

Geographic Information System Mapping on Crocodile Skin Craft in Merauke City

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Abstract— Leather crafts are items made from animal skin, one of which is crocodiles. Crocodile skin is one of the leading home industries for the people of Merauke, this is because the crocodile population is very large in Merauke. There are various kinds of leather crafts, some are made into bags, shoes, belts, wallets and many others. This research aims to build a system which can help people find locations for crocodile skin crafts. The results of this system can provide information, product photos and map locations. The geographic information system for crocodile skin crafts is designed by using PHP programming language and database design using MYSQL, Research data collection techniques are interviews, observation and literature study. System testing using User Acceptance Test (UAT) and Blackbox testing method. The results of the system created are as expected, and also using User Acceptance Test (UAT), shows an average percentage value of 91%, which means that the system created can be used.

Keywords— Leather Crafts; Geographic Information System; User Acceptance Test; MYSQL

I. INTRODUCTION

Merauke is a city where is located at the very tip of the eastern part of Indonesia which has its own charm when compared to other cities in Papua, the city of Merauke is the last point in Indonesia's territory which borders directly with the State of Papua New Guinea. Merauke's title as the eastern border of Indonesia's territory is interesting to explore. Merauke has some interesting points to explore such as tourist attractions, culinary and craft products. Merauke is also a city with quite diverse biological riches, one of the works of Merauke City that is quite proud is crocodile skin crafts. This craft is one of the sources of regional income and is often used as a souvenir or souvenir from the iconic city of Merauke [1]. Leather crafts are items made from animal skin, one of which is crocodiles.

Crocodile skin is one of the leading home industries for the people of Merauke, this is because the crocodile population is so large in Merauke [2]. There are various kinds of leather crafts, some are made into bags, shoes, belts, wallets and many others. The prices which are marketed vary greatly according to the model and size of interest [3]. This craft is in high interest and also very much in demand among the public as a collection only. For people who are on holiday in Merauke, the shop or place where crocodile skin crafts are made is often used as a souvenir. However, the existence of crocodile skin craft locations is not yet known to the public and it causes people and communities often have difficulty finding information on craft locations. Apart from that, there is also no mapping system regarding the location of crocodile skin craft shops, so people have difficulty finding locations for crocodile skin crafts. People now want to find it easier to find information about crocodile skin crafts. Therefore, we need a system that helps the public in providing information and locations of crocodile skin craft shops, which include information starting from opening hours, places and photos without having to go to that place.

II. LITERATURE REVIEW

A. Understanding of Crocodile Leather Crafts

Crocodile leather crafts are crafts that use the basic material of animal skin which has been processed. Crocodile leather crafts have also become one of the leading home industries for the people of Merauke, this is because the crocodile population is very large in Merauke and it is a snack for the people who

come to Merauke City [1]. There are various kinds of crocodile skin crafts, some are made into bags, shoes, wallets, hangers and many others. Marketed prices also vary greatly according to the model and size of interest [2].

B. Basic Concept System

The concept of an Information System is a network of procedures interrelated, gathered and together to carry out an activity or to complete a certain target. A system consists of a number of components that interact with each other to form a unity. System components are interconnected with each other and achieve a goal set by the information system as follows [7]. The basic concept of a system is a group of computer-based components created by humans to manage data, store, compile frameworks and coordinate human and computer resources to convert input systems into output systems to achieve predetermined goals and objectives [15].

C. Characteristic System

A system is characterized as an arrangement of processes that work together to complete tasks and are related to one another. Information systems generally consist of three main parts, these three elements consist of *brainware*, *hardware* and *software* [15]. The system consists of interconnected parts that have qualities as in the following description [15].

1. System Elements (Elements), It is included all the parts that make up the system which are called system components. System components can be actual or abstract items that interact with each other as a group or as subsystems.
2. System Limitations are system boundaries that describe the extent to which the system functions as a barrier that separates it from other systems in order to increase the perception of the system as a single unit.
3. The external environment (Environments) is everything which is outside the boundaries of the system and has the ability to influence it.
4. Connecting System (Interface) functions as a distributor of information between several subsystems.
5. System Input (Input) is a system component whose function is to receive data so that the system can function.
6. Processor/System Processor is a system component that converts data input into information output.
7. output is a system component which is the final result of the process or the final goal of the system.
8. A system goal is something the system wants to do quickly, while other types of goals are something the system wants to achieve over a long period of time.

D. Flowchart

Flowcharts are a way of describing a system in graphic form which shows the steps and sequence of a program procedure. Flowcharts can help the analysis, design and coding process to break down problems into smaller parts for operation. In most cases, flowcharts facilitate problem solving to perform subsequent analysis. A diagram depicted in the form of

graphic symbols which expresses the flow of a process and shows several symbolic steps is another description of a flow diagram. It can also be seen as a visual representation of the steps or sequence of program procedures that serve a specific purpose. An easy to understand and view summary of the production process is provided by the Flowchart tool. A description of a manufacturing process which is easy to understand and observe based on the sequence of stages from one process to another is provided by the flowchart function. Apart from that, flowcharts function to simplify the process chain so that users can understand the required information more easily.

E. DFD (Data Flow Diagram)

DFD is a graphic technique which depicts the flow of information and transformations that are applied when data moves from input to output. Data Flow Diagram (DFD) is a modeling tool which allows systems professionals to describe a system as a network of functional processes that are connected to each other by data flow [3].

F. Context Diagram

A context diagram is a diagram that consists of a process and describes the scope of a system. Context diagrams are the highest level of data flow diagrams (DFD) which describe all input into the system or output from the system which provides an overview of the entire system. A context diagram always contains one and only one process (often numbered 0). This process represents the process of the entire system context diagram by using input or output relationships between the system and the outside world (external unity). This diagram does not contain data storage and looks simple [13].

G. Geographic Information System

GIS defines a collection of information that has the ability to store, manipulate and display regional information which is related to mapping and planning. GIS helps quickly respond to situations when natural disasters occur [9].

GIS is a part of computer-based information technology. Unlike humans, computers, which are a collection of electronic components, cannot understand an object such as a road, the shape of a building, a lake, the boundaries of a certain area or other objects. The computer carries out a manipulation process on the object in order to be able to recognize and present a particular object.

GIS data model is spatial data, where to be able to represent this spatial data, raster data models and vector data are used [18].

H. Leaflet Map

Map of Leaflet on the modern open source of JavaScript mapping library LeafletJS includes many of the functions needed by developers for mapping on smartphones. Leaflet is compatible with most desktop and smartphone operating systems and has a large plugin library. Leaflet has a well-

documented API and is quite easy to use. The core libraries and community-provided plugins that support Leaflet are fully functional with the Javascript libraries for Leaflet [10]. In a web browser, Leaflet renders both raster and vector layers. A new, lightweight, open source option for creating online maps that works on both desktop and mobile devices is called Leaflet. The main feature of this online map is Leaflet Routing Machine plugin. The main function of this online map is Leaflet Routing Machine plugin, which allows control of route search through a location and visualization of route directions and alternative routes. In essence, this plugin uses OSRM, but can also be used as a replacement for GraphHopper, MapboxDirections API, and other options.

I. Website

A website is a collection of information in the form of electronic pages or web pages. A website is generally connected to a specific address. The pointing address is called a domain, for example Detik.com or Nesabamedia.com. Websites generally consist of text formats, images, tables, graphs, quotes, videos, music and other visual formats that are interesting to visitors to the website [8].

J. PHP (Perl Hypertext Preprocessor)

PHP (Perl Hypertext Preprocessor) is a language in the form of a script that is located on the server and then processed on the server. PHP also combines with HTML to create dynamic web pages and runs on the server side. Apart from that, PHP is one of the many HTML (Hypertext Markup Language) programming languages created by Rasmus Lerdorf, starting with making it a personal project and refined by a group of six developers and reborn with the name PHP [10].

K. MySQL

MySQL adalah relationship Database Management System (RDBMS) which is a very well-known type of database server. Its popularity is due to MySQL using SQL as the basic language to access its database. MySQL is free with the GNU General Public License (GPL). With this situation, you can use this software freely without having to worry about existing licenses. MySQL is a type of RDBMS (Relational Database Management System). That is why the terms table, row, column are used in MySQL. In MySQL a database contains one or a number of tables [9].

III. RESEARCH METHODS

In this research the author implemented several methods to solve problems, the research methods used by the author are as follows:

1. Interview
Interviews are conducted to obtain the required data
2. Literature Review
At this stage, the author conducted a review of various literature related to this research, including books, articles, documents, internet sites and scientific journals.
3. Observation
Observations include recording location coordinates and taking photos of crocodile skin crafts.

IV. RESULT AND DISCUSSION

At the beginning access this system, it will display a home page, on this page there is a menu that can be used by the public to access pages intended for the public in the process of searching for existing locations.

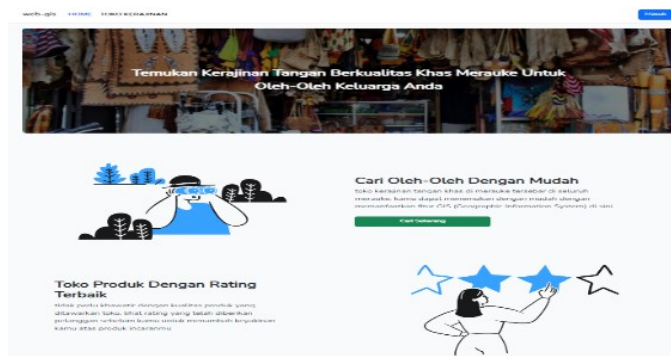


Figure 1. Main Page

This admin login page appears when the first time admin accesses the login, which is a process for entering a geographic system service to help search for web-based locations of typical Pidie Regency handicraft businesses that contain the name and password. This page functions to identify users who will access the admin page.

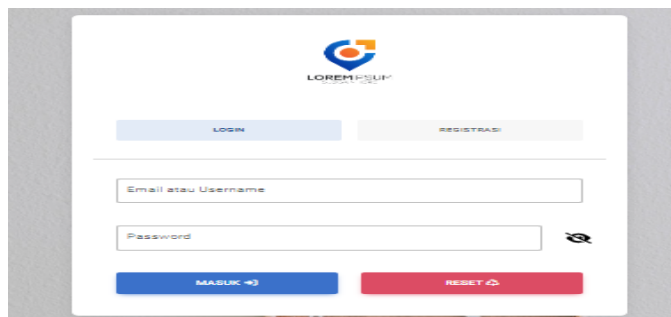


Figure 2. Admin Login Page

After carrying out the admin login process correctly, the system will display the Admin Main Page. a page that displays the shop owner's profile as well as shop statistics, shop ratings and the number of products sold.

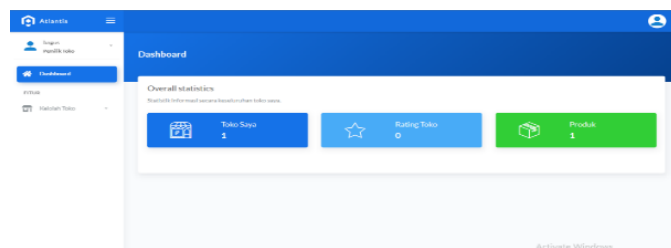


Figure 3. Main Page of Admin

On this page, the admin inputs shop data starting from the shop name, address, website, contact number, opening hours, shop profile photo and address location on the map.

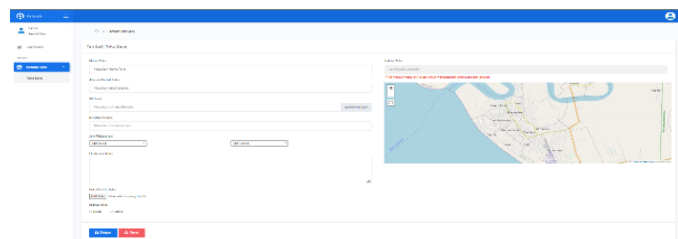


Figure 4. Store Data Input

On this page, the admin can add product photos along with prices and shop product details.

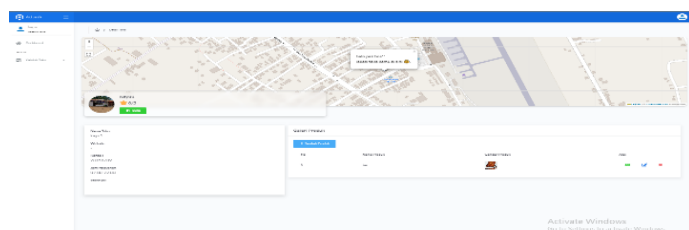


Figure 5. Addition of Product Photos

On this page, people can search for craft shops by using a map that has been marked with location points or search through registered shops.

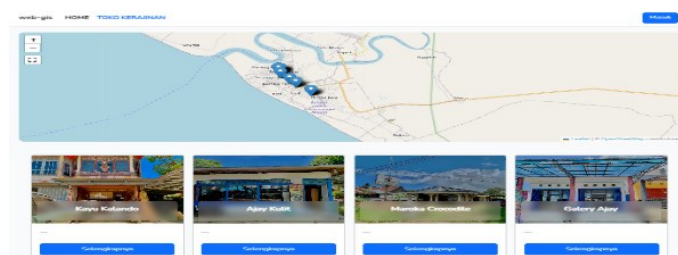


Figure 6. Store

On this page, people can see the shop's location on the map, see detailed shop information and the shop gallery.

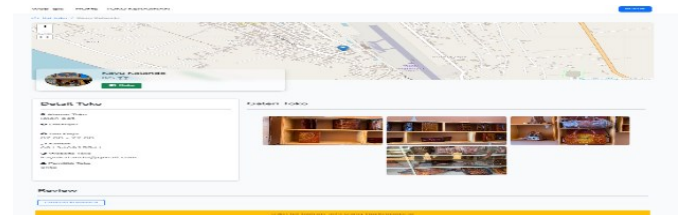


Figure 7. Details of Store

On this page, people can see prices and photo descriptions of the product.

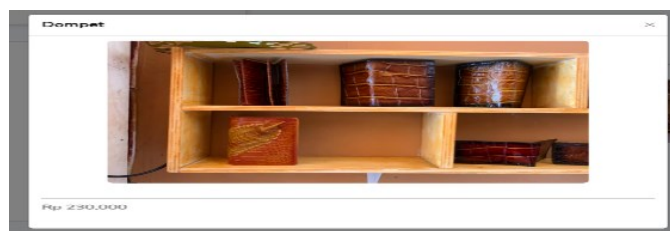


Figure 8. Price Details

On this page, the public can provide assessments in the form of ratings and comments on the shop.

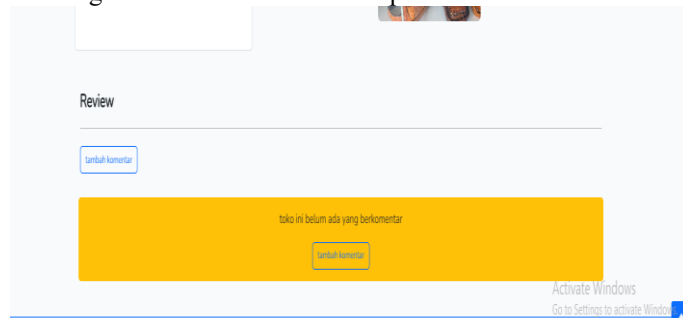


Figure 9. Comments

V. CONCLUSION

In conclusion from the research above, the author obtained the following results:

1. The system created makes it easier for people to search for information, products, prices and contact shop owners to ask about products. Based on the results of *blackbox* testing and UAT testing, the average percentage score was 91%, which means the system can be used by the public.
2. The system created helps the owner in introducing the shop and the crocodile skin crafts in their shop.

VI. SUGGESTION

The following are suggestions for further system development in this research:

1. The system can be developed by using an Android based, so that it is easier in the form of an Android-based application rather than a web-based one.
2. Systems can be developed by using short and long distance methods to measure the distance from the store to the buyer.

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