

Design Of An Android-Based E-Showcase Of Innovative Work Of Students Of State Vocational School 1 Ampek

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Abstract

Penelitian ini di latar belakang oleh kekurangan yang dirasakan dengan tidak adanya aplikasi untuk menampilkan hasil karya siswa yang telah dibuat, memamerkan karya siswa – siswa sekolah masih menggunakan cara manual, dimana setiap karya – karya siswa akan dipajang di etalase labor mereka masing – masing dan setiap satu kali setahun diadakan pameran untuk karya – karya siswa dimana nantinya akan hadir warga sekolah dan masyarakat sekitar, sehingga hasil karya tersebut hanya dapat dilihat secara langsung saja. Tujuan penelitian ini menghasilkan sebuah sistem informasi yang dapat menampilkan hasil karya siswa dimana pun dan kapan pun. Jenis penelitian yang digunakan dalam penelitian ini adalah R & D dengan model perancangan menggunakan penelitian waterfall yang terdiri dari 6 tahapan. Penelitian ini juga menggunakan penilaian uji validitas, praktikalitas, dan efektifitas sebagai uji kelayakan produk. Hasil dari uji validitas produk, uji praktikalitas produk dan uji efektivitas produk menunjukkan bahwa aplikasi e-etalase hasil karya siswa atau sistem informasi menampilkan hasil karya siswa layak dipakai, dimana uji validitas mendapatkan rata-rata nilai sebesar 0,77 yang menunjukkan bahwa produk ini valid, uji praktikalitas mendapatkan rata-rata nilai sebesar 78% yang menunjukkan bahwa produk ini memiliki tingkat praktikalitas yang tinggi, dan uji efektivitas mendapatkan rata-rata nilai sebesar 0,66 yang menunjukkan tingkat efektivitas sedang.

Abstrak

This research is motivated by the perceived shortcomings of the absence of an application to display the results of student work that has been made, exhibiting the work of school students still uses manual methods, where each student's work will be displayed in their respective laboratory displays and once a year an exhibition is held for student works where later the school community and the surrounding community will attend, so that the work can only be seen directly. The purpose of this research is to produce an information system that can display student work anywhere and anytime. The type of research used in this study is R & D with a design model using waterfall research consisting of 6 stages. This study also uses validity, practicality, and effectiveness test assessments as a product feasibility test. The results of the product validity test, product practicality test and product effectiveness test show that the e-showcase application of student work or information system displaying student work is suitable for use, where the validity test gets an average value of 0.77 which indicates that this product is valid, the practicality test gets an average value of 78% which indicates that this product has a high level of practicality, and the effectiveness test gets an average value of 0.66 which indicates a moderate level of effectiveness.

INTRODUCTION

Based on information from the Big Indonesian Dictionary (KBBI), the definition of a display case is a place to display goods for sale (usually at the front of a shop). A display case is also called a window display. A window display or display case only displays the merchandise being offered without being able to be touched by consumers, so security becomes easier. (Syahril et al., 2018)

If in the offline world it is called a display case, then in the online or internet world the display case used is a virtual display case. E-display case, also called an electronic display case or



virtual display case, is a place to present a company's products or services that are placed on a website page. With an electronic display case, it can be easier to display products or goods to the wider community without having to go to a place to display them, products or goods can be displayed anytime and anywhere.

In the era of globalization, a wide variety of works or products are being exhibited or marketed, whether through brochures, advertisements, or in-person exhibitions. Nearly all human activities utilize information technology, including promoting works to the public. The use of information and communication technology has penetrated various aspects of human life. SMK Negeri 1 Ampek Angkek is a vocational educational institution where students are guided to be work-ready and able to produce innovative works that can be exhibited to the school community and the community. However, student work has not been displayed using technology, resulting in limited public awareness.

Based on the description above, the researcher is interested in creating an application for research entitled: "Designing an Android-Based E-Showcase for Innovative Work Results of Students at SMK Negeri 1 Ampek Angkek."

METHODS

In this study, the author used the Research and Development (R&D) method. The development method used was the SDLC (System Development Life Cycle) method. SDLC is also a pattern used to develop a completely new software system or improve a previously existing one. SDLC is also a pattern used to develop a software system, which consists of the following stages: Planning, Analysis, Design, Implementation, Testing, and Maintenance.(Barovih & Palcomtech, 2016)

SDLC has several models, including the Waterfall, Spiral, Iterative, Fountain, Rapid Application Development (RAD), and Build and Fix models. However, in this study, the author used the Waterfall model. The Waterfall method is the most frequently used software development model. The waterfall method is a sequential software development process, where the flow is like a waterfall that continues to flow downwards. The phases in the Waterfall Model are communication, planning, modeling, construction, and deployment.

The next step is to conduct trials on the product that has been created. There are three types of trials: validity trials, practicality trials, and effectiveness trials.

Validity tests are conducted to determine the level of validity of a product being used. To test the product's validity in this study, validity tests were conducted by several experts. The tests were conducted by comparing questionnaires assessing the product. Validity testing was carried out by referring to the Aiken's V statistical formula as follows:(Mayati et al., 2019)

$$V = \Sigma s / [n(c-1)] \dots \dots [Aiken's V]$$

Determining the validity of the "V" number is obtained between 0.00 to 1.00. The validity determination category of the Aiken formula states that a product is valid if it has a range of Aiken's V values from 0.60 = 1.00 and is invalid if the Aiken's value is less than 0.60.

Practicality tests are carried out to find out how practical or easy the product is to use by its users. Trial Data from practicality tests are analyzed using the percentage of the time using the formula:(Khomarudin et al., 2018)

$$N = \frac{BP}{BM} \times 100\%$$

The effectiveness analysis of the design of the e-showcase of students' innovative work was determined by looking at the ease of using the program and also the speed of processing the e-

showcase of innovative work. The results of the effectiveness test questionnaire were processed by referring to Richard R. Hake's statistical formula (G-Score) as follows: (Afrianti et al., 2020)

$$G = \frac{(\% < Sf > - \% < Si >)}{(100 - \% < Si >)}$$

RESULT AND DISCUSSION

RESULT

This research resulted in an e-showcase of innovative work by students of SMK Negeri 1 Ampek Angkek, which can display the work of SMK Negeri 1 Ampek Angkek students. This stage is in accordance with the waterfall research method or what is more often referred to as the waterfall system model. In this research, the process begins with the stages of communication, planning, modeling, construction, and deployment.

1) Communication

At this stage, the author conducted observations at SMK Negeri 1 Ampek Angkek, the author found several obstacles related to displaying the innovative work of SMK Negeri 1 Ampek Angkek students. The obstacle was that information about the innovative work of SMK Negeri 1 Ampek Angkek students was still limited, where information about the work was obtained through promotional media on the school website and direct notifications.

The limited display of students' innovative work to be exhibited is due to the limited space available, meaning that not all work will be displayed in the display space. SMK Negeri 1 Ampek Angkek has adequate resources to create an e-showcase, such as computers, internet access, and other supporting equipment. However, these resources have not been utilized effectively to create an e-showcase of students' innovative work.

Then, the author conducted a system design, which required an analysis to define system requirements, including user requirements, system requirements, and human resource requirements.

2) Planning

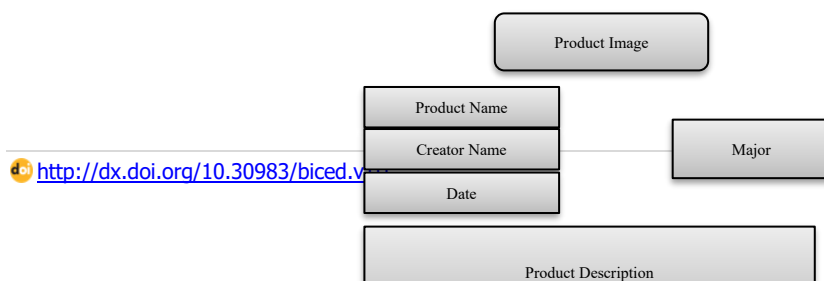
At this stage, the author arranges steps according to the schedule that has been set so that the product can be completed according to the desired or specified time, starting from observation to handing over the product to the designated party.

3) Modelling

In this section, the author uses a use case diagram to illustrate the system to be created. Use case diagrams are used to present the relationship between existing actors and the system. The first actor is the admin, who is responsible for controlling the running system so that it can run smoothly. The second actor is the user, who is the user of the e-showcase of innovative work. Users can only view products and product data.

Next, the system design will consist of several design steps: output design, input design, and database design.

The output design is generally the result of the process, consisting of data from existing student innovative work, which has been completed and displayed on the Android screen. For more details, see the image below:



Picture 1: Output Desain

Input design is generally a design designed to enter data into the application that we will create later, such as adding product data, for more details, please see the image below:

Picture 2: Input Desain

Database design is the design for a system's data storage location. The database takes the form of a table containing data, which can then be displayed by the designed application. An example of a database design is shown in the table below:

Table 1.Database Table

No	Field Name	Tipe	Keterangan
1.	Id	String	Id produk
2.	namaProduk	String	Nama Produk
3.	Tanggal	timestamp	Tanggal Produk
4.	Deskripsi	String	Deskripsi Produk
5.	Creator	String	Pembuat Produk
6.	Filename	String	Nama File untuk foto Produk
7.	Uri	String	Link file untuk foto Produk

4) Construction

This stage involves translating the system design into a programming language. Some of the coding involved is:

```
const renderItem = ({item, index}) => {
  if(isLoading) return <Loading />
  return (
    <Card style={styles.items}>
```

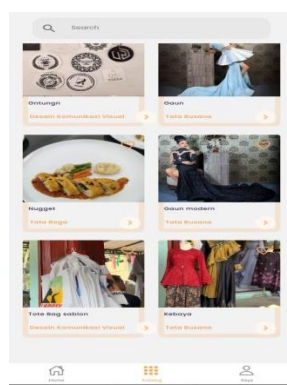
```
<Card.Cover
source={{uri:item.uri}}
style={{height: 156}}
/>

<IconButton
onPress={() => {}}
icon="heart-outline"
color={color.primary}
style={styles.iconHeart}
/>

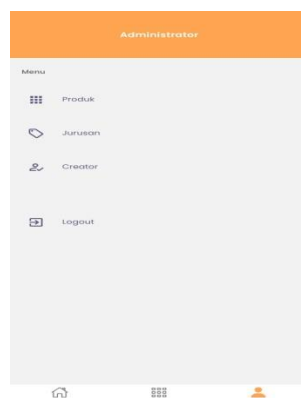
<Caption style={styles.produkName}>{item.namaProduk}</Caption>
<View style={styles.containerPrice}>
<Caption style={styles.price}>{item.kategori}</Caption>
<IconButton
icon="chevron-right"
size={20}
color={color.primary}
style={{backgroundColor: color.lightPrimary}}
onPress={() => navigation.navigate('Detail', {id: item.id})}
/>
```

DISCUSSION

This research produces an application with a download link url <https://smik11.000webhostapp.com>, and this application will be used by the admin to enter data on the innovative work of students of SMK Negeri 1 Ampek Angkek. The link provided is a link to download the e-store application, which contains instructions for installing the application to Android so that users can easily install the application to Android. The resulting application is designed with a simple, practical appearance that can make it easier for users to use it.



Picture 3: User View



Picture 4: Admin View

CONCLUSION

Based on the research results obtained from the design of an e-showcase of innovative work by students of SMK Negeri 1 Ampek Angkek, a mobile system was created that users can use to help them obtain information about the innovative work of students at SMK Negeri 1 Ampek Angkek. Information about the work of students can be seen not only by students and teachers but also by all levels of society who have Android devices. The information obtained can be in the form of images, product details and the names of the students who created the work.

Overall, the design of this innovative e-showcase is expected to make a positive contribution in showcasing the work of students at SMK Negeri 1 Ampek Angkek. This e-showcase design can increase students' enthusiasm for creating innovative works and facilitate the introduction of their work to the wider community

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