Design Of Heavy Equipment Rental System At Pt. Tiger Perkasa Sumatra Based Website

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ABSTRACT
PT. Tiger Perkasa Sumatra is a construction company located at Jalan Komplek Golden Land, Deli Serdang Regency. PT. Tiger Perkasa Sumatra, which is engaged in contractors and heavy equipment, currently still processes inventory data and makes inventory reports manually. Judging from the process of using manual processing of inventory data, there will often be problems, including: the stored data is often lost; it takes a long time to process and find the necessary inventory data; there is often duplication of data, making reports longer; the results are less accurate; and there are often errors in inputting data. The results of research on the existence of a heavy equipment rental system at PT. Tiger Perkasa Sumatra are based on a website that makes it easier for tenants of PT. Tiger Perkasa Sumatra to do digital rentals, and the system is built effectively and efficiently.

Keywords:
Rental System
Machine
Website

1. INTRODUCTION
In the era of globalization, technological developments in the delivery of information are increasingly fast and accurate; for that, a good system is needed. One of these systems is the inventory system, which is a system used to manage inventory data in a database (Fahmi, 2017). But there are still companies that implement a manual inventory system, one of which is PT. Tiger Perkasa Sumatra. A company should be able to utilize technology well, such as the use of a website that can be used within the company (Astuti, 2017). Tiger Perkasa Sumatra is a construction company located at Jalan Komplek Golden Land, Deli Serdang Regency. PT. Tiger Perkasa Sumatra engaged contractors and tools. Heavy currently still processes inventory data and makes inventory reports manually. Judging from the process of using manual processing of inventory data, there will often be problems, including: the stored data is often lost; it takes a long time to process and find the necessary inventory data; there is often duplication of data, making reports longer; the results are less accurate; and there are often errors in inputting data. Therefore, computers can be used as a very useful tool for fast-paced, precise data
processing and have a data storage system that is supported by guaranteed security with a computerized system so as to produce a fast and precise report.

So innovation is needed in data storage, especially heavy equipment rental at PT. Tiger Perkasa Sumatra. In order for the system to assist in the process of using inventory data processing and monitoring the condition of heavy equipment goods at PT. Tiger Perkasa Sumatra, it is also expected to get accurate and concrete reports on the condition of heavy equipment goods at PT. Tiger Perkasa Sumatra.

Based on the description above, the author is interested in choosing the title "Design of Heavy Equipment Rental System at PT. Tiger Perkasa Sumatra-Based Website." with the hope that, in the future, it will help facilitate data collection for heavy equipment rental.

2. RESEARCH METHOD
The research methodology used in this study is as follows:

a. Problem Formulation
   The formulation of the problem is carried out by finding problems contained in the process of leasing heavy equipment goods at PT. Tiger Perkasa Sumatra, which has been using manual methods, so that a website-based heavy equipment rental system is needed.

b. Goal Setting
   Goal determination is obtained after completing the problem formulation stage, where the results of problem formulation become a reference for determining goals, so that the problem at PT. Tiger Perkasa Sumatra in the process of leasing heavy equipment goods is more effective and efficient.

c. Literature Study
   Data collection using written sources involves reading, studying, and recording important things related to the problem being discussed in order to obtain a theoretical picture.

d. Data Collection
   The data collection stage is carried out in order to obtain accurate data before carrying out the next stage. Data collection is carried out in two stages: analysis of the running system and analysis of system needs in solving problems in leasing heavy equipment goods at the PT. Tiger Perkasa Sumatra-based website.

e. System Implementation
   The implementation stage is the application at the design stage in building the system.

f. System Testing
   The system built in the implementation phase will be tested at this stage in order to answer the problems and produce solutions for this research.

3. RESULTS AND DISCUSSION
In designing the heavy equipment rental system at PT. Tiger Perkasa Sumatra, which is based on a website, the author uses a website-based application program with the PHP 7 programming language, using the Bootstrap Framework and XAMPP DBMS. In the user application, there is only one account, namely admin. The use case diagram of the design of the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website can be seen below.
A. Activity Diagram

The following activity diagram shows the design of the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website:

1) Activity Diagram Login

Table. 1 Activity Diagram Login

<table>
<thead>
<tr>
<th>Pimpinan/Admin/ Pengguna</th>
<th>Sistem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menjalankan Aplikasi</td>
<td>Menampilkan Menu Login</td>
</tr>
<tr>
<td></td>
<td>Menampilkan Berhasil Login</td>
</tr>
<tr>
<td>Mengisi Username dan password</td>
<td></td>
</tr>
</tbody>
</table>

2) Activity Diagram Dashboard

Table. 2 Activity Diagram Dashboard

<table>
<thead>
<tr>
<th>Pimpinan/Admin/ Pengguna</th>
<th>Sistem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setelah berhasil Login</td>
<td>Menampilkan Menu Dashboard</td>
</tr>
</tbody>
</table>
3) Customer Data Activity Diagram

Table. 3 Customer Data Diagram Activity

<table>
<thead>
<tr>
<th>Admin/Pengguna</th>
<th>Sistem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memilih Data Pelanggan</td>
<td>Menampilkan Data Pelanggan</td>
</tr>
<tr>
<td>Mengisi Data Pelanggan</td>
<td>Menampilkan data Pelanggan update</td>
</tr>
</tbody>
</table>

4) Item Data Diagram Activity

Table. 4 Item Data Diagram Activity

<table>
<thead>
<tr>
<th>Admin/Pengguna</th>
<th>Sistem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memilih Data Barang</td>
<td>Menampilkan Data Barang</td>
</tr>
<tr>
<td>Mengisi Data Barang</td>
<td>Menampilkan data Barang update</td>
</tr>
</tbody>
</table>

5) Activity Diagram Rental Transaction

Table. 5 Activity Diagram of Rental Transactions

<table>
<thead>
<tr>
<th>Admin/Pengguna</th>
<th>Sistem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memilih Transaksi Penyewaan</td>
<td>Menampilkan Transaksi Penyewaan</td>
</tr>
<tr>
<td>Mengisi Transaksi Penyewaan</td>
<td>Menampilkan Transaksi Penyewaan update</td>
</tr>
</tbody>
</table>
6) Activity Diagram Report

Table. 6 Activity Diagram Report

<table>
<thead>
<tr>
<th></th>
<th>Pemimpin</th>
<th>Admin</th>
<th>Pengguna</th>
<th>Sistem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1.png" alt="Diagram Pemimpin" /></td>
<td><img src="image2.png" alt="Diagram Admin" /></td>
<td><img src="image3.png" alt="Diagram Pengguna" /></td>
<td><img src="image4.png" alt="Diagram Sistem" /></td>
</tr>
</tbody>
</table>

B. Diagram Sequence

Here are some sequence diagrams of the design of heavy equipment rental systems at the PT. Tiger Perkasa Sumatra-based website:

1) Diagram Sequence Login

![Login Sequence Diagram](image5.png)

Picture. 2 Login Sequence Diagram

2) Diagram Sequence Dashboard

![Dashboard Menu Sequence Diagram](image6.png)

Picture. 3 Dashboard Menu Sequence Diagram
C. Application Display
The heavy equipment rental system at PT. Tiger Perkasa Sumatra is based on a website consisting of a login form, register form, dashboard menu, customer data, item data, rental, and logout transactions. The display of the menus for the design of the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website is as follows::

1) Login View
The login display is a login access for admins to enter the application from the company in order to rent heavy equipment at PT. Tiger Perkasa Sumatra.

![Login View](Picture. 4 Login View)

The login button serves to execute before entering the website. You must enter a username and password that match the ones in the database.

2) List Form Display
The list form display is a display to register accounts in order to enter the application. The data filled in is the admin name, username, password, password confirmation, upload a photo, and create account button.

![List Form Display](Picture. 5 List Form Display)

Here's the function of the buttons in the list form display:

a. Create an admin account button to be able to enter the heavy equipment rental system at PT. Tiger Perkasa Sumatra.
b. Hyperlink "Already have an account? Login here" is the link that returns to the login form. This is for admins who already have a login account.

3) Dashboard View
The dashboard display is the initial display when entering the heavy equipment rental system at PT. Tiger Perkasa Sumatra. It is based on a website, which contains a company dashboard and a website navigation menu.

![Picture 6 Dashboard View](image6.png)

Rental details button to enter the machine rental data.

4) Customer Data View
The display of customer data is a page containing a table of customer data for those who rent heavy equipment goods at PT. Tiger Perkasa Sumatra.

![Picture 7 Customer Data Display](image7.png)

The following is the function of the button on the customer data menu display:

a) Add customer data button to be able to add heavy equipment rental customer data.
b) Edit customer data button to correct heavy equipment rental customer data.
c) Delete customer data button to delete heavy equipment rental customer data.

After the display of customer data, customers who rent heavy equipment goods at PT. Tiger Perkasa Sumatra.
You can also edit customer data.

5) Item Data Display
Item data display is a page containing a table of goods data that can be rented from PT. Tiger Perkasa Sumatra.

The following is the function of the button on the item data menu display:

a) Add item data button to be able to add heavy equipment data to be rented.

b) Edit item data button to be able to correct heavy equipment item data to be rented.

c) Delete item data button to be able to delete heavy equipment item data to be rented.
After the display of goods data, then the display adds data on heavy equipment goods that can be rented by PT. Tiger Perkasa Sumatra.

![Picture 11 Display Add Item Data](image)

In the item data view, there is also an edit of item data:

![Picture 12 Item Data Edit Display](image)

6) **Rental Transaction View**

The rental transaction display is a page containing a table about heavy equipment rental transactions of PT. Tiger Perkasa Sumatra.

![Picture 13 Rental Transaction Display](image)

The following is the function of the button on the rental transaction menu display:

- **a.** Add the rental transaction button to be able to add heavy equipment items for rent.
- **b.** The back button serves to return the rented item.
- **c.** The rental detail button serves to see the data of the rented item in detail.
After the next rental transaction display, the add heavy equipment rental transaction display.

Picture. 14 Views to add to the view of the company

Then select the add button to add the heavy equipment to be rented.

Picture. 15 Views select rented items

If you feel that you want to rent more than one item, then press the select item button again. Then if there are enough items for rent, then save the rental data.

Picture. 16 Transaction Detail Display

Transaction details are table-shaped displays that explain in detail what items are rented by customers.
To print transaction data, you can press the print button on the transaction menu.

7) User Data View

User data display is a page that contains a table about user data information that uses heavy equipment rental applications at PT. Tiger Perkasa Sumatra.

D. Discussion

The advantages of the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website are:

1) The application can be used as a heavy equipment rental system at PT. Tiger Perkasa Sumatra-based website.
2) The application is more effective and efficient because it is simple and only intended for admins.

Meanwhile, the shortcomings of the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website are:

1) The application does not support the heavy equipment rental system at PT. Tiger Perkasa Sumatra Based on Android.
2) Applications need to be expanded in terms of features and developed in terms of use to make them more complex.

Based on the test plan of the heavy equipment rental system at PT. Tiger Perkasa Sumatra and the website that has been compiled, it can be tested as follows:

<table>
<thead>
<tr>
<th>Waterfall data test cases and results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input data</td>
</tr>
<tr>
<td>Menu Login</td>
</tr>
</tbody>
</table>
Waterfall data test cases and results

<table>
<thead>
<tr>
<th>Input data</th>
<th>What to expect</th>
<th>Observation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu Dashboard</td>
<td>Display display needs Dashboard</td>
<td>Using the existing button I function on Dashboard</td>
<td>Accepted</td>
</tr>
<tr>
<td>Customer Data Menu</td>
<td>View customer data needs</td>
<td>Fill in customer data, edit customer data and delete data customer</td>
<td>Accepted</td>
</tr>
<tr>
<td>Item Data Menu</td>
<td>Display Item Data</td>
<td>Fill in item data, edit item data and delete Item Data</td>
<td>Accepted</td>
</tr>
<tr>
<td>Rental Transaction Menu</td>
<td>Display the rental transaction menu</td>
<td>Fill in rental transaction data, Return goods</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

The test results from the blackbox test that has been carried out show that the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website that was built already meets the functional requirements. However, in the process, it is still possible for errors to occur. Functionally, the system that has been built can already produce the expected output.

4. CONCLUSION
Based on the results of the design of the heavy equipment rental system at PT. Tiger Perkasa Sumatra, several conclusions are obtained as follows:

a. The design of the heavy equipment rental system at the PT. Tiger Perkasa Sumatra-based website functions effectively and efficiently in collecting heavy equipment goods for rent.

b. The system has a late return feature so that it knows the late cost and the total of all income.

c. The design of the heavy equipment rental system at PT. Tiger Perkasa Sumatra can only be run on the website, so development in the form of Android is needed.

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REFERENCES


