Design and Build a Seminar Management Information System to Manage 2019 Indonesian Qualitative Seminar & Workshop (SLKI 2019)

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Abstract

Matana University collaborated with Indonesia Qualitative Researcher Association (IQRA) held a 2019 Indonesian Qualitative Seminar & Workshop (SLKI 2019). The organizer required a seminar management information system (MIS) to run this event smoothly. However, seminar MIS was not available at that time and needed to be built according to the needs of 2019 SLKI. The methodology to build seminar MIS is studied literature system development with a prototyping model with user requirement, system/subsystem prototyping, prototype evaluation, prototype improvement, system testing, system implementation, and system maintenance. The seminar MIS consists of 2 (two) main applications: a web-based data management application and a mobile-based attendance application. QR Code was used for the attendance of participants. This seminar MIS successfully has been built and implemented in this event. This seminar MIS helped the participants and the committee share data and information anytime and anywhere as long as they are connected to the Internet. In the future, it is necessary to develop several features such as article management, QR code generator, automatic certificate generation, digital payment, and complete reporting & webinar implementation.

1. Introduction

The education world is very familiar with the event of seminars—seminar as participants' place to share their research or result of their works. Sometimes, seminars can be held in more than one day with various activities. Generally, the participants consist of presenters and non-presenter. The participants need to be registered in advance for various purposes in conducting the seminar. Currently, the organizer utilizes information technology (IT) to share the information among the participants by developing a seminar website, including participant registration.

Many IT innovations have given a broad impact have been for organizations. These technologies have enabled new ways of working and socializing [1]. One example is the Internet, which enables us to be connected with another anytime, anywhere. Besides, wireless technology implementation changed the way of organization operation [2]. Not only that, data capturing has also progressed. To make it easier for data to be entered into the system, the data is created in the form of a barcode and then captured by a barcode reader. Quick Response (QR) Code comes to answer the need for increased data capacity where the barcode is not sufficient [3]. QR Code has been implemented for attendance

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[4][5]. Besides well preparation, the organizer needs to utilize IT to run all of the seminar activities smoothly.

Matana University with Indonesia Qualitative Researcher Association (IQRA) held a seminar & workshop on Indonesian qualitative (SLKI) on 19 – 20 March 2019. In this seminar, there were 7 (seven) activities to monitor the participants, namely, registration, article review, payments, 2 (two) activities in the first day (attendance in the opening of the seminar and visit to the House of Representatives (DPR) and another 2 (two) activities in the second day (1st session and second session (parallel session)). It is not easy to monitor all the participants in those activities, which is targeted to achieve more than 200 participants. Therefore, an IT-based seminar management information system is needed to manage the seven activities in 2019 SLKI.

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2. Methodology

The research of the seminar management information system consists of a literature study and system development. A literature study was conducted to find out the previous research on the topic of seminar MIS. Today, there are open journal systems (OJS) to manage articles or papers by reviewers [6] and open conference systems (OCS) to publish the web for scientific conferences [7]. However, this is not enough for the needs of the 2019 SLKI. Therefore, integrated seminar MIS to handle registration, article review, payments, participants attendance confirmation in each session has not been found.

System development using model prototyping, Fig. 1. The prototyping process is processed to develop a prototype [8]. This prototype model has been chosen because of users' characteristics that easier to understand their needs through the prototype and short limited time. This model consists of 7 (seven) stages, namely, user needs, development of sub system/system prototype, prototype evaluation, prototype improvements, system implementation, system trial, and system maintenance.
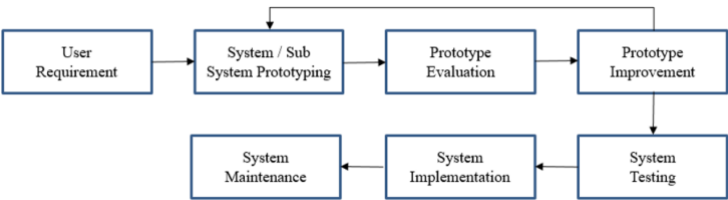

Fig. 1. Prototyping Model

The scope and flow of seminar MIS can be seen in Fig. 2. It is divided into 2 (two) portions of before the seminar and during the 2019 SLKI event. Before the event, 2019 SLKI provides the website for the SLKI activities information and registration connected to the database management system (DBMS) 2019 SLKI. The DBMS used is MySQL [9]. Articles management utilizes the existing OJS so that all the presenters submit their articles through OJS. However, the results of article reviews are inputted into seminar MIS. Seminar MIS

can give notification after registration for the paper that is not yet submitted or for the participants who have not yet completed the payments.

During the event, attendance registration was carried out using the QR code (scanned) using a smartphone-based attendance application for the opening session, visit DPR, 1st, and second session (parallel sessions). Communication of attendance registration with a web application on the server used REST API (Application Programming Interface) to access DBMS of 2019 SLKI. API development is done with Postman [10]. Apache is used as a web server [11].
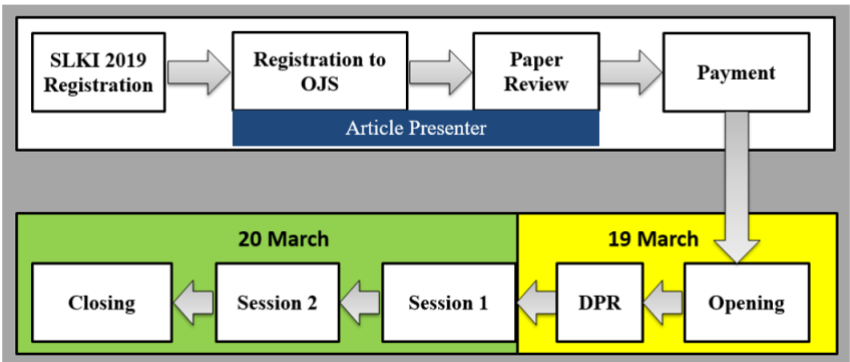

Fig. 2. Scope & Flow of 2019 SLKI

The user of this seminar MIS consists of 6 (six) parties, namely, participants, administrator, chairman of the committee, reviewer, registration officer, and finance section. Data flow or information from the user (entity) can be seen in Fig. 3. This DFD can be utilized to communicate with the committee of 2029 SLKI for the system.
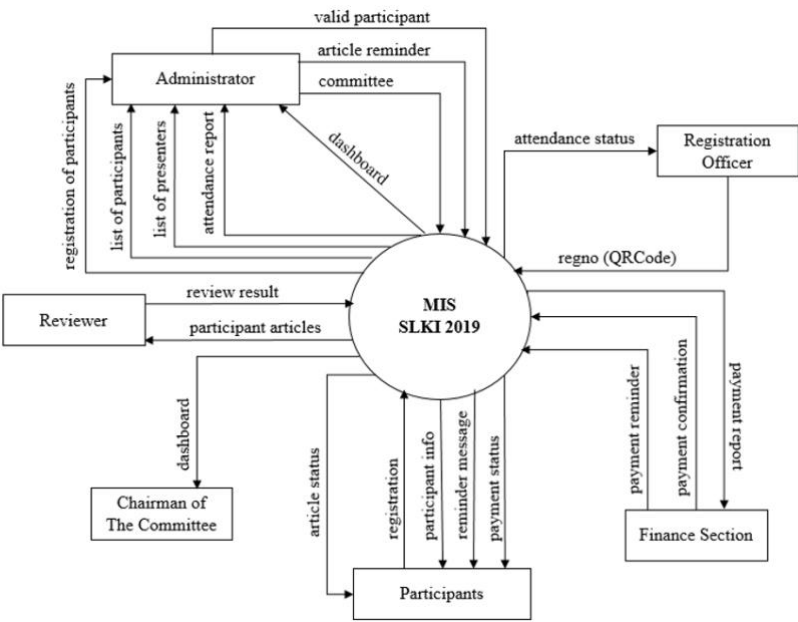

Fig. 3. Data Flow Diagram (DFD)

The prototype refers to the user needs that have been obtained. Prototype development has been carried out per subsystem before consolidating with other related subsystems and finally will become a complete system. On evaluation results, the improvements from the subsystem to the complete system have been made. This complete system trial was conducted from the registration process to the attendance of participants. During the implementation, the application and DBMS were installed to the server, related to user registration and committee training. The maintenance activities have been carried out from the implementation to the committee's dissolution, such as data backup, fixing data error, or minor process.

Back end software utilizes the architecture of the model view controller (MVC). This MVC (Model View Controller) architecture in web-based application development can be a framework to improve the speed and quality of works [12]. This MVC is based on object-oriented PHP [13]

3. Result

The 2019 SLKI MIS is uploaded to the server with the following URL http://www.seminarnasional.matanauniversity.ac.id. Through this URL, all visitors can see the information about 2019 SLKI and do registration using the registration form. The 2019 SLKI committees can immediately know the information about the registration. Fig. 4 is a dashboard of 2019 SLKI MIS that provides a summary of the participants.
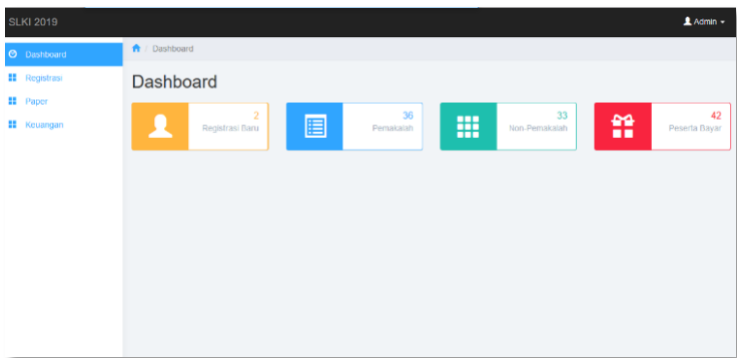

Fig. 4. Dashboard

The participants, both of presenter or non-presenter, have been monitoring by committee, Fig. 5. In the participant module, the committee can validate each registration and search for the participant.
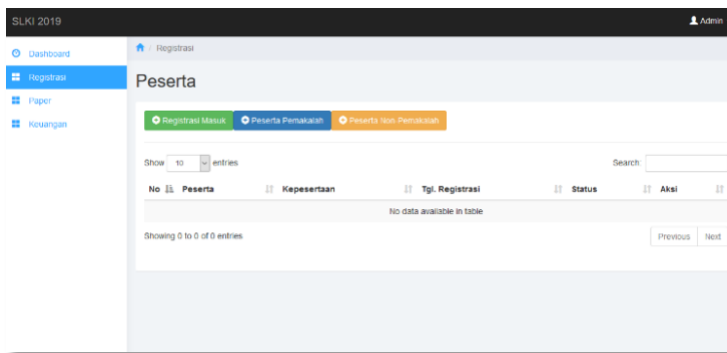
Fig. 5. Participant Module

The reviewer assesses the article through OJS. The results have been inputted to the 2019 SLKI MIS, Fig. 6. In the presenter module, the committee monitors the articles of the presenters. Committee sends reminders by email to the presenters that have not submitted their articles.
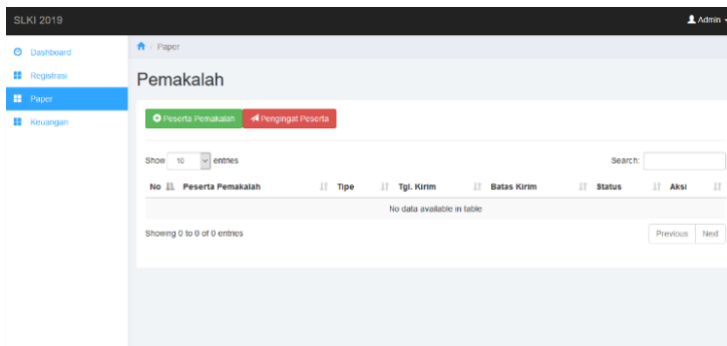

Fig. 6. Presenter Module

The committee monitors the payment from the participants, as in Fig. 7. The committee sends a reminder to the participants who have not yet completed the payment module's payments.
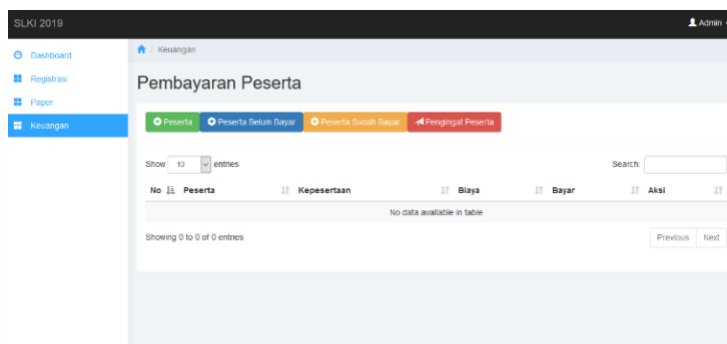

Fig. 7. Payment Module

During the 2019 SLKI event, there were 4 (four) sessions required to record the participants' attendance in each session. We record using an Android-based mobile application, Fig. 8, installed in the committee smartphones.

Fig. 8. Participant Attendance

The mobile application uses a smartphone camera to read the participant's QR Code. Fig. 9 is an example of a participant QR code.

Fig. 9. QR Code

Fig. 10 shows participant attendances in 4 (four) sessions of 2019 SLKI events. The second session percentage was low because the parallel session for the presenters played critical roles.
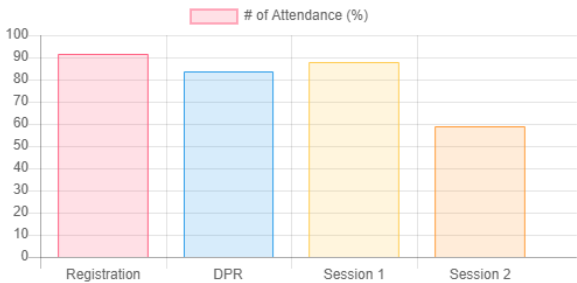

Fig. 10. Participant Attendances Result

4. Conclusion

We developed the seminar MIS for managing 2019 SLKI successfully. The prototyping model is very appropriate for this seminar MIS design. The organizer not only utilized the website for information sharing among the participants but also utilized seminar MIS to manage participant data, articles, payments, and attendance. QR Code utilization for participant attendances has been proven to reduce the queues during registration. In the future, it is necessary to develop an article management feature (without OJS), QR Code generator to speed up name tag issuance, automatic certificate generation, digital payments, complete reporting with data analysis, a smarter system, and to be able to be used for webinar event.

Acknowledgment

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