DESIGNING USER INTERFACE STUDY BASED ON WEB AT POLITEKNIK PENERBANGAN SURABAYA USING PROTOTYPE METHOD

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ABSTRACT

Politeknik Penerbangan Surabaya provides an official website which is often used as a medium for disseminating information related to agency activities. But along with the development of technology, the information desired by users is increasingly diverse and detailed. Even though the Politeknik Penerbangan Surabaya has provided an official website, there is still a lot of detailed content that is not listed on the website as well as websites related to available studies. For this reason, it is hoped that the user interface study based on web can become an information medium. The formulation of the problem raised in this study is how to design a website user interface system for the Study at the Politeknik Penerbangan Surabaya using the prototype method. The purpose of this reaserch is to build a website tha can become an information medium related to study. As the results, the study website can be used conveniently with the results of the validity test through the Material Expert Test of 89.2% and declared "valid" because ≥ 61% and usability testing of 92.5% were at intervals of 81 to 100% which showed that the usability measurement results of the Study website at the Politeknik Penerbangan Surabaya "Very Worthy". So that the conclusions that can be drawn in this study are that the user interface design of the study website can be used and the information contained on the website provides benefits to users.

Keywords: *Website user Interface, Study, Air Transportation Management*

1. INTRODUCTION

Politeknik Penerbangan Surabaya is one of the Educational Institutions under the Ministry of Transportation. Politeknik Penerbangan Surabaya is a Vocational Education Institution which has the main task of organizing vocational education, research and community service programs in the field of aviation. In supporting this vision and mission, the Politeknik Penerbangan Surabaya has provided an official website, but there is still a lot of detailed content that is not listed on the website as well as websites related to available studys. For this reason, having a profile website for each study separately will make it easier for all parties. The development of modern technology will add value to the effectiveness and efficiency of an institution. [1]

In realizing this vision, the Politeknik Penerbangan Surabaya has the mission of organizing vocational education in the field of aviation in accordance with competency standards both nationally and internationally, creating vocational education facilities and infrastructure in accordance with developments in aviation science and technology, creating excellent, professional and ethical human resources. , creating an academic climate capable of realizing the vision of the Politeknik Penerbangan Surabaya, organizing and realizing the tri dharma of higher education, and organizing and realizing professionalism for transparent and accountable financial management [2].

Currently the use of technology as a learning medium is no stranger to students, especially cadets. Besides being used to access learning, technology can also be used as a medium for disseminating information. [3]; [4]; [5]; [6]; [7]

One medium that is very accessible is the website. Website is a service with a hyperlink concept containing information that makes it easier for internet users to search for information on the internet. The website presents information using a multimedia concept where information can be presented using many media such as images, animation, sound, text or film [8] [9] [10] [11] [12]. In aligning the vision and mission of the technology-based Politeknik Penerbangan Surabaya, the Politeknik Penerbangan Surabaya provides an official website that can be used by external and internal parties. This website is often used as a medium for disseminating information related to the activities of the Politeknik Penerbangan Surabaya agency. But along with the

development of technology, the information desired by users is increasingly diverse and detailed. Even though the Politeknik Penerbangan Surabaya has provided an official website, there is still a lot of detailed content that is not listed on the website as well as websites related to available studys. For this reason, having a profile website for each study separately will make it easier for all parties

The website profile can be easily accessed by the wider community because the website has easy access globally, namely through the internet. In addition, the website profile can be accessed by various electronic devices. For example smart phones, laptops and computers. More specifically, a website profile can store data in the form of text, sound, images, animations, tables, diagrams and other forms of data that are more interesting. A website is a whole web page contained in a domain that contains information about a community, company or school. A website is composed of many web pages that are interconnected with one another. To create a website profile for all Studys available at the Politeknik Penerbangan Surabaya, the first step is to design a new user interface with new experience. The User Interface or what is commonly called UI Design is key of the component of developing website because it functions to connect the information needed from the system itself with the user. [13] [14] [15] [16] [17].

Each system developed by the developer certainly has its own uniqueness in terms of interface design that is tailored to your needs. The user interface is the graphical component of the website, software program or hardware device that guarantees user engagement with the program or website and how data is presented on the website display. This user interface idea merges the ideas of visual composition, interaction composition, and information framework. Until now, official website from Politeknik Penerbangan Surabaya has not been able to furnish comprehensive information regarding each study. The presence of the website profile can increase efficiency and effectiveness in terms of time, cost and the desired target. In addition, with the rapid development of technology, computer and network-based technology can facilitate the delivery of information. The Politeknik Penerbangan Surabaya website content on the study menu only displays a brief vision and mission of one of the studys. This shows the lack of information provided to the public.

Based on previous research about software system, A component-based architecture design for a large family of software applications. This is called BBM (building block method). Building Block Method focuses on the discovery and development of building blocks. [18] [19] [20]. User interface diagrams provide a simple and accurate way to tell users exactly what the system will do. A user interface diagram is drawn while collecting and specifying the requirements for the system [21]. Prototyping is software development approach in which the stakeholder characterizes a set of general targets for the project but does not classify thoroughly the requirements for the details [22]. A Content Management System (CMS) is a universal website software used by the web development community to create websites and facilitate the management of web content such as graphics, text, video, audio and graphics. A CMS is a platform for managing websites designed for users with no technical expertise [23].

Based on the description above, the authors conducted a study entitled Design Of The User Interface Website For Study At The Surabaya Flight Politechnik Using The Prototype Method. Limited topic that the researcher has, namely only making the appearance/user interface of the Study Website profile at the Politeknik Penerbangan Surabaya. Based on the explanation above, the formulation of the problem that can be taken in this study is:

1. How to design a website user interface system for the Study at the Politeknik Penerbangan Surabaya using the prototype method?
2. How to innovate the website to make it more attractive?
3. How can the study website provide benefits?

2. METHODS

In this research, while developing the system, the Prototype model or approach was employed, and the business processes of the system were depicted using BPMN (Business Process Model and Notation). This system was developed utilizing an open-source Content Management System (CMS), called WordPress. This Website Design uses the Prototype Method. This website was created to make it easier to find the information needed by cadets and lecturers to make it more efficient and faster and to facilitate promotion to the general public. The prototyping steps begin with requirements gathering, which includes collaboration between system developers and users in order to establish system goals, features, and operational necessities.

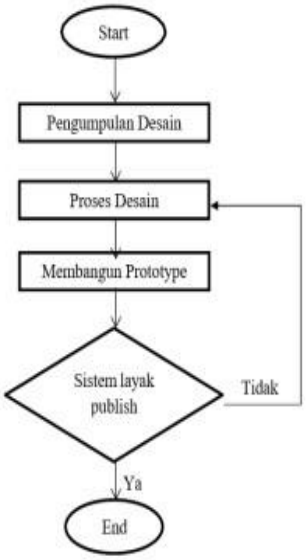

Figure 1 Pictures of the prototyping steps

2.1. BPMN (Business Proccess Model and Notation)

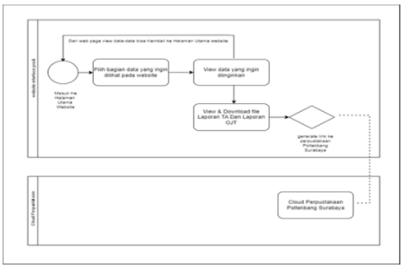

Figure 2 BPMN (Business Proccess Model and Notation)

The process of creating the study website application is carried out in a simple manner and the data that you want to download, such as OJT Report data and the final project, will generate a link to the cloud library.The design of this website interface uses a simple flat website design concept with a soft color background and attractive animation. Supported by its neat layout. For the selection of fonts the author aims to use a font that is easy to read

2.2. Testing Techniques

1. Validity Test, this aspect is tested by programming experts using a questionnaire. So that it can be known which functions are running and which are not running (errors). In this case it will be tested by an IT expert, one of the Heads of Studys from the Heads of Studys and 4 Study Staff at the Politeknik Penerbangan Surabaya.

2. In the Web Quality Evaluation Method [24] Luis Olsina Santos proposes one of the characteristics for testing websites, namely Usability, this aspect is measured using a questionnaire. Questionnaires were given to cadets and the general public.

2.3. Data analysis technique

1. Validity test, To determine the level of validity of the product as a result of development, the formula for calculating the percentage value of validity is used as follows.The Study website is said to be valid if the percentage is ≥ 61% [25].
2. Usability, The measurement of usability is conducted by computing the proportion of responses from participants, utilizing the formula specified in [26].

$$\text{Eligibility percentage} = \frac{\text{Skor yang diobservasi}}{\text{Skor yang diharapkan}} \times 100 \quad (1)$$

The data obtained, then carried out the conversion process based on the feasibility category with the classification as on [27].

Table 1 Eligibility Category

NUMBER (%)	FEASIBILITY CATEGORY
<21	Totally Inadequate
21-40	Not Eligible
41-60	Enough
61-80	Decent
81-100	Very Decent

Table 1 explains the range of website ratings. Starting from the level of very inappropriate to very feasible. This test was tested using a questionnaire which will be distributed to 25 MTU 6 A respondents and 30 the general public so that later it can be concluded regarding the feasibility of the software from the user's point of view.

3. RESULTS AND DISCUSSION

From the results of website design, the authors found several research results which will be explained, among others, such as website appearance and system testing as follows

3.1. Research Result

a. Home Page

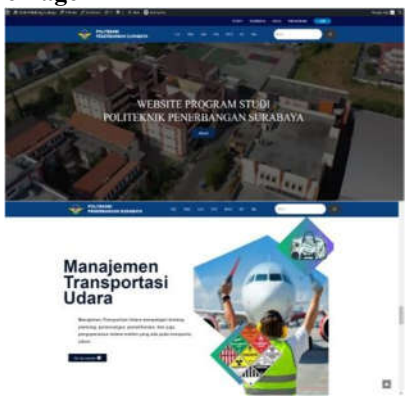

Figure 3 Home Page

Figure 3 displays the words "Website of the Politeknik Penerbangan Surabaya Study". The homepage also shows which studys are available at Politeknik Penerbangan Surabaya.

b. Study Page

Figure 4 Study Page

Contains the appearance of the website on the menu page of the study. There is a navigation bar available at the top of the website which functions to make it easier for users to access the features provided.

c. Profile Page

Figure 5 Profile Page

Figure 5 shows the display of the study profile page. This page explains the definition of Air Transportation Management, Scope of Work, MTU Graduate Results, Vision and Mission, General Requirements Education Costs, Competence, Study Management and Lecturers in the Air Transportation Management Study. Providing general information related to studys will make it easier for the general public to understand Air Transportation Management. In addition, the management of studys and lecturers can make it easier for prospective cadets/I who have passed the Politeknik Penerbangan Surabaya entrance selection to get to know more about the study that will be undertaken during their education period.

d. Manual Page

Figure 6 Manual Page

Figure 6 shows the display on the manual page. This page provides Final Assignment guidelines, On The Job Training Guidelines and Learning Modules that can be input by lecturers and management staff of the Study. This menu is intended for cadets/I so that in the education process they can access information independently.

e. Competency certificate and License Page

Figure 7 Competency certificate and License Page

This page shows what competencies Air Transportation Management cadets will have. In addition, the information provided is information related to certificates and licenses that can be used within the scope of work.

f. Laboratorium Page

Figure 8 Laboratorium Page

Figure 8 shows laboratory-related information that can be used by cadets. Understanding and understanding visually through pictures and even videos of activities carried out in the laboratory are available on the laboratory page.

g. Thesis Page

Figure 9 Thesis Page

Figure 9 displays examples of final assignments that have been made by alumni **h. Approval Page**

Figure 10 Approval Page

Figure 10 displaying an Example of Study Approval at the Politeknik Penerbangan Surabaya as one of the constituent innovations. This innovation will provide added value to the website that has been designed. **i. Gallery Page**

Figure 11 Gallery Page

This Gallery page displays some of the documentation of the activities of the Cadets while carrying out On The Job Training Practices at various airports throughout Indonesia. In addition, there is also documentation of the activities of the Politeknik Penerbangan Surabaya alumni while in the world of work.

3.2. System Test

1. Validity Test

The material expert test was carried out by 1 IT Expert Lecturer, namely Mrs. Lady Silk Moonlight, S.Kom, MT and 5 Management of the Politeknik Penerbangan Surabaya, namely Mr. Musadek, ST. MT. as the Head of the Air Transportation Management Study and 4 Staff with the following results:

Table 2 Material Expert Test

Aspek Penilaian	Presentase Skor yang diperoleh dari Ahli Materi (%)						Akumulasi Presentase Skor	Ket
	Ahli IT	Kaprodi MTU	Sekretaris ProdiMTU	Staff Prodi 1	Staff Prodi 2	Staff Prodi 3		
Total	84.4	77.7	100	88.8	97.7	86.6	**89.2**	Layak digunakan tanpa revisi

The average validation of study website designs at the Politeknik Penerbangan Surabaya by material experts was 89.2% and was declared "valid" because ≥ 61% and exceeded the lower limit of a test was declared valid.

2. Usability Test

Usability Test is done by calculating the percentage of answers from a number of respondents. The observed score was obtained from the total score of all answers from 55 respondents, which was equal to 1.272, while the expected score was obtained from the total maximum scale score multiplied by the number of questions then multiplied by the number of respondents which was equal to 1375. After knowing the results of the observed scores and the scores expected, then the measurement results are obtained which is equal to 92.5%. If these results are associated with the interpretation of the scores in Table 3.1. The feasibility percentage value of 92.5% is in the interval from 81 to 100% which indicates that the usability measurement results for the Study website at the Politeknik Penerbangan Surabaya are "Very Worthy".

Based on assessment data from Politeknik Penerbangan Surabaya Cadets and the general public on the Politeknik Penerbangan Surabaya Study website interface, the authors conclude that the design of the interface is sufficient to make it easier for users to access the information contained in the information system and it is hoped that it will continue to be developed further to meet user expectations.

4. CONCLUSION

The conclusion is that the Study Website User Interface Design at the Politeknik Penerbangan Surabaya Using the Prototype Method can provide information about data and information from studys at the Politeknik Penerbangan Surabaya. Because nearly all the Indonesian Civil Aviation Polytechnic cadets get amateurish readers, sluggish readers, and suspended readers [28]. The interface on this system can facilitate the interests of the general public as well as lecturers and cadets to access and understand web-based information system development. This profile website provides more complete and detailed information about each study and makes it easy to disseminate information and can support the official website of the Politeknik Penerbangan Surabaya..The available content is very detailed and there are sub menus that make it easy for users to access information.

Designing the website starts with designing a flowchart or conceptual sketch that describes the structure and navigation of the site. After that, apply the flowchart into a visual design using design software. After the design is complete, the next step is to collect content such as text, images and other multimedia. After the website page content is complete, the next step is to upload the design file to the hosting then check and test the site thoroughly before publishing it live to the hosting.

Overall, based on the material expert test, 89.2% and a feasibility percentage value of 92.5% were declared valid and very suitable for use. From this assessment it was concluded that the study information system had been built and was running well.

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