

## Multi Conference Registration System (MRMS) Using Barcode Identification



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### ABSTRACT

Multi Conference Registration Management System (MRMS) on site using Barcode System is an online database integrated registration system that have been developed to help the current registration on site management process become more easier and faster by using technology. Currently, registration on site for Multi conference that organized by UiTM is still using manual system where the secretariat will confirm the presenter's attendance using a paper. This will consume more time and waiting of line. To solve this kind of problem, Multi Conference Registration Management System (MRMS) on site using barcode system is come out to help the secretariat register the participants' attendance easier and faster by using computer and barcode scanner.

**Key words:** Multiconference Registration system, conference management system, E-Conference, QR code, identification

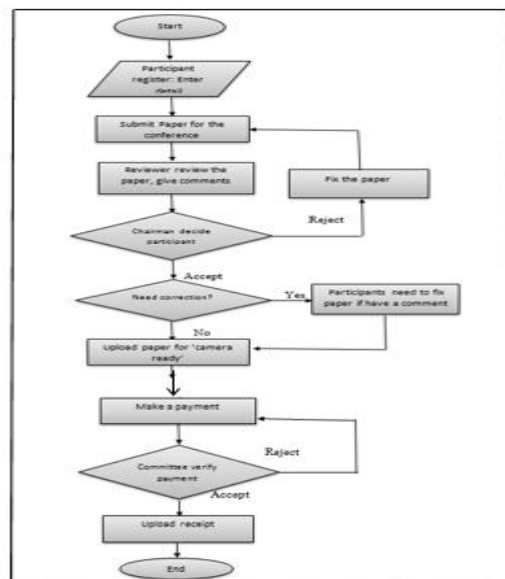
### 1. INTRODUCTION

Academic conference gathers individuals for sharing common interest matters together especially in academics. Multi conference Registration System (MRMS) on site is trying to improve a standard registration from the previous registration system which focus on using quick identification using any available technologies to minimize the waiting time for the conference members queuing during registration by evaluating the functionality and usability of the system. This is to improve the currently process which is the organizer still implement a manual registering on the event before the participants enter the conference.

#### 1.1 Current Business Process

In most conference events, the process of registering is largely concentrated into a very short period time. Most of the event also want the participant to make a pre-registration before the day of the event. This is will make easier for the staff to manage the confirmation of the final registration on the event day.

Current business process for Multi Conference Registration Management System (figure 1) has two side which are Pre-Registration (Before the event) and Registration on site (During the event).

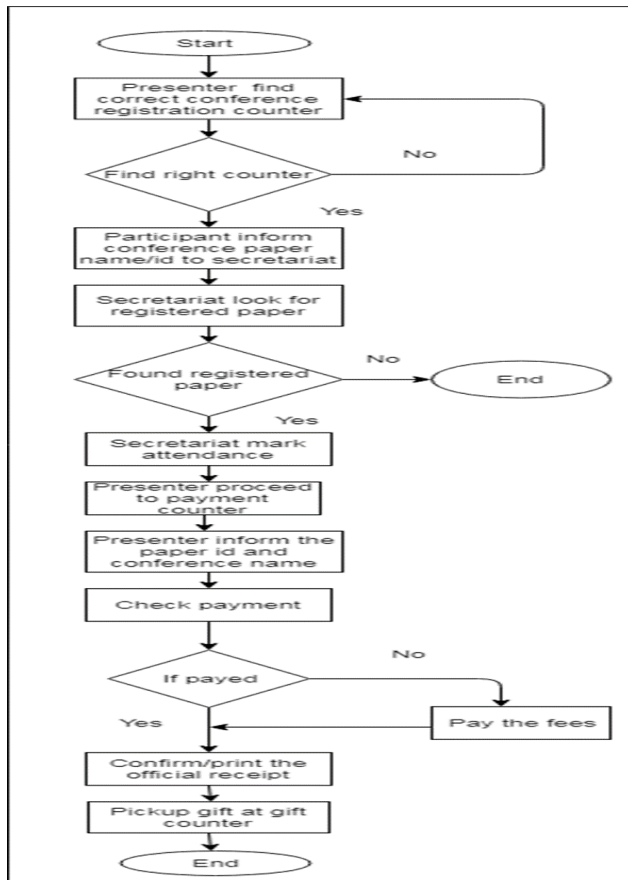


**Figure 1:** Presenter's Current Business process of UiTM conference before the event.

In current business process, Multi conference event's in Terengganu use registering online and using an online banking payment. The participant needs to upload the payment receipt that they have be paid. They need to fill in the form based on their field because different field has different registration. Presenter participant are required to submit their paper with including the author and the presenter name before the event and the maximum author is five.

Presenter participant should submit the paper two month before the day of the event because they need to wait the reviewer to check the paper. Each paper must be reviewed by two reviewers. The paper consists of eight to ten pages. If the total pages exceed more than the allowed maximum pages, an additional fee will be imposed to the authors.

The reviewer will approve the paper and he or she may give a comment to the presenter participant either need to fix the paper or not. If the paper is not approved, the presenter participant can fix and submit again. Proceed to the payment, participant need to upload the receipt as a proof. After that, the committee will check the receipt either valid or not. Then committee will bank transfer to the UiTM's Treasurer. UiTM have three different systems which are TiBEC, ICECT and IAC. The data of the participants that are submitting the papers is in the system that they are submitted. When the papers are accepted, they can proceed with registration in another system which is TeMIC.



**Figure 2:** Presenter's Current Business process of UiTM conference during the event.

In current business process during the event, usually in the UiTM multiconference event, the participants need to queue based on the conference (figure 2). For example, if there are three conference in a day at the same time and the participant will participate for two conference. So, the participants need to register at each of the counter.

Next, at the counter the secretariat will ask participant to give the id or name of the paper. Then, secretariat will check the registered paper before the secretariat mark the participants attendance. This is important because the secretariat will make sure the name on the pre-registration list is match with the name during the event.

After finishing the registration process, the participants will

go the payment counter. At the counter, the secretariat will check the payment receipt to make sure the participant is already paid the fees during their pre-registration or the participant is using the bypass. If the participants are using the bypass, they need to settle down their payment. The bypass payment is usually for the people who are in UiTM organization. If the participant already paid the fees, the secretariat will confirm the payment and print the receipt.

Lastly, the participant needs to go to the gift counter. The secretariat who are in charge in a door gift part, will give a lanyard or the door gift for the participants as them participate for the event. Then they can enter the room of the event.

## 1.2 Problem Statement

Multiconference Registration Management System (MRMS) on site currently is lack of online system because the process is still using a manual registration. This process might be slow in terms of participant's queuing and consume more time to finish the registration. Based on my observation during the conference of EPIC2018, the secretariat has a list of names of the participants. The participant makes a confirmation attendance based on the list by the secretariat. There is no online system that secretariat can check and view the pre-registration details of participants.

Next, Multi conference Registration Management System (MRMS) on site is constraint of connection between the registration counter and payment counter and it is not integrated system. This is because secretariat at the registration counter doesn't know whether the participant already paid the payment or not because they still done the registration by manually and they don't have the participant's detail about the pre-registration.

The registration counter cannot be link and have connection between the payment system. Secretariat needs to ask the participant for the payment, and they don't have a full data about the participants. This is not integrated system because the process of registering and payment is still not facilitating the participants and the secretariat which is the participant need to go and queue at the registration counter and payment counter one by one before entering the conference. To overcome the problem is to create an online database integrated registration system during the event where the registration counter can register and check the payment at once. The participant who already paid the payment can go to the gift counter without go to the payment counter.

The process of Multi Conference registration Management System (MRMS) on site is prone to inconsistent and incomplete registration's data during the event. The secretariat needs to register the participant's name using the paper. They need to find the name and it take a several time to

settle the confirmation registration while other participants still waiting in line. It is clearly seen that the process of registration consumes more time.

Moreover, secretariat also may be doing an error when using manual process. The solution of this problem is to develop a system that can complete the registration by computer and barcode scanning without manual form.

## 2. LITERATURE REVIEW

According El-Mousa, Muhsin and Al-Tae (2008), the registration of the system starts by filling in the required information in the registration form. Operational constraints are important for successful development and deployment of software systems. In MRMS on site, after the participant has done by their pre-registration process before the event, the system will get the information and all data for the confirmation registration used. The system is used by the secretariat. The secretariat is required to enter the data of the participants using the system and make the confirmation of their attendance.

Based on the flow, the presenter participants need to register their name at the registration counter during the event day to confirm their details. This is to make sure the name is match with the pre-registration list. While the non-presenter participant is needing to register during the event day, and they need to make a payment during that day because they are not involved in pre-registration process.

### 2.1 Barcode Scanning Technology

There are two types of barcode which are One Dimensional or Linear Barcodes and two-Dimensional Barcodes.

#### 2.1.1 One Dimensional Barcode

One Dimensional Barcode (figure 3) also called as Linear Barcode. One Dimensional barcode is consisting of vertical lines at specific gaps resulting in a pattern. The vertical lines in Linear Barcodes are used to store data. The data is generated in one direction which is easier to generate as compared to generating data in multi- dimensions. Besides, it is easier to scan because barcode decoding is done in one direction which is easier to perform. The Disadvantages of Linear Barcode is it can only store small amount of data. In order to store large amount of data in linear barcodes, it must be stretched horizontally with additional vertical lines and spaces, resulting in large barcodes. There is some example of One Dimensional or Linear Barcode. There are numbers of One Dimensional formats for example, code38, code128, EAN 13, and many others which each of this format carries different type of supported data format and size of the data. Also, the way how its look also different.



Figure 3: One Dimensional Barcode

#### 2.1.2 Two-Dimensional Barcode

The two-Dimensional barcodes are more complex and store data in the form of a matrix or stack. Stacked two-Dimensional barcodes contain data in the form stacks of linear barcodes. It can store data in both vertical and horizontal direction. There are advantages of two-Dimensional Barcodes which these barcodes can store much larger amount of data ranging up to thousands of alphanumeric characters and variety of data can be embedded into these barcodes such as numeric, binary, text and Unicode data. However, there are also have disadvantages which specialized hardware and software scanners are required to generate and decode these barcodes which can be expensive.

## 3. METHODOLOGY

The system development model that was used in the MRMS is adapted waterfall model. In adapted Waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. Adapted waterfall model consists of planning, analysis, design, development, testing and evaluation and documentation.

In the first phase of adapted waterfall model is planning. During the planning phase, the objective of the project is determined, and the requirements of the system are considered. At this the phase, the title of Multiconference Registration Management System (MRMS) on site is an idea that purpose and agreed by the supervisor. The survey of the similar event has been conducted to observe and identify the current situation of conference event management system especially in registration system.

The second phase is the analysis, In the Analysis stage an in-depth analysis is performed to obtain a detailed understanding of the business needs as defined in the Business Case and Scope documents. It is required a specific end goal to develop the MRMS on site. The third phase is the design stage, figure 4 below is the Entity Relationship Diagram (ERD).

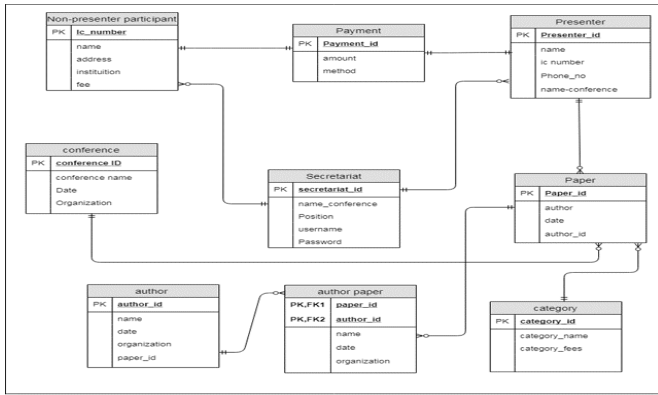


Figure 4: Entity Relationship Diagram (ERD)

MRMS on site use user centered design (UCD) for easy to make improvement of the system if the user wants the changes based on the feedback. By the improvement, MRMS on site can make a system be better, good and successful.

This phase is important because its guide the MRMS along the system to make sure the system is in the right way. This part is divided into two which is hardware and software specification requirement where both of it are needed during the development phases.

**4. RESULT AND DISCUSSION**

The improve version of the business process is the registration process on site is using a computer and the system. The secretariat can scan the barcode Id of presenter to confirm their attendance. The process is systematic where the secretariats need to log in the system by their username and password.

Next, secretariat can simply scan the barcode at the homepage of the system. The secretariat also can see the data of presenter easier by the system. It can help the secretariat in terms of time management process during the event. The secretariat can see the payment status and secretariat can help to fill the form for any special request by presenter such as wheelchair.

**4.1 The implementation of Technology on user interface**

Multi conference Registration management system on site using barcode system is developed to improve the currently onsite registration process where there are no system and computer interaction during the event. There is only one user that can access the system which is secretariat. However, secretariat can choose the action at the menu whether he want to register for presenter or non- presenter. By developing the MRMS using barcode scanning, the process of multi conference become more systematic and efficient.

Currently, the process of onsite registering has some weakness as discussed in chapter one which is it use manually by paper where secretariat will find the name of participant. Secretariat at the registration counter did not know whether

the participant is already paid or not. The process of MRMS using barcode scanning become more faster in terms of waiting time, clearer for the user and more improvement for the registration process. In this paper, will discuss more about the flow, part of the participant and the interface of the system (figure 6). All the interface of this system was shows in appendix.

Criteria	Well-functioned? Please tick (✓) if Yes	Need improvement? Please specify (e.g. system flow, user interface, data control, message displayed, notification to the users, system report content, system report design, etc.)	Rating in the scale of 1-10 how do you rate the achievement for each criteria?
Core function		Area of improvement: - attendance of participants ✓ - register at presenter ✓ - register of nonpresenter ✓ - manage payment ✓	8
Support function		Area of improvement: - presenter ✓ - special thank for... login ✓ - manage conference → to-bah ✓ - manage staff ✓	8

Figure 5: Core function and support function

Criteria	Area of improvement	Rating
System report (related report in the system)	not completed	8
System Flow	o.k	9
User Interface	OK. - improve header - relate with ui/ux.	
Others	none	

Figure 6: System flow, user interface, system report

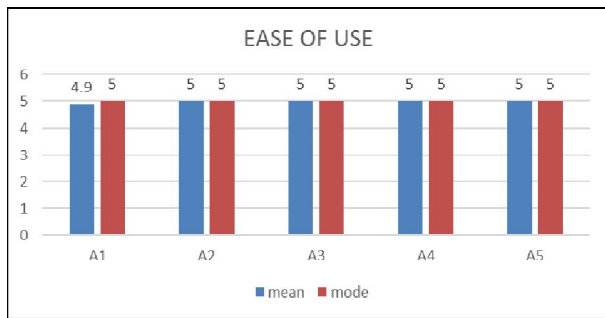
Multi Conference Registration Management System on Site using barcode system is have been made the evaluated by two expert which are the experience lecturer in these conference management. The experts have their own achievement that can help developer to give their opinion and suggestion for improvement of the system.

**4.2 Result of Evaluation**

The user evaluation (figure 7) has been conducted by the students in UiTM Kuala Terengganu using an online questionnaire. The questions have been prepared in chapter 3. The total respondents that involve with the evaluation is 30 respondents. There are five constructs provided in conducting in the questionnaire that user need to fill out all the sections and scale score based on their satisfaction of the system.

In addition, there are two part in the questionnaire which are Part A and Part B. Part A is the demographic profile of the

respondents which is about the background of respondent. Besides, in Part B there are five construct of questions which ease of use are, interface, ease of learning, usability and satisfaction.



**Figure 7:** Average mean value for user evaluation

## 5. CONCLUSION

In conclusion, all the three objectives of this project like an early chapter have been successfully achieved. Multi Conference Registration Management System on site using barcode scanning technology will give benefit to the UiTM conference and all the secretariat, presenters or Non-presenters who involve in the process of registration during the event. Hopefully, this system can help to reduce the currently problems that occurs on the event.

There is some suggestion that can be improve in terms of functionality and the usability of the project. Hopefully, by the limitation that noticed in the system, the suggestion can be used as an improvement for the system to become more effectively function by the users in the future.

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