is the need analysis of minimum hardware and software requirements for development of this system.

Table 2: Hardware need analysis

Hardware	Specification
Processors	Intel Core i5-8250U
Operating System	Windows 10
RAM	4GB DDR3L
Hard Disk Capacity	1000 GB HDD
Graphic Card	NVIDIA GeForce MX150 with 2 GB VRAM
Input Device	Keyboard and Mouse
Output Device	Printer, Speaker

Table 3: Software Need Analysis

Specifications	Software
Operating system	Windows 10
Web Software	*Adobe Dreamweaver*
Graphic Software	*Adobe Photoshop CS6*
Database	MySQL
Server	XAMPP
Documentation Software	Microsoft Office
Web browser	Google Chrome

The design phase is a phase that plays an important role in the system development process. The design phase is a phase for them and transforms the information gained into an understandable form of display. As such, the resulting design will be a medium of interaction between the system and the user so the design of the system must follow and meet the needs of the end user. This design also needs to meet the requirements set in the analysis phase.

Implementation phase is the phase in which the system will be developed using programming language software such as Adobe Dreamweaver and others. Database usage is also implemented concurrently with system development. The planned system design will be transformed into a real system using the programming languages of PHP, HTML, CSS and so on. As for databases, XAMPP software is used to make systems and databases interconnected. During the development of the Tun Hussein Onn Malaysia Faculty of Technical and Vocational Education Management System, all aspects of the project need to be implemented to achieve the project objectives. In this developed system, the functions of the developer include user login, staff registration, department registration, meeting registration and updating and deleting data. This phase developer evaluates all the elements relevant to the interaction with human-computers especially in developing the system. They are related with the principles of human-computer interactions like consistencies, interactivity, perceivability,learnability and etc which should be integrated with relevance multimedia elements like text, graphic, or maybe some animated elements.

Testing phase is the fourth phase that needs to be implemented to ensure that the system being developed is working properly and functioning properly. Once the system is developed, the testing phase will be carried out by experts and users to test the effectiveness of the system. In this case there three experts were selected to evaluate based on their expertise such as multimedia and system analysis, content based and also general functionality of the system.

Feedback phase is closely related to the testing phase. In this phase, the specialist will provide the developer feedback on the system being developed after testing the system. The feedback provided by experts is for developers to make improvements to the system

The maintenance phase is the final phase in the waterfall model. There are several processes and activities in this phase that need to be implemented such as system maintenance, system performance monitoring, smooth functioning of systems and system testing based on the specified aspects. This phase began after receiving feedback from experts who tested the system in its entirety. All the improvements and edits will be made based on the comments and suggestions of the experts. After all, the system is ready for use by real users.

3.1. Population and sample

The experts who evaluated this system were experts who had experiences based on their expertise in system design, graphics or related content related to the management of faculty meetings. The developer selected three respondents consisting of two lecturers and an administrative officer.

3.2. Research Instrument

The results can be obtained after being evaluated by experts. Developers had created a set of questionnaire forms that consisted of three parts namely interface design, content design and interaction design.

3.3. Data Analysis

All the data responses from experts was analysed and presented in percentage value.

4. Results

This section elaborated the result findings according to the objectives along the process of development of this system. Generally all three objectives that were planned earlier in PSM 1 were successfully achieved. Objective number one was to design the meeting management system of the Faculty of Technical and Vocational Education, UTHM. Model Waterfall was selected as guidance to design all interfaces and configure all elements that are relevant to achieve this objective. All multimedia elements were structured effectively and suited with the design especially in relating with system design. Developer had to creatively design the flow of the process and use all the principles suggested by Terry & Botta (2015) and integrated all multimedia elements effectively as stated by Bala Dhandayuthapani Veerasamy (2010) namely text, graphic, animation etc. Figure 2, Figure 3 and Figure 4 displayed severals of pages interface for all users namely staff and admin. The Waterfall Model was selected amongst other development model because it is easy and step by step model as mentioned by Fahrurrozi, I., & SN, A.(2012).
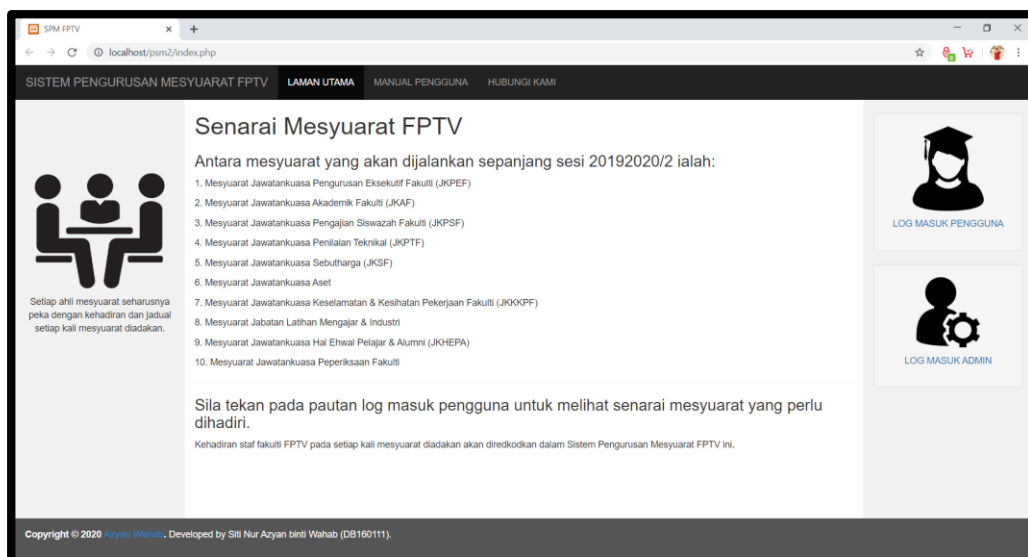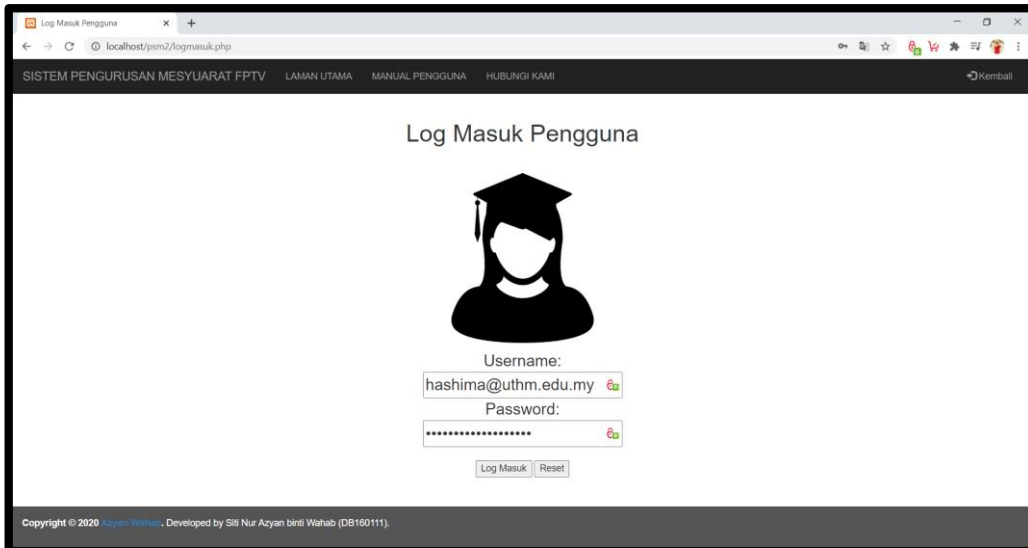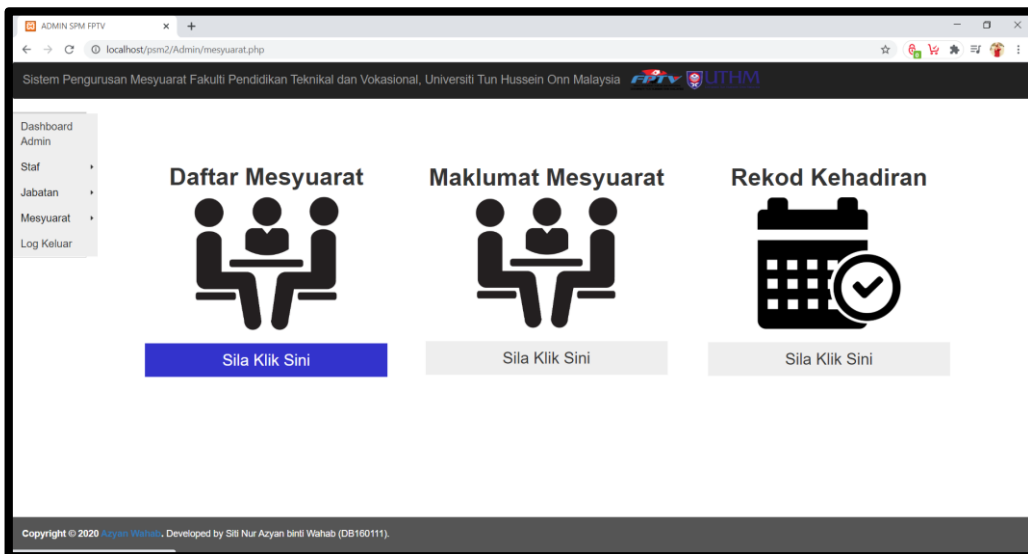

Figure 2: Main Page Interface

Figure 3: User login interface

Figure 4: Admin interface

Based on the results of the analysis, all three experts were experts in the field Creative Multimedia provides a positive response to aspects of interior-design interface developed in this meeting management system. All the experts agreed with the navigation selection and the navigation position placed on this system. All experts also agreed on the use of text type, text size and size display that is compatible with this system. Integrated all relevance multimedia elements will give any applications software or system look attractive and interactive (Bala Dhandayuthapani Veerasamy, 2010) and (Harun & Tasir, 2005). Two experts were agreed on a systematic, systematic interface and interesting but an expert disagrees with this item. She felt it that the system interface is systematic but less attractive to use. In the comments and reviews section, each expert gave their opinion positive and there were some parts of the interface on the system that needed to be improved such as departmental graphs on the admin interface display are less suitable and need to be changed to other appropriate department charts. As such, developers have taken over initiative to make improvements to the system. By overall, the results of the analyzed studies show that all the experts provided good feedback because they were in agreement that this system provides a good platform to record attendance during meeting sessions.

5. Conclusion

The study was conducted with the aim of developing a meeting management system for the Faculty of Technical and Vocational Education of Tun Hussein Onn University Malaysia. In addition, the existence of this system can be added to make it easier for administrators to manage meetings more effectively and systematically than previously used manual systems. Overall, the developer successfully developed theAttendance Meeting Management System for Faculty of Technical and Vocational Education UTHM. Not only that, the feedback received from the interface design experts, interaction design expert and content design expert was also satisfactory and concluded that the research objectives met the aims as planned.

References

Razak Ahmad, A. (2011). Kepentingan Kemajuan Teknologi Maklumat dan Komunikasi. (Daripada) http://www.flashkitech.com/?p=50101 01 Jun 2020

Terry Bahill, A. & Botta Rick (2015). Fundamental Principles of Good System Design. Engineering Management Journal; EMJ 20(4):9-17

Bala Dhandayuthapani Veerasamy. An Attractive Multimedia on the Web Will Enhance the Inspiration to the E-Learning Process. Proceedings of Informing Science & IT Education Conference (InSITE) 2010. Pp 57-67

Baharom, N. (Ed). (2000) *Kamus Dewan* (edisi ke-3). Kuala Lumpur: Dewan Bahasa Dan Pustaka. Dewan Bahasa dan Pustaka. (2018). *Kamus Dewan.* Edisi keempat.

Fahrurrozi, I., & SN, A.(2012). *Proses Permodelan Software Dengan Metode Waterfall Dan Extreme Programming: Studi Perbandingan.*Program Studi Ilmu Komputer, Universitas Gadjah Mada.

Harun, J., & Tasir, Z. (2005). *Multimedia Konsep dan Praktis*. Batu Caves, Selangor. Venton Publishing (M) Sdn Bhd.

J.A. O' Brien (1999). *Management Information Systems : Managing Information Technology.* Internetworked Enterprise. Boston: McGrawHill 1999

Leigh, J. (2002). *Effective Meeting*. Crisp Publications. United States of America. John Niekrasz et a.l. (2008). *Meeting Structure Annotation, "Annotations Collected with a General Purpose Toolkit*. Stamford University. USA

McKeehan D.A. (2002): Attendance Management Program, The City of Pleasanton, Human Resources.

Nabil & Govardhan, (2010). A Comparison Between Five Models Of Software Engineering. International Journal of Computer Science Issues 7(5):94-101

Royce, Winston W. (1970). "Managing the Development of Large Software Systems." *Proceedings, IEEE WESCON.*

Ononiwu G. C and Okorafor G. N (2012): Radio Frequency Identification (RFID) Based Attendance System With Automatic Door Unit, Academic Research International. Vol 2, No 2, March, 2012