The Information System Design of Consumables Goods Management in Bandung Kulon District

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Abstract


Kata kunci—Barang Pakai Habis, Pengelolaan Barang, PHP, dan MySql

Abstract

Consumables are goods that can only use once as the quantity will decrease. These goods will continue to be produced to meet office needs and daily official activities. It is necessary to regularly manage inventory items to obtain valid data and monitor the process of managing goods, especially at the Bandung Kulon District Office. The Bandung Kulon District Office does not use an application/website to manage inventory so that it makes the inventory process takes longer. In addition, it is riskier in losing data and inefficient of recording stock using goods cards. It also affects PPTK in preparing the reports that will be submitted to BPKA at the end of each semester with a copy from the inspectorate. Therefore, The Information System Design of Consumables Goods Management in Bandung Kulon District is needed. This system was created by the waterfall method and UML (Unified Modeling Language) and for the implementation using PHP and MySql with BlackBox testing. Data collection is through direct observation and interviews with the concerned people and literature studies for references to create an efficient and precise system. Hopefully, the system can make it easier for officers to manage stock and reduce the risk of data loss as well as speed up report generation.

Keywords—Consumables, Inventory, PHP, and MySql
1. INTRODUCTION

Information system is a combination of components that work together to collect, manage, calculate, store, and disseminate information to support the return of a decision, coordination, control, analysis and visualization problems within an organization (Laudon and Laudon, 2010). The system can be used by every supporting component such as the personnel system, management and inventory of goods or others [1].

In office system such as the Bandung Kulon district, there is the part that takes care of goods, especially consumables also the procurement of other office needs. That includes the responsibility of the general and staffing department or commonly abbreviated as UMPEG (Umum dan Kepegawaian) [2]. The person in charge of goods management is called PPTK (Pejabat Pelaksana Teknis Kegiatan).

In managing goods, officers or PPTK in Bandung Kulon District use goods cards and purchase receipts for benchmarks to calculate incoming and outgoing stock of goods and remaining stock. After that, the data was manually entered into Ms. Excel as a reference for stocktaking and will make a report for submitted to BPKA (Badan Pengelolaan Keuangan dan Aset). This method is less effective because evidence of stock such as goods cards or receipts is very at risk of being lost or damaged. In addition, if the officer forgets to input into the system, there will be an inappropriate stock.

Therefore, to improve the efficiency and quality of the management of consumables in Bandung Kulon District, technology assistance is needed, one of which is using a web-based application specifically for managing the stock of goods [3]. Recording of incoming and outgoing goods can be carried out directly and minimize re-recording by PPTK [4].

The design of the Consumables Management Information System in Bandung Kulon District can be a solution to increase the effectiveness and accuracy of data, save time in making reports and last the system can used for a long time.

2. RESEARCH METHODS

The design of the consumables management information system uses the waterfall method and for the data analysis technique used is descriptive analysis. According to Sugiyono (2008) "Technical descriptive analysis is a method with data collection research by the facts then the data is compiled, processed, and also analyzed to get an overview of the existing problems" [5].

2.1 Software Development

Method The method Waterfall was first adopted in 1970 take a systematic and well-organized approach [6]. This methodology begins with analyzing the system requirements. The second is to make a system design and proceed with the coding process. After the system is created, then testing is carried out to ensure the system runs as expected. Lastly is system maintenance to avoid further errors and bugs as maintenance to encourage a well-integrated system. Also, can add some supporting features to make the system more efficient.
Based on Figure 1, the following description of the research phases:

1. Requirement Analysis
   The first thing is to identify the system needs in Bandung Kulon District and find the problem, namely the absence of a special system that is used to manage the stock of consumables and collect data from related parties.

2. Design
   At this stage the researcher makes a system design with the UML (Unified Modeling Language) modeling process which includes Usecase Diagrams, Activity Diagrams, and also Class Diagrams.

3. Coding
   This stage is the implementation of the system flow that has been made using a programming language. The programming languages used are PHP, Codeigniter, Javascript and XAMPP as localhost.

4. Testing
   At this stage it proves that the creation of a system that has been adapted to the needs of the user or not. This is due to ensure that the program is error free. And for testing the
consumables management information system program, blackbox testing is used to test the program's functionality.

5. Maintenance
   This maintenance phase seeks to maintain system integrity, update the latest features, and protect the system from errors or bugs that may occur.

3. RESULTS AND DISCUSSION

3.1 System Design
   This result of the research is a consumables management information system in Bandung Kulon District. The system builds with UML (Unified Modeling Language) and PHP. According to Windu Gata, Rahmat (2013) "UML is a standard specification language used to define, document and build software" [7]. PHP (Hypertext Preprocessor) is a programming language that is widely used to create dynamic websites based on open source [2].

3.1.1 Usecase Diagram
   Usecase diagram is a modeling that focuses on the behavior of the system, besides that usecase is used to find out what functions exist and who has the right to use these functions [7].

![Usecase Diagram](image)

Figure 2. Usecase Diagram

Figure 2 is the proposed use case diagram. The user is the goods manager or PPTK and is the main chord in this system. Table 1 describes the description of the use case in Figure 2.
### Tabel 1. Description of The Usecase Diagram

<table>
<thead>
<tr>
<th>No</th>
<th>Actor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>User</td>
<td>User must login to get access.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User can access goods data and get reports regarding stock of goods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Users also get access to manage entry and exit of goods and manage reports</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Setelah melakukan Kegiatan User dapat melakukan logout dari sistem.</td>
</tr>
<tr>
<td>2</td>
<td>Goods/Budget User Officer</td>
<td>Get reports on data on goods, incoming, outgoing and remaining stock</td>
</tr>
<tr>
<td>3</td>
<td>Financial Administration Officer</td>
<td>Get reports on data on goods, incoming, outgoing and remaining stock</td>
</tr>
<tr>
<td>4</td>
<td>Administrative Officer The Use Of Goods</td>
<td>Get reports on data on goods, incoming, outgoing and remaining stock</td>
</tr>
</tbody>
</table>

#### 3.1.2 Activity Diagram

Activity diagram is a modeling that focuses on the behavior of the system, besides that the use case is used to find out what functions exist and who has the right to use these functions [7]. Below is a diagram of the proposed activity by researchers:
Figure 3. Activity Diagram Login
Figure 4. Activity Diagram Goods Data Menu
Figure 5. Activity Diagram Goods Data Report
3.1.3 Class Diagram

![Class Diagram Image]

Figure 6. Class Diagram

3.1.4 Implementation System

The following is a display of the information system interface for the management of consumables that have been created. Consists of a login page, dashboard, item data page, input form, and report page that can be directly downloaded or converted to other formats.

![Login Page Image]

Figure 7. Login page
Figure 8. Dashboard

Figure 9. Goods Data Page
3.1.5 System Test

All units that have been developed and have finished coding must be tested immediately. One of the testing techniques is Blackbox Testing which is a method to test the functionality of a system without testing the design and program code [8].
Table 2. Testing Black Box to The System

<table>
<thead>
<tr>
<th>No</th>
<th>Scenarios Testing</th>
<th>Results Expected</th>
<th>Results Testing</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Log in with the correct Username dan Password.</td>
<td>Go To Dashboard</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>2</td>
<td>Log in with the wrong Username dan Password.</td>
<td>Stay on The Log In Page</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>Click The Input Button</td>
<td>Pop up the input form</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>4</td>
<td>Save items</td>
<td>Stored the data on Database</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>5</td>
<td>Editing stock of goods</td>
<td>Change of data and saved on database</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>6</td>
<td>Click the Export button on the page</td>
<td>Pop up the report menu</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>7</td>
<td>Save the report</td>
<td>Saved report on PC</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
<tr>
<td>8</td>
<td>Logout</td>
<td>Exciting the system</td>
<td>Successfully</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Test Success = (Total Test Results)/(Total Test Performed) x 100%

Test Success = (8/8) x 100% = 100%

Based on table 2 the function of the information system shows 100% results. It means the system was successful and works.

4. CONCLUSION

The conclusion is The Bandung Kulon District needs a system to make it easier to manage the stock of goods and improve the efficiency of reporting by PPTK. The reason encourages researchers to create an Information System Design for Consumable Goods Management in Bandung Kulon District. The benefits of the system based on the results of research and testing are:
1. Reducing the risk of data accumulation and data loss because data recording because don’t use manual processes.
2. Facilitating PPTK in doing stock taking.
3. Reporting does not take a long time.
4. The system can be used in the long term.
5. The system automatically validates the amount of incoming, outgoing, and existing inventory stock.

From the above benefits, the proposed design is sufficient to meet the system's functional needs and expectations.

5. SUGGESTIONS

The author provides suggestions as a reference for developers who will develop the system further:
1. Routine maintenance so that the system always works properly.
2. The addition of the goods price feature and the unit price of goods will automatically be more helpful to the officers.
3. Adding the photo storage feature of payment receipts/receipts of goods purchases to keep the evidence safe.

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REFERENCES


