

DEVELOPMENT OF PROMOTIONAL MEDIA APPLICATIONS AND RECOGNITION MEDIA OF BATIK TULIS, PRINTING, AND CAP FOR MEDIA OF CASE STUDY OF COMPANY BATIK BOGOR TRADISIKU

Andhika Arifianto Saputro¹, Richi Dwi Agustia²

^{1,2} Teknik Informatika-Universitas Komputer Indonesia

Jl. Dipatiukur 112-114 Bandung

E-mail : andhikaarifian@gmail.com¹, richi@email.unikom.ac.id²

ABSTRACT

The research "Development of Promotional Media Applications and Recognition Media of Batik Tulis, Printing, and Cap For Media of Case Study of Company Batik Bogor Tradisiku" aims to describe of WebAssembly technology with Progressive Web Apps as a promotional media for batik Bogor in the marketing division of Batik Bogor Tradisiku. For data collection used interview methods, literature studies, questionnaires, observations. There are several obstacles such as some of the company's products that cannot be displayed at the exhibition, there are many visitors who do not know the meaning and philosophy of motifs, as well as the unavailability of facilities for visitors to design their own batik. From these obstacles, a tool that facilitates companies in promoting their batik and makes it easier for visitors to get information on the batik they are looking for. This media uses WebAssembly technology with the Progressive Web Apps provides security, speed and experience like native applications so that promotional media can be used on offline networks. The promotion media of Mba Botaku had fulfilled the needs of users, as this promotional media had succeeded in helping the company in completing batik products and information being promoted by them during batik exhibition.

Keywords: Bogor Batik, Promotional Media, WebAssembly, Progressive Web Apps, Exhibition Activities

1. INTRODUCE

1.1 Research Background

Batik Bogor Tradisiku is a company that was established on January 13, 2009 on the initiative of Mr. Siswaya and the official announcement by the Mayor of Bogor Mr. Diani Budiarto accompanied by Ms. Fauziah Budiarto as chairman of Dekranasda city of Bogor along with the commemoration of the 527th anniversary of Bogor city on June 4, 2009. Traditional Bogor Batik has 17 batik motifs and the main motif of Batik Bogor Tradisiku, which is Hujan Gerimis and Kujang Kijang. Batik Bogor

Tradisiku also applies batik to some objects other than clothing called Mosaic Batik.

Based on the results of interviews with Ms. Lisha Luthfiana Fajri as the company's Operations Manager, in 1 (one) year the event was attended by 10 (ten) events. At present the media is used for means of introducing and promoting batik companies when the event uses only catalogs and online stores. The company's catalog that was used today is recognized as still not meeting the needs of customers in terms of Mosaic Batik, such as objects made of clay, glass, also plastic. The obstacle experienced by the company is not being able to show their superior products, because the booth area measuring only 3 x 6 meters which cannot accommodate objects of a fairly large size and possibly can damage the object on display. In addition, marketing staff who are in charge of serving visitors must have at least 4 (four) month of training experience and at least have carried out batik competency test certification which has caused a lack of marketing staff at the exhibition. These shortcomings have resulted in the company not being maximal in promoting and introducing their superior products so that visitors who come will not know the other products made by Batik Bogor Tradisiku Company.

Based on the results of calculations that can be seen in Appendix C, there were 50 samples of visitors at Batik Bogor Tradisiku gallery, that 32 visitors liked Indonesian batik. In addition, 24 visitors said that they knew little about batik and various batik motifs, and 22 visitors that they did not recognize mosaic batik in the company. There were 21 company visitors also hoping to be able to design their own batik. The factors that cause a lack of visitors in recognizing the company's batik are mosaic batik objects displayed in the catalog are incomplete, and visitors are less interested in reading the catalog provided by the company. This can result in visitors having difficulty in choosing a suitable motif to be used as a batik design.

In a previous study conducted by (Dhamayanti, 2018), stated that by making human body system learning media using WebAssembly technology to display 3D objects so that learning media become more interactive, because WebAssembly can render

3D objects faster and more smoothly compared to using Flash. In a previous study conducted by (Majchrzak et al, 2018) stated that PWA is able to run well and execute faster thanks to the help of features that PWA has, named Service Workers. Service Workers are a proxy bridge so that websites are able to run even though the network is slow and even offline because of cache settings that have been stored through the JavaScript APIs. The process of executing the application that is used will be faster and lighter on large files and many will be run and will be even faster if the frequency of application usage is very frequent. Thus, utilizing the collaboration between WebAssembly and PWA (Progressive Web Apps) will make a website that has many 3D objects faster in its rendering process which then does not need to render 3D objects because it has been covered by PWA's Service Worker by using cache which has been saved when the website is accessed so that it can be accessed on a network that is slow and even offline, besides the appearance of 3D objects will be more subtle than using flash. This collaboration will be suitable if applied to interactive media. Interactive is a two-way communication or something that raises mutual action, active, and interconnected with each other and has reciprocity between each other. So that interactive media is a media that is equipped with a control device that can be used by users, so users can choose what they want for the next process [9].

Based on the description above, an application is needed that can facilitate visitors in getting more complete information about the meaning, philosophy, and objects of the batik mosaic. So that one of the solutions to help visitors of my Traditional Bogor Batik, namely by applying WebAssembly and Progressive Web Apps technology in the form of utilizing the website as a platform with the title "Development of Bogor Batik Media Promotion and Media Recognition For Media Case Study of Batik Bogor Tradisiku Company".

1.2 Purpose and Objective

Based on the problems that have been presented, the purpose of making this final assignment is to build batik recognition and promotion media that make it easier for companies to introduce and promote their product content using WebAssembly technology and Progressive Web Apps methods.

The goals to be achieved from the development of batik recognition and promotion media include :

1. Completing products that cannot be displayed in meeting customer needs in the company's catalog and at the exhibition.
2. Introducing the meaning, philosophy of batik motifs and other objects applied to batik mosaics.
3. Provide 3D objects for mosaic batik design features as a means of helping visitors in making their desired design.

1.3 Research Methodology

Research methodology is a way to find out, discover, develop, and test the truth systematically, logically, and empirically using scientific methods [8]. The research method used is descriptive quantitative research methods and uses more analysis [1]. The flow of the research can be seen in Figure 1.

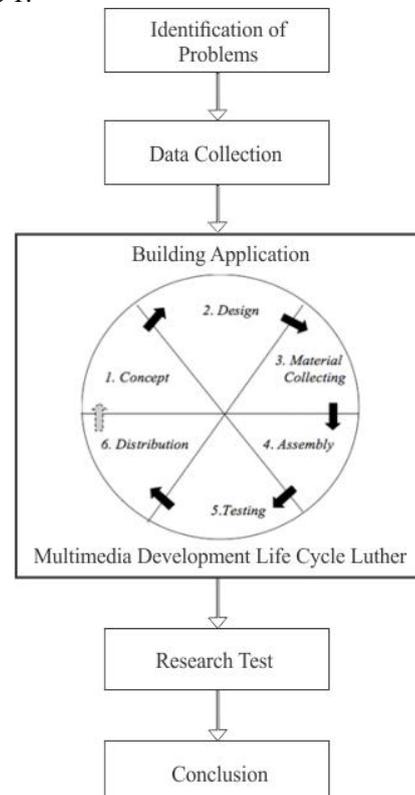


Figure 1. Research Flow

Based on Figure 1, the following explanation of the research flow is conducted:

1. Identification of Problems

In the of this research flow, it is estimating what problems are found in Batik Bogor Tradisiku company.

2. Data Collection

Data collection is needed to assist in identifying problems. Consists of 3 ways, there are:

a. Interview

Asking directly to the company related to the problems faced in the business process that has been running.

b. Study of Literatur

Data collection through information obtained from books or literature, journals, previous studies as reference material relating to research conducted.

c. Observation

Data collection is done directly by being involved in the field for everything that happens to the company and made adjusting to the problems at hand.

d. Questionnaire

The questionnaire was intended for prospective customers in my Bogor Batik Tradition where the questionnaire was given a list of questions which

would later be processed so that new information was obtained. The method in taking the number of sampling on the questionnaire is the Slovin method and the method of calculating the questionnaire data is the Likert Scale.

3. Concept

At this stage, determine the purpose and type of application to be built based on the problem data that has been obtained by determining how the current procedure and proposed procedure later, determine the comparison of similar applications to those that will be made, what features are provided, what are the batik motifs found in the company, and what technology in making the application.

4. Design

The design phase is the stage where detailed specifications are made so that at the next stage no new decisions are needed. Through the design of objects to be created and making storyboards for object animation.

5. Material Collecting

At this stage, determine the materials needed in the construction of the application in accordance with the design results that have been predetermined. The ingredients are batik motifs, 3D objects and animation.

6. Assembly

At this stage, all the material and needs that have been determined are combined into one and the commencement of making the application.

7. Testing

At this stage the built-in application and the specified material content are included in it by testing the application to ensure that it runs according to the expectations of the design results.

8. Distribution

After testing, the next stage is the distribution stage. At this stage the application is spread through the internet.

9. Research Test

At this stage the application that has been built and the material content specified already entered in it will be tested for the feasibility of the system based on the research that has been done to the visitors or customers of the company by testing the User Acceptance Test (UAT) and distributing customer satisfaction questionnaires to the system.

10. Conclusion

The final stage of the research is drawing conclusions. This stage contains whether the purpose of this application is successful or not.

2. CONTENT OF RESEARCH

2.1 WebAssembly

WebAssembly, often called wasm, is a project where in making new bytecodes (a collection of instructions that can be read by machines faster for browsers to carry out high-level language execution) are more efficient both for desktop and mobile browsers to parse than full source code from web

pages or application. WebAssembly was developed by developers from 4 (four) well-known browsers, namely: Chrome, Edge, Firefox, and WebKit which now has support with Unity [10]. The current browser uses JavaScript to execute a code and activate functions on the website such as forms and dynamic content. Improvements have been made to execution times via asm.js, but bytecode based systems like .NET are faster [2].

2.2 Progressive Web Apps

Progressive Web Apps is a web development method that still relies on the browser but makes the user feel the experience like a native application. Native here means that the application can be run offline or on a bad connection. Another advantage offered by this method is that the application can send notifications and even use more smooth animations such as native applications in general. The technology provided by Progressive Web Apps consists of Service Workers, Push-Up Notifications, and Web App Manifests. PWA makes it easy to publish websites that have been made. The way it works is that the application developer inputs the website data needed on the PWA tool that has been provided by Microsoft. Next the developer is given the option to generate manifest or directly install Service Worker if it already has a manifest website [3].

2.3 Concept Analysis To Be Built



Gambar 2. Concept Analysis To Be Built

Analysis of the system concept that will be built contains a big picture of the system to be built. The system to be built consists of 18 Kujang Kijang, Rereng Kujang, 4 Ikon Bogor, Daun Talas, Daun Pisang-Kujang, Daun Puring Kembang Muncang, Ragen Penganten, Banyak Ngantrang, Kijang Terbang, Kijang Kembar, Harmoni Sutera Alama, Kijang Dalam Sangkar, Jalan Kijang, Curug Bogor, Rereng Kujang-Teratai, Kawung Kenari, Kujang Kenari, and Kebun Raya [7]. This system contains information related to batik, such as the history of batik, batik elements, batik ornament, the meaning and philosophy of batik motifs and batik mosaics whose objects are modeled using 3D. The system to be built is a website-based media introduction and promotion by utilizing 2D and 3D model processing software with additional features to improve system performance [5]. The concept of a promotional media system called Mba Botaku can be seen in Figure 2.

2.4 Batik Analysis

The following is an object analysis which is an analysis of 2D objects that are needed by the system to support batik motif information displayed by the system [4]. Analysis of this object can be seen in table 1.

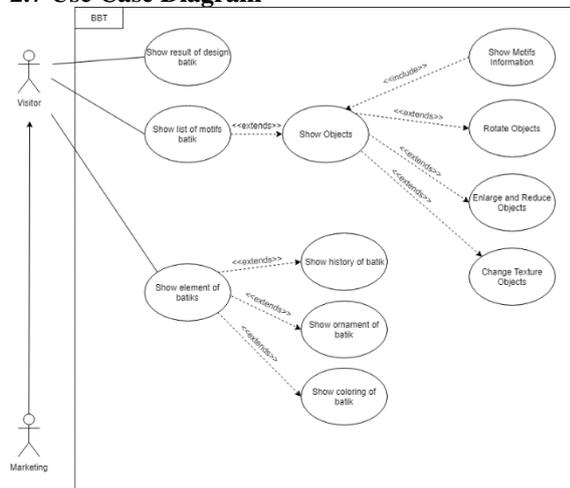
Tabel 1. Batik Analysis

No	Type	Motif Name	Explanation
1.	Batik Cap	4 Ikon Bogor	This motif immerses the city of Bogor through 4 famous elements which become the identity of the city of Bogor.
		Kembang Teratai	Describes 2 (two) sides of life that remain beautiful and not alone, namely, Flowers and Lotus Leaves.
		Daun Talas	Describe about an expectation where hope can be realized from simplicity not from luxury.
		Daun Pisang Kujang	Banana leaves that describe the simplicity of humans in the face of rain are addressed wisely and calmly.
		Kawung Kenari	Walnuts are Bogor's peculiarities that are small in size but useful for health and crafts.
2.	Batik Tulis	Kijang Kebun Raya	The biggest "harmony" miniature in the middle of a beautiful and harmonious city of every soul that remembers the City of Rain.
		Ragen Penganten	It means "partner", which is a pair of basic colors "Kuning Jahe" and a picture of Daun Puring, Kembang

			Cangkok Wijaya Kusumah, and Kembang Muncang.
		Banyak Ngantrang	Banyak Ngantrang is the highest name for a king's clothes. Purple symbolizes the World of Pajajaran in the time of King Siliwangi.
		Batu Tulis	Batu Tulis reminded the goodness of Prabu Siliwangi who did not just remain silent, and symbolized power with justice in the interests of his people
		Kijang Terbang	Kijang that faces upward optimism and enthusiasm for reaching dreams or goals and the leaves that accompany Kijang illustrates a sense of positive thinking.
		Kijang Kembar	Two Kijang that face each other reflect the human self as what he thinks and introspection on what has been done to be better.
		Harmoni Sutera Alam	Describing Mulberry Leaves originating from the silk fabrics of noble values to not forget the history so that "Kacang tidak lupa kulitnya" (Indonesian proverb).
		Kijang Dalam	Describing humans to be in

this page it contains the form name, short name, description, icon, scope, display, orientation, language, and background color. If the application created already has a web app manifest, then the form has automatically filled in the description of the web app manifest that was previously created. The next step is to register & install Service Worker. On the PWA Builder page, select one of the functionalities that you want to use in the application that will be given PWA. By default, PWA will select an Offline Page that contains Service Workers that will pull files from a web server called offline.html to pull files if there is a connection problem or there is no connection at all. If you choose Offline copy with Backup offline page then all pages visited by visitors will be stored in the form of cache which will then create a new offline page that can be customized free of message and experience if the network is offline but the page will not be cached again.

2.7 Use Case Diagram



Gambar 5. Use Case Diagram

2.8 Implementation of Developer Hardware Requirements

The hardware requirements needed to develop promotional media applications and the introduction of Mba Botaku can be seen in table 2.

No	Hardware	Specification
1	Processor	Intel Core i3, 2.00Ghz
2	Memory	RAM 10GB
3	Graphic Card	IntelHD 128MB + Nvidia 2010MB
4	Harddisk	500GB

2.9 Implementation of Developer Software Requirements

Software requirements (software) needed to develop promotional media applications and introduction of Mba Botaku can be seen in table 3.

No	Software	Specification
1	Sistem Operasi	Windows 10 Pro 64-bit
2	Tools Pembangunan	Unity
		Blender
		Visual Studio Code

		Visual Studio 2017
		Corel Draw 2018
3	Browser	Mozilla Firefox versi 64 Google Chrome versi 71
4	Graphic Card	IntelHD 128MB + Nvidia 2010MB
5	Harddisk	500GB

3.0 Testing Plan

The test plan is the functionality contained in the system. This test plan aims to plan what will be tested. The table of plans for testing the Mba Botaku media can be seen in table 2.

Tabel 2. Testing Plan

Test Item	Test Details	Test Type
Match navigation between menus	Navigate according to the selected menu	Blackbox
Show information	Information that appears in accordance with the menu category or selected motif	Blackbox
Show motifs	Motif that appears according to the chosen one	Blackbox
Show objects	Objects that appear as chosen	Blackbox
Change texture	The texture that appears changes according to the chosen motif	Blackbox
Rotate objects	Objects can be rotated on the Y axis	Blackbox
Enlarge and reduce objects	Objects can be enlarged and reduced	Blackbox

2.9. Testing of Users

In this test using the UAT (User Acceptance Test) method. In testing the promotion media and the introduction of Mba Botaku, it was conducted by interviewing the person in charge of marketing Batik Bogor Tradisiku. Based on the results of interviews, media promotion and the introduction of Mba Botaku have gone well in functionality and appearance.

2.9.1 Statement

The following are questions that were asked to respondents in conducting media promotion testing and introduction of Mba Botaku. The question of testing promotional media and the introduction of Mba Botaku can be seen in table 3.

Tabel 3. Statement

No	Statements
1.	Promotional media and the introduction of Mba Botaku made me more aware of batik mosaics
2.	Media promotion and introduction of Mba

	Botaku helped me find information about the meaning and philosophy of batik
3.	Media promotion and the introduction of Mba Botaku made me more interested in using batik clothing
4.	The batik mosaic objects contained in the promotional media and the introduction of Mba Botaku look more interesting and detailed
5.	Media promotion and the introduction of Mba Botaku helped me to get to know the various types of batik motifs and objects that could be used to design batik itself

2.9.2 Test Result

The results of the questionnaire filled out by the respondents will provide answers to the research objectives. The test results can be seen in table 7.

Tabel 4. Test Result

Respondents	Statements					Score
	1	2	3	4	5	
1	4	3	4	5	4	20
2	3	3	4	4	4	18
3	4	4	4	5	4	21
4	4	3	5	5	4	21
5	3	3	3	4	4	17
6	3	3	5	4	5	20
7	5	4	5	3	4	21
8	4	3	4	5	4	20
9	3	4	5	4	5	21
10	4	5	3	3	2	17
11	4	5	4	3	5	21
12	4	4	4	3	5	20
13	3	3	4	3	4	17
14	4	2	3	5	4	18
15	4	4	5	5	4	22
16	3	5	3	4	4	19
17	3	5	4	3	5	20
18	3	3	4	3	5	18
19	3	4	5	4	3	19
20	4	4	3	3	4	18
21	4	4	3	4	4	19
22	4	3	4	4	4	19
23	3	3	3	3	3	15
24	3	4	3	5	4	19
25	4	3	4	4	5	20
Total Score						480

Based on the total score that has been obtained from the questionnaire results on 25 respondents, the total score is 480. Based on the attitude categories that have been found before, the score of 480 has a positive attitude category.

3. CLOSING

3.1 Conclusion

With the construction of promotional media and introductions called MBA Botaku by utilizing WebAssembly technology for 3D object rendering processes and the use of Progressive Web Apps for the access process without using the internet

network so that it is easier and interactive, it can be concluded that the media are built to help companies promote and introduce their products that cannot be displayed on the company's catalog or at the time of the exhibition. In addition, by providing batik design facilities in the form of 3D objects it is very helpful for visitors to provide batik design patterns to be made and visitors can easily find information about the batik motifs owned by the company..

3.1 Suggestion

Media promotion and the introduction of batik named MBA Botaku is still not perfect and there are still many shortcomings. Therefore it is necessary to develop so that the promotion media and this introduction can be better and more interesting. As for suggestions that this promotion and introduction media will be even better, namely:

1. Give animation to each information panel to make it look more attractive.
2. Add more 3D objects to be used as basic objects of batik mosaics.

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