Responsive Mobile User Interface Design and User Experience on the Company's Website

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ABSTRACT

Human-Centered Design Method is a method of approach in the development and design of a system that focuses on the user according to aspects of the needs and habits of the user. Difficulty in accessing information on the website becomes a problem faced by the user and in terms of visual website can not be responsive when accessed via mobile. The initial stage carried out in this method is observation which aims to find and to better understand the problems faced by users to conduct testing to find out whether the solutions provided can be understood and easily used by the user. Website testing is done by giving tasks to the user to interact on the website prototype, as the final result of success in the aspect of ease and comfort of the user using the website. After testing the user directly the test results are obtained, ie the user already feels quite understanding and easy when using the website that was created. The responsive mobile feature created also makes users feel helped when using a website on a smartphone.

Keyword : User interface, User experience, Human - Centered Design, Website

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1. INTRODUCTION

The development of technology in the 4.0 era that is getting faster and more advanced requires all of us to continue to be able to innovate in making a technology product, whether technology based on mobile applications or websites. There are many companies that utilize the website as a tool to introduce their profile, for example, the office of the Ministry of Energy and Mineral Resources Directorate General of Electricity.

Directorate General of Electricity is in charge of formulating and implementing policies in the field of guidance, business, engineering, safety, and environment in the field of electricity. To provide information, the Directorate General of Electricity uses website media as a means to provide information on organizational structure, brief history, and news.

The problem that arises on the use of the website as a medium of information in the office of the Ministry of Electricity is that there are still many users who have difficulty in using the website, this is an important problem in terms of user convenience in finding information on the website. From the visual point of view, the website of the Directorate General of Electricity also looks less attractive. The website is also not responsive when users access it via mobile, this is very important considering that in today's fast-paced era users also often access any information via mobile.

The Human-Centered Design approach method is an approach method in the development and design of a system that focuses heavily on the user. In applying Human- Centered Design, a designer is required to pay attention to aspects of the needs and habits of the user who is the focus of product creation.

Focusing on the above problems, the author makes a solution by developing the website from the visual side by making a more responsive display when accessed via mobile in accordance with user interface aspects.

To facilitate users in understanding and provide convenience and comfort in accessing the website in accordance with aspects of user experience aspects. The main purpose of this research is that

the author will apply aspects of user interface and user experience to the website development of the Ministry of Energy and Mineral Resources Directorate General of Electricity using the HCD method and it is hoped that with the application of user interface and user experience on website development, users can be more comfortable and easy to use it to maximize the information that will be obtained by users on the website. And it is expected to produce a website with a more modern visual, user friendly and responsive when used on mobile.

2. RESEARCH METHOD/MATERIAL AND METHOD/LETERATURE REVIEW

Literature study is used to find discussions related to the topic that will be raised, the references used as references in this research are related to user interface and user experience along with the Human-Centered Design method.
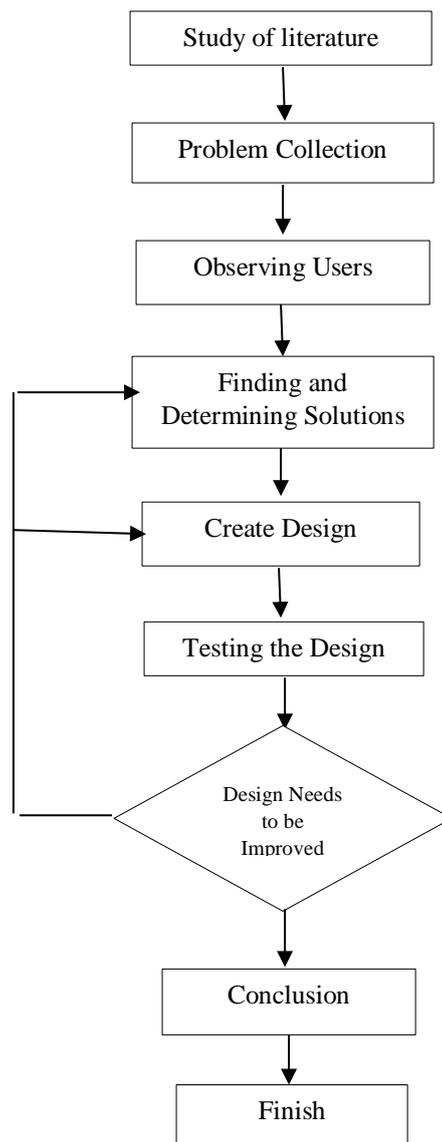

Figure 1. Flowchartresearch steps

After getting and understanding the references, the process of collecting problems faced by users, observing user habits, finding and determining solutions, and starting to design designs as solutions began. After that, testing the design solution to the user is carried out, if the user still feels difficulties

when using the design solution, improvements will be made. But if the user has succeeded and does not face any difficulties, then a conclusion and suggestions are made for the development and improvement process of this research.

The equipment and software required are:
a) ASUS A405U Laptop Hardware and Specifications
    8GB Ram 1TB HDD + 128GB (SSD)
    Windows 10 OS
    CPU Intel Core i5-7200U, up to 3.18Hz
b) Software
    Adobe Xd Whimsical Google Chrome
    Sublime Text
c) Stationer
    y Paper Pencil Pen

System Design
The flowchart explains how the process runs on the website when used by the user, the process flow starts when the user opens the website then the user selects the feature he is looking for to get information about the office after the user selects the menu feature the user can immediately get the desired information.

3.   RESULTS AND DISCUSSION
A.   User Problem Collection
Before designing the author will conduct a literature study, a literature study is carried out to deepen the theory of the problems that will be raised, which are sourced from journals and the internet. Before designing the user interface, the author will find out what problems and needs are needed by users by conducting research, research is also carried out to find out what user habits are when opening a website and find out what features are needed by users and what problems often occur to users when using the website. Research is carried out by interviewing users directly, so that the author gets more answers the author utilizes Google form online software by using Google form software the author can get more answers.

B.   Creating Wirefrime as a solution
To reduce the occurrence of errors when doing designe, the initial stage is to create a wireframe at this stage is also carried out to find and determine solutions, wireframe itself is to create a basic structure or initial sketch for the display of desinge, at this stage the initial layout for the website display is determined such as the layout of menu features, images, icons, and text. Wireframes can be made using paper or can also be made using whimsical software.
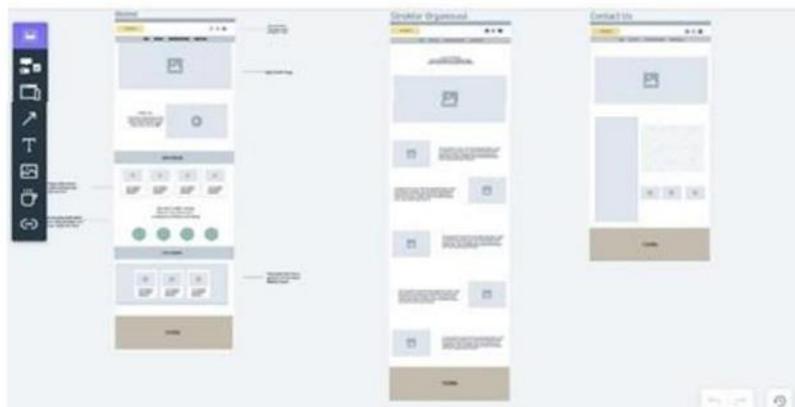

Figure 2. Wireframe

C.   Creating a High Fidelity Display
After the wireframe process has been deemed good enough, the next stage is to create a hight fidelity display, this stage is carried out to provide a clearer picture of the designe where the hight fidelity

designe starts to be given colors, images, menus, icons, and text. At this stage also serves to emphasize the appearance on the website so that when given to the user, the user understands the appearance that has been made, to create a hight fidelity designe can use figma, adobe xd, or sketch software.
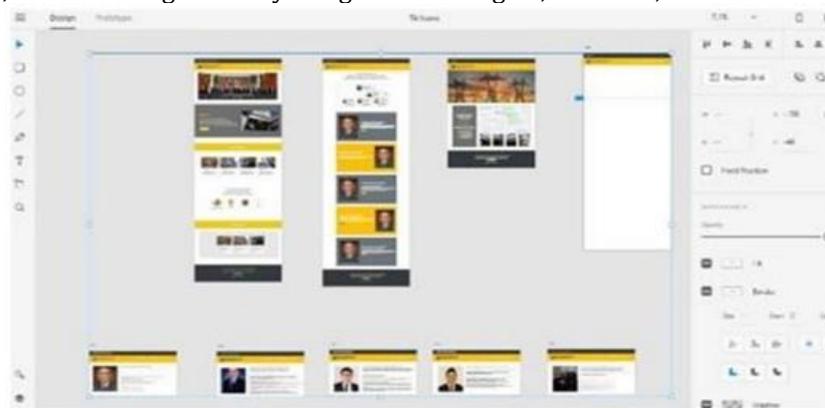

Figure 3. High Fidelity

D. Prototyping

After the process of designing the hight fidelity design is deemed sufficient, the next step is to create a prototype, the prototype is made to make it easier for users to understand the display that has been made. By using a prototype the user can simulate interactions with the display that has been made, the prototype is also used to facilitate the author when conducting usability testing on users.

In this section, it is explained the results of research and at the same time is given the comprehensive discussion. Results can be presented in figures, graphs, tables and others that make the reader understand easily [2, 5]. The discussion can be made in several sub-chapters.

Figure 4. Prototype

E. Coding

The coding stage to create a display on the website at this coding stage uses HTML, CSS and Framework Bootstrap 4.0, HTML is used to create a framework on the website after the framework is created and then clarified using CSS, CSS serves to beautify the appearance of the website so that the website is more neat and comfortable to look at, so that the website can be used on mobile the author uses the Bootstrap Framework to make the website responsive by utilizing the grid that has been provided on bootstrap.

F. Home Page

The home page is the initial page on the website on the home page there are many features that can facilitate users in finding info about the office such as About us, related links, photos and videos. On the

home page there is also a social media icon that can be clicked to enter directly to the social media page of the ministry of directorate general of electricity.

G. Mobile Display

Mobile responsive features are made to make it easier for users to use the website on smartphones, mobile responsive features are also made to make it easier for users to find information contained on the website using a smartphone.

H. Testing Results

Here the author conducts direct testing by visiting the user and the user will be given a task to use the prototype that has been made, after the user is deemed sufficient when using the prototype the user will be given a task to provide an assessment of the website whether the website is sufficiently understood by the user or not.

Table 1. User Testing

No	Pertanyaan	Sangat Baik	Cukup Baik	Kurang Baik
1	Tampilan pada website	38.5%	61.5%	-
2	Website dimengerti oleh user	46.2%	46.2%	7.7%
3	Fitur Responsive yang dibuat	53.8%	46.2%	-
4	Fitur menu dapat membantu user	38.5%	46.2%	15.4%

From the tests that have been carried out, the results are quite good at 46.2%, very good at 46.2% and not very good at 7.7%.

Figure 5. Graph of Test Results

4. CONCLUSION

It can be concluded that the design of User Interface and User Experience Design can facilitate and accelerate the creation or development of an application and website, with the UI and UX in making a digital product can make it easier for developers to build their products before coding and publishing to users. The results obtained after testing directly to the user are that the user is quite familiar with the appearance of the website created and the user also finds it quite easy to use it. And the mobile responsive feature is also expected to facilitate users in finding information on the website using a smartphone. The HCD (Humen Centered Designe) method can be used to design and create websites that suit user needs.

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