Research Article

Development of Event Management System in Professional Organization of Indonesian Professional Assessors Association (IASPRO) Using User Centered Design Method

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Abstract.

An organization usually has events that need to be publicized to the wider community. The Indonesian Professional Assessors Association (IASPRO) only uses social media to publicize events such as seminars, workshops, or other events that are held. As a result, many organizational members or potential participants do not know that the event is being held or are even confused about registering and finding out what the participant quota for the event is. To make it easier for potential participants, a system is needed to organize event publication and registration. Therefore, an event management system is created, namely a web-based application with a User-centered Design approach. The use of the User-centered Design method aims to produce a system that suits the needs and comfort of the user. At the testing stage, the author uses the System Usability Scale method to evaluate the system interface, and black box testing to measure software functionality and ensure the software meets user needs. Test results using the System Usability Scale obtained an Acceptability range value of 81.67 with Grade A, with these results it is certain that users are satisfied with the current interface design.

Keywords: system, event management, UCD, web-based,; organization

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1. Introduction

The Indonesian Professional Assessors Association (IASPRO) is a professional organization in the field of competence and expertise that has a variety of activities, be it workshops, seminars, and other activities that become the work program of the organization. In carrying out its work program, the Indonesian Professional Assessor Association uses an official website as an integrated activity information system.

In general, each organizational work program goes through several procedures from preparation to implementation and is manifested in the form of an event as needed. However, with the current procedures, several problems arise [1]. The most important one is the absence of a system that is specifically used in organizing or participating

in events [15][16]. The details of these problems include uneven publication, event information that is difficult to reach by participants, inaccurate event searches, and other problems related to organizing events.

This research has several objectives that need to be met by developing several points of need, based on the results of research and interviews with the author. Some of the research needs and objectives include: providing a new system to deliver and disseminate event information evenly, facilitate event management, and provide complete features according to needs, such as reminder features for ongoing events, event registration features with a user-friendly display, and present real-time data on how many participants have registered. By meeting these needs and objectives, it is hoped that the system developed can provide benefits for event organizers and event participants in facilitating the process of organizing and participating in events.

In developing an event management information system, this research uses the User Centered Design (UCD) method with the aim of ensuring that the system is in accordance with user needs and preferences, where users (respondents) are actively involved in all stages of system development, from the planning stage to evaluation, so that system development can be carried out by focusing on user needs and being able to provide optimal user experience [2] [3] [4]. Given that, an application will be easy to use by users if, in the development of the application, the user is the main priority. The UCD method involves users directly in every stage of system development, from the planning, and design, to testing stages. This ensures that the developed system truly meets the needs of users and can be used easily and effectively [5].

User-Centered Design (UCD) is an approach used to develop interactive systems that involve users in the development process. According to ISO 9241-210: 2010, UCD is a method in system design and development that aims to involve users in the system development process so that it can adapt to user needs.

2. Material and Methods

The User Centered Design (UCD) system design approach is focused on user needs and experience and ensures that the developed system can be used easily and efficiently [5].

There is a study that investigates the application of the User Centered Design (UCD) method to promote product menus online in restaurants entitled "Application of the User Centered Design (UCD) Method for Web-Based Online Catalogs at the Alfa Lesehan Restaurant, Blitar Regency". This research aims to overcome the problems of users who

experience difficulties in using the features of the Alfa Lesehan application. Based on the results of Usability Testing with the System Usability Scale, this application succeeded in achieving an excellence range of 6.8%, indicating the creation of a user-friendly application with a quite satisfactory level of user satisfaction. The results of the User Acceptance Test (UAT) showed an average of 81.8%, indicating that this application was well received and able to meet consumer needs. In addition, the results of A/B testing with two User Interface displays show that User Interface display 1 is preferred, with a conformity rate of 90.9% [6].

In 2021, Alif Bimananda Cavanaugh conducted research entitled "UI/UX Analysis and Design using the User Centered Design Method on the DLU Ferry Website". The aim of this research is to design an interface that can be used by website admins, customers and the general public. The design is carried out by adding features that suit user needs. User needs are collected through interviews, distributing questionnaires, and design evaluation using SUS (System Usability Scale). The research results show that adding features can be a design solution that suits user needs [17].
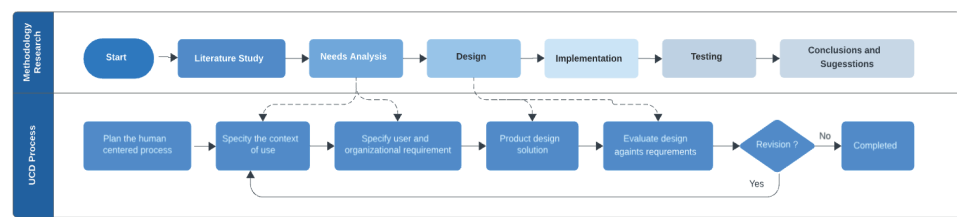

Figure 1: Research Methodology.

2.1. Literature Study

At this stage, researchers search and select library materials, be it scientific journals, books, or articles related to the research topic to gain an understanding of concepts, theories, and research methods.

2.2. Needs Analysis

At this stage, researchers will conduct direct interaction with users related to the system to be developed with the aim of understanding the needs, problems, expectations, and experiences of users related to the system to be developed [7] [8]. There are 2 stages that must be carried out in the needs analysis, namely:

Specify the context of use.

This stage aims to identify and determine who will be potential users of the application.

Specify the user and organizational requirements

The process of identifying the needs of potential application users is carried out by giving questionnaires to 15 respondents from representatives of the Professional Certification Institute and conducting interviews with several predetermined competency assessors.

2.3. Design

In the UCD method, the design stage is adjusted to the stages used in the method, which consists of:

Produce design solution.

In this stage, researchers design an interface design based on the results of the needs analysis, with the aim of making it easier for users to understand the appearance of the product in the form of a mockup or wireframe.

Evaluate design.

After the design solution stage is complete, the design results will be evaluated by potential users to ensure the suitability of the system to user needs.

2.4. Implementation

This stage is the implementation of the system design by converting the system design into programming code so as to produce a system that can be used by users.

2.5. Testing

Testing can be done with several methods, including black-box testing to test system functionality [9][10][11]. To test the usability of the system, SUS (System Usability Scale) and UEQ (User Experience Questionnaire) testing methods can be used [12][13][14].

2.6. Conclusions and Suggestions

The results of the test are used as the content of conclusions and suggestions, which will later become a reference in the process of further system development. Thus, testing

becomes very important in ensuring that the system developed has good quality and is able to meet the needs of users to the maximum.

3. Result and Discussion

By using the UCD method in this research, there are several flows that must be done, namely specify the context of use, specify user and organizational requirements, product design solution, and evaluate design against requirements.

3.1. Specity The Context Of Use

At this stage, an analysis of the Admindan User immediately begins. In addition, it will be displayed in the View Analysis table.

TABLE 1: User Analyzer.

User	Description
Admin	System users can use the features provided by the event management system application from the admin side, including application user management, inputting activity agendas, determining speakers, determining sponsors, validating event participant registrations, managing members, and validating event participant payments.
User	system users can use the features provided by the event management system application from the user side, including viewing a list of events that have been or will be held, registering events, viewing event registration status, and membership, and processing personal profiles.

3.2. Specify User And Organizational Requirement

After understanding what needs are needed by users and admins, at this stage the author specifies User Requirements or determines user needs. Use case diagrams are used to describe the activities contained in the application, namely Use Case Diagram User and Admin.

3.3. Product Design Solution

User interface design is part of the system that connects users with computers so that they can form a dialog. Based on the results of the data collection, the authors began to design the application prototype according to user needs and also in accordance with the objectives of the application.
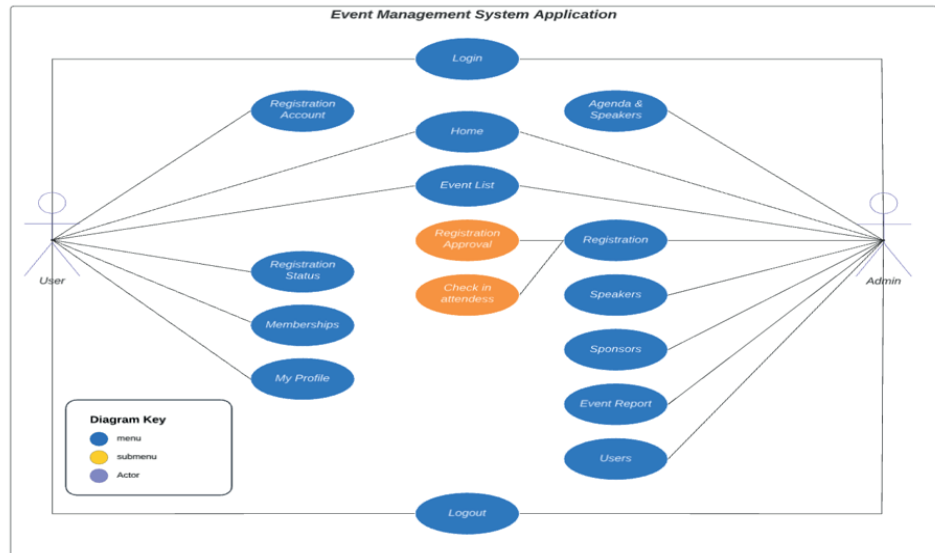
Figure 2: Use Case Diagram Application.

(a)

(b)

(c)

(d)

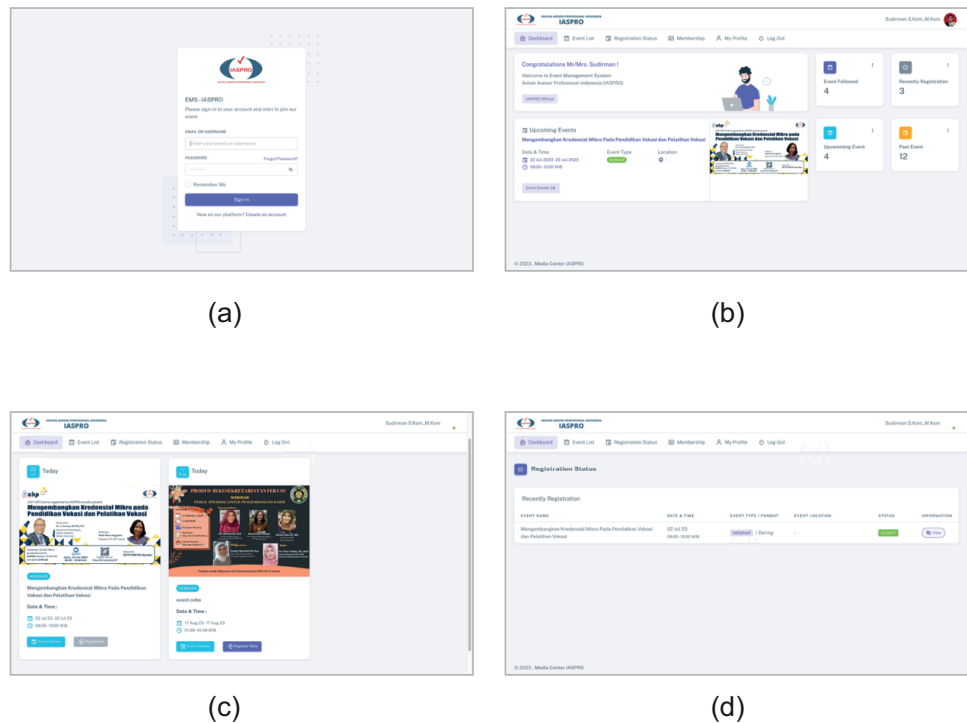**Figure** 3: (a) login page application; (b) dashboard application; (c) event list page; (d) registration status page.

3.4. Evaluate Design Against Requirements

Testing is done with the black box method by observing the results of the previous season's research or checking the functionality of the application made for validation testing and usability testing using the System Usability Scale (SUS).
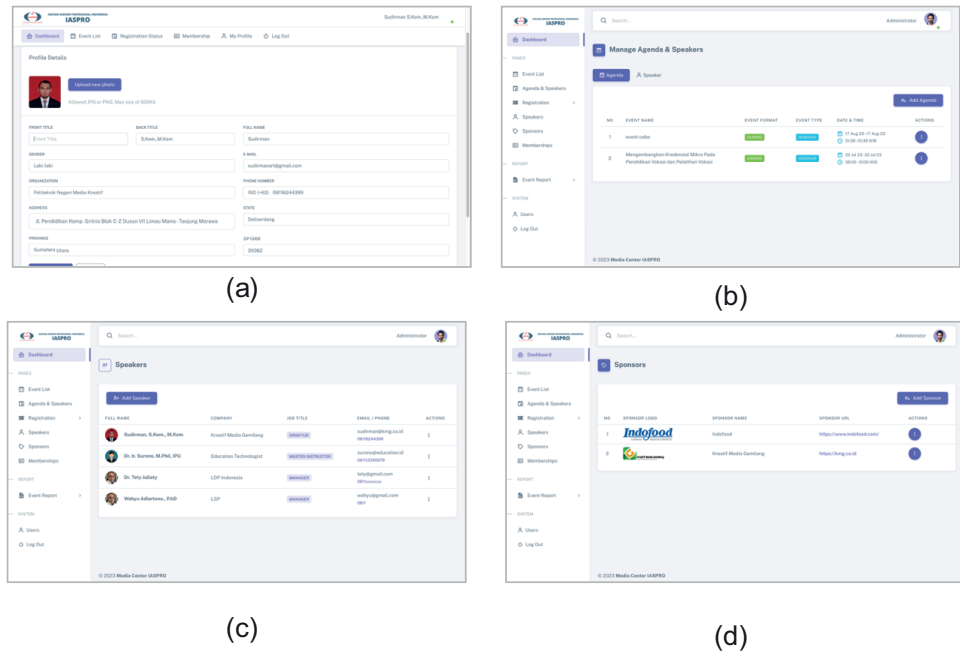
(a)

(b)

(c)

(d)

Figure 4: (a) profile page; (b) agenda and speakers page; (c) speakers page; (d) sponsors pages.

Table 2: Black Box Testing Results.

Tested Pages	Testing Procedure	Results	Conclusion
Home	Log in as admin and user	can enter the application's initial display	Success
Event List	Selecting the section you want to work on	Can Process And Display Event List Properly	Success
Registration Status	Selecting the section you want to work on	Can Process And Display Data Registration Properly	Success
Profile	Selecting the section you want to work on	Can Process And Display Profil Properly	Success
Agenda & Speaker	Selecting the section you want to work on	Can Process And Display Agenda Properly	Success
Speakers	Selecting the section you want to work on	Can Process And Display Speakers Properly	Success
Sponsors	Selecting the section you want to work on	Can Process And Display Sponsors Properly	Success

Based on the results of SUS testing on application design evaluation, the average score or final result is 81.8, based on the SUS testing procedure, the score is included in the acceptable category with grade scale A and adjective ratings best imaginable.
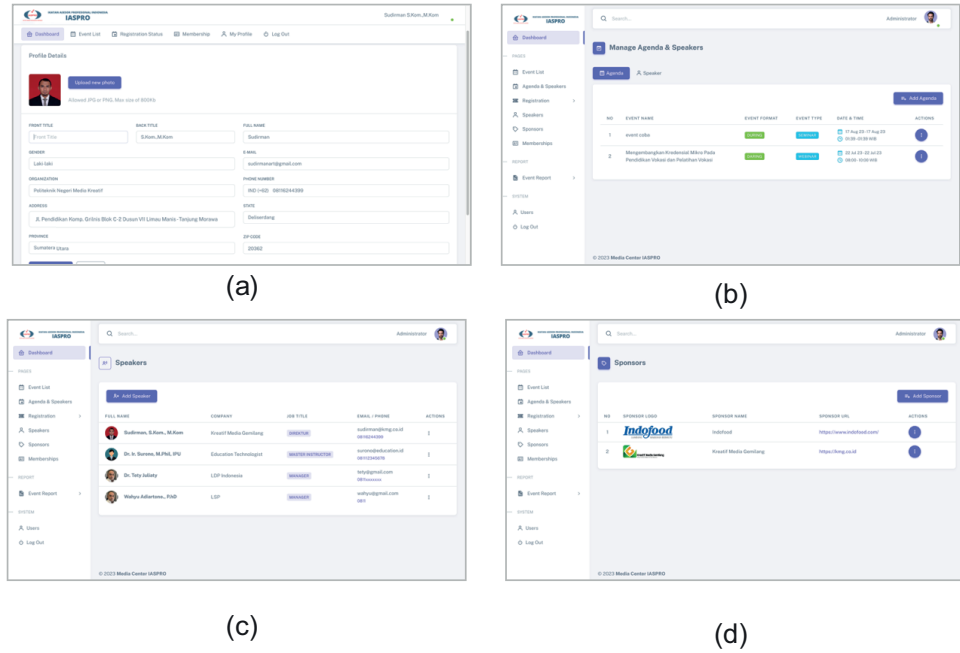
Figure 5: System Usability Scale Calculation.

NO	RESPONDEN	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total	Score (Total * 2.5)
1	Responden 1	4	3	3	3	4	3	3	4	3	4	3	2	2	2	3	2	2	1	2	1	20	50
2	Responden 2	5	3	5	3	5	2	5	2	5	3	4	2	4	2	4	3	4	3	4	2	32	80
3	Responden 3	5	1	5	2	5	1	5	1	5	1	4	4	4	3	4	4	4	4	4	4	39	97.5
4	Responden 4	5	3	4	3	5	3	4	2	4	3	4	2	3	2	4	2	3	3	3	2	28	70
5	Responden 5	5	3	4	3	5	3	5	2	4	3	4	2	3	2	4	2	4	3	3	2	29	72.5
6	Responden 6	4	2	5	2	5	2	5	3	4	2	3	3	4	3	4	3	4	2	3	3	32	80
7	Responden 7	5	2	4	2	4	2	4	1	5	2	4	3	3	3	3	3	3	4	4	3	33	82.5
8	Responden 8	5	2	5	3	5	2	5	2	5	2	4	3	4	2	4	3	4	3	4	3	34	85
9	Responden 9	5	1	5	1	5	2	5	1	5	1	4	4	4	4	4	3	4	4	4	4	39	97.5
10	Responden 10	5	2	4	2	5	2	5	1	5	3	4	3	3	3	4	3	4	4	4	2	34	85
11	Responden 11	4	3	4	3	4	3	4	2	4	3	3	2	3	2	3	2	3	3	3	2	26	65
12	Responden 12	5	2	5	2	5	2	5	1	4	2	4	3	4	3	4	3	4	4	3	3	35	87.5
13	Responden 13	5	1	5	2	5	1	5	1	4	2	4	4	3	4	4	4	4	4	3	3	37	92.5
14	Responden 14	5	2	4	1	5	1	5	1	5	2	4	3	3	4	4	4	4	4	4	3	37	92.5
15	Responden 15	5	2	5	2	5	2	5	2	5	2	4	3	4	3	4	3	4	3	4	3	35	87.5
																			Final average score			81.67

Figure 6: Basis for Assessment Score System Usability Scale.

4. Conclusion

From the results of research on the Development of Event Management Systems in the Professional Organization of the Indonesian Professional Assessor Association (IASPRO) Using the User Centered Design Method, the following conclusions can be drawn:

Interviews with users play a crucial role in designing an application as they provide direct insight into user needs, preferences and experiences.

Black box testing is suitable for testing functionality, ensuring the system functions as expected.

In this study, the results of the SUS score assessment were 81.67, based on the SUS testing procedure, the score was included in the Best Imaginable category with grade scale A and adjective ratings Best Imaginable.

In developing this event management system there are several suggestions, namely for further development can use e-mail verification or one time password (OTP) in the problem of users forgetting passwords.

Acknowledgements

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