

MONITORING INFORMATION SYSTEM BARANG MILIK NEGARA (BMN) AT UNIVERSITAS TERBUKA MEDAN

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Abstract

This research discusses the information system for monitoring state property "Barang Milik Negara (BMN)" which has been developed as a design for inventorying goods in government institutions, in this case the Universitas Terbuka Medan institution. The background of this research is to identify inventory needs, carry out inventory recording and monitoring of goods and risk management of state property based on the ISO 9001: 2015 standard that has been implemented by the Universitas Terbuka as a research measurement limit to the design of an application system framework using the Rapid Application Development (RAD) method which can be used to properly manage the State Property data database. The current research results show that the current State Property Application needs to be developed because the information contained in the current system still does not meet the audit criteria and regulatory compliance in accordance with ISO 9001:2015, so the researchers then developed an inventory database management application system with programming language and database management system software using MySQL to meet the required audit and regulatory compliance criteria. Keywords: Innovation, technology, research projects, inventory application, Barang Milik Negara.

1 INTRODUCTION

Government institutions or agencies that are growing rapidly tend to have an increasing number and variety of goods and assets. This causes inventory management to become more complex and requires efficient tools to manage these items. The use of manual methods in the inventory process is no longer sufficient, because it can cause recording errors, loss of data, and lack of efficiency. Traditional methods of recording inventory using sheets of paper or spreadsheets can make it difficult to track item movements, purchase dates, warranties, current conditions, and other important information. The ever-increasing number of items makes this task more and more complicated and time-consuming. When inventory is not properly organized, the risk of losing items or theft can increase. Without a structured system, it is difficult for government agencies to detect irregularities and fraud that may be committed by employees or outsiders. Government agencies certainly need systems that enable monitoring of assets that need to be updated, repaired, or replaced. Without good management, assets tend to depreciate faster and

can cause unexpected costs in the long run. "According to the report from the Regional Financial and Asset Management Agency, government agencies are currently using a software-based goods inventory system that allows real-time stock monitoring." (Regional Financial and Asset Agency, 2023, p. 12).

As audit requirements and government regulations regarding accounting and asset management increase, companies must ensure that their inventory systems comply with applicable standards and regulations. Failure to achieve compliance can result in sanctions and financial losses for related agencies. Especially for government agencies that have branches or scattered locations can face challenges in managing inventory efficiently. Coordination between different locations can be difficult, and manual systems are often ineffective in dealing with geographic differences. The standardization used is document number JKUM PS03 RII.0 Procedure for Maintenance of Work Facilities Equipment at Central UT (25 June 2013)

Based on the background of the problems above, the development of an inventory design application is a must to improve efficiency, accuracy and security in managing the assets of a government agency or agency. By using the right application technology, companies can strengthen control, reduce losses, and increase overall productivity in inventory management at companies/institutions, in this case where the author works, namely at the Open University of Medan.

Universitas Terbuka (UT) Medan is a government institution that has 1,406 BMN data (state property) and has 39 room goods lists, two of which are UT Medan branch offices in Balige and West Nias. From the description above, the writer is interested in raising the title "Information System for Monitoring barang Milik Negara (BMN) at Universitas Terbuka Medan". As well as based on stringent audit requests and regulatory compliance. This is due to the findings of an audit by the financial team at Central UT on the UT Medan office with number KDA-03 of 2023 concerning BMN monitoring issues at UT Medan.

2 METHODOLOGY

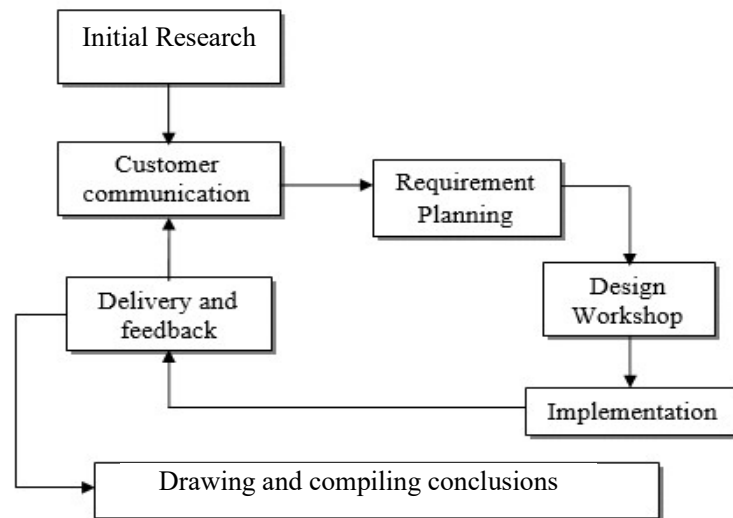
The research was conducted at the UT Medan office, which is a departmental government agency under the coordination of the Ministry of Education, Research and Technology which has the task of implementing the distance education system, temporarily to get references through books, journals, ebooks, or theses related to this research taken from the library and the internet.

The hypothesis used in this study is that the use of PHP on a web page, especially the BMN Monitoring System web application, makes the web more flexible and secure in changing and changing web content and appearance, and further enhances the appearance of the web with CSS. In this study researchers will use a web-based application approach.

As a research facility, it is necessary to have research tools. The devices used in this study are divided into two parts, namely hardware and software. The hardware used is a computer. As for the software is the need for an operating system and software that supports the making of this application. To be able to create a system that truly functions properly and thoroughly, it requires the following hardware and software environment :

- a. Hardware : Lenovo Thinkpad notebook that has Intel Core i3 specifications, 1 TB hard drive, 8 GB RAM, SSD Hard Disk Technology.
- b. Software : The software used in this study are Xampp, Notepad++, Canva, Microsoft Visual Studio. The operating system that researchers use in this study is Microsoft Windows 10 Education. The browsers that researchers use are Google Chrome and Mozilla Firefox.

Based on the research method used in this study, a flow of research work method activities can be used as shown in the figure below.



There are five data collection methods used in this study, namely:

- 1) Observation : Researchers collect data and information by observing and directly observing activities in the field. In this case the researcher saw directly the process of solving problems that occurred at UT Medan when there were reports of problems that entered the helpdesk section. In addition, researchers observe the workflow that runs, starting from the reporting process to handling problems that occur.

- 2) Interview : Researchers conducted interviews with potential users of this system and also the initiators of this system, namely Mr. Researchers conducted workplace interviews at the Medan UT office in 2023.
- 3) Library Studies : Researchers read and studied reference books on web-based application design and its application for problem solving and the BMN Monitoring System. Besides that, the researcher also downloaded several e-books, e-journals, articles from the internet as additional references in working on this system.
- 4) Questionnaire : The questions asked by the researcher were in the form of questions that related to the research that the researcher is doing. Data collection through a questionnaire was carried out in 2023 and took place at the UT Medan office as a potential user of this system with 15 respondents. The questionnaire was given before the system was created. The system development method used is the Rapid Application Development (RAD) method. The steps taken by researchers in the system development stage with this method are as follows Needs Planning, RAD Design Workshop and Implementation. The programming language used uses PHP and Database Management System software uses MySQL.

3 FINDINGS AND DISCUSSION

3.1 Inventory Management or State Property (Barang Milik Negara/BMN)

Inventory management is the process of managing and overseeing all goods or assets owned by an organization, institution or company. The goal is to ensure efficiency in stock management, avoid shortages or excess inventory, and accurately track the movement of goods. Inventory item management involves recording item data, monitoring stock levels, managing reorders, tracking the movement of goods, and analyzing inventory performance. By using the right systems and methods, organizations can optimize the use of resources, avoid losses due to damage or waste, and better meet customer needs.

The theory of state property includes an understanding of the ownership, management and utilization of assets owned by the government or the state. Following are some of the theoretical concepts relevant to state property:

a. Principle of Ownership

This theory talks about ownership rights over goods and assets owned by the state. State property is generally owned collectively by all citizens and is considered part of national wealth which must be maintained and utilized for the welfare of society.

b. Utilization for Public Welfare

This theory emphasizes that state property must be managed and utilized for the benefit of society as a whole. The government is responsible for ensuring fair and efficient utilization in order to provide the best benefits for citizens, such as providing public services, infrastructure and public facilities.

c. Separation of Personal Interests

This theory asserts that state property may not be misused or exploited for personal or certain group interests. Law enforcement and transparent governance are needed to prevent corruption and abuse of power that can harm society.

d. Management Efficiency

This theory talks about the importance of efficient management of state property. Governments should work to optimize utilization and ensure timely maintenance of assets so that there is no wastage of public resources.

e. Transparency and Accountability

This theory emphasizes that the government must be transparent in managing state property, including the process of acquisition, use, and disposal of goods. Accountability to citizens is key in ensuring integrity in the management of public assets.

f. Nationalization and Privatization

This theory discusses considerations regarding policies on nationalization or privatization of state property. Nationalization means taking over ownership of the private sector by the government, while privatization is the process of selling or transferring ownership of public assets to the private sector. The decision to adopt one of these approaches should be based on economic, social and political considerations.

g. Use of Revenue from State Property

This theory includes considerations of how the revenues from utilization of state property should be used. This revenue can be allocated to finance public services, infrastructure development, social investment, and other national interests.

These theories on state property aim to provide a comprehensive understanding framework in managing and utilizing public assets for the common good. By applying these principles wisely, it is hoped that state property can make a maximum contribution in improving the welfare and development of society as a whole.

3.2 Management Rules and Standards used

The management rules and standards used are ISO standard quality control documents with the number JKUM TI02b RII.0 Procedure for Application Development, Management & Data Security Based on Jarkom at UPBJJ-UT (25 June 2013) and JKUM PS03 RII.0 Procedure for Maintenance of Work Facilities Equipment at Central UT (25 June 2013).

a. JKUM T102b RII.0

This guideline is intended to provide an overview and standard reference for user units in regional UT units (Medan and other units), in carrying out tasks related to application development, management and data security based on computer networks. It is hoped that the problems that occur can be resolved properly, more focused and on time.

b. JKUM PS03 RII.0

These guidelines ensure that all facilities and infrastructure that affect the quality of services and products at UT regional units (fields and others) can function as they should. This quality control document is a procedure for handling maintenance of facilities and infrastructure, to maintain the continuity of the function of a tool so that it can still be used. Work equipment includes: computer equipment, studio equipment, printing equipment, security, fire extinguisher, CCTV, alarm, air conditioning, copier and UPS.

3.3 Information Systems

Information System (IS) is an organized and structured framework for collecting, managing, storing, processing, analyzing and disseminating information within an organization or a specific environment. Information Systems integrate technology, data, business processes, and people to support decision making, operational management, and achievement of organizational goals. Following are some important components in the understanding of information systems:

a. Data

Data is a collection of facts or raw information collected in the form of numbers, text, images or other forms. Data is the raw material for information systems to be processed into meaningful information.

b. Process

Process involves activities or actions performed on data to convert it into more useful information. This process includes analysis, processing, transformation, and data modeling.

c. Information Technology

Information technology includes hardware (computers, mobile devices, network devices), software (applications, operating systems), as well as network and communication infrastructure used to support information system operations.

d. Man

The people involved in using, managing, and developing information systems are an important component. This includes end users, business analysts, software developers, system administrators and more.

e. Objective

Information Systems have various purposes, such as supporting decision making, increasing operational efficiency, automating business processes, improving customer service, and monitoring organizational performance.

f. Architecture

Information system architecture refers to the way the system components are organized and interact with each other. It includes data structures, workflows, user interfaces and system integrations.

g. Life cycle

Information Systems have a life cycle that includes the stages of planning, analysis, design, implementation, testing, use and maintenance. These stages help ensure the system is functioning properly all the time.

h. Information

Information is data that has been processed and has meaning and relevance for the recipient. This information is used to make decisions, analyze trends, and communicate the results of business or operational activities.

3.4 Methods Used in Building the System

3.4.1 Flow Chart

A flowchart, also known as a flowchart, is a visual representation of a sequence of steps or actions taken in a process or application. It helps in planning, understanding and communicating workflows and procedures in application development. Here are some common components in a flowchart for building apps:

a. Flowchart Symbols

Flowcharts use various geometric symbols that represent actions, decisions, repetitions, and input/exit points. These symbols help visually describe the workflow.

b. Process/Action

Actions or processes within the app are represented by rectangular symbols. It represents the steps taken in building an application, such as processing data, processing calculations, or other operations.

c. Decision

Decisions in workflows are represented by diamond-shaped symbols. It indicates the point in the flow where a choice must be made, and the workflow will branch based on the result of that decision.

d. Repetition

The oval symbol represents loops or loops in a workflow. It is used to indicate a part of the flow that will be executed repeatedly until certain conditions are met.

e. Inputs/Outputs

The trapezoidal symbol represents an input or output point in a workflow. It indicates where data is entered into flows or results from actions are provided to other users or systems.

f. Connection

Arrows connect symbols and indicate the logical flow between steps in the application.

g. Annotation

Additional descriptions or text can be added to provide further explanation of each step or decision in the flowchart.

Simple Example of Flowchart Symbol:

- Action/Process: Rectangle
- Decision: Diamond
- Repetition: Ovals
- Input/Output: Trapezoidal
- Connection: Arrow

Flowcharts help application developers and other interested parties understand workflows more clearly and efficiently. It can also be used to identify potential problems or errors in a workflow before the actual implementation begins.

3.4.2 Databases

A database is a structured collection of data stored electronically in one place that can be accessed, managed and manipulated by an application or system. In the context of building an application, a database is used to store the information required by the application. Here are some important components about using databases in building applications:

a. Database Type

There are several types of databases, including relational databases, NoSQL databases, and object-oriented databases. Choose the database type that best fits your application's needs. Relational databases such as MySQL and PostgreSQL are very commonly used in developing business applications.

b. Database Design

Carefully design the database structure. This involves creating tables, columns, relationships between tables, and schema definitions. Normalization is also important to avoid redundancy and ensure data storage efficiency.

c. Data Models

Use the appropriate data model for your application. Some common models include the entity-relationship (ER) model, the star model, and the Olap data model.

d. Query Language

The application will interact with the database through a query language such as SQL (Structured Query Language). A basic understanding of SQL is required to manipulate data in databases.

e. Application Interaction

Your application will communicate with the database via an API (Application Programming Interface) or a special driver that is appropriate for the type of database you are using.

f. Security

Make sure that the data stored in the database is properly secured. Implement authentication, authorization, and data encryption where necessary.

g. Performance

Pay attention to database performance, especially as the amount of data increases. Indexes, query optimization, and managing indexes can help improve performance.

h. Maintenance

Databases require regular maintenance, including updating, securing, and recovering data.

i. Scalability

Make sure the database can grow according to application needs. Some databases have vertical and horizontal scalability options.

j. Backup and Restore

Always have a backup and recovery plan in place to protect your data from loss or system failure.

k. Cloud Databases

Another option is to use a cloud database service such as Amazon RDS, Microsoft Azure SQL Database, or Google Cloud SQL. This can reduce the complexity of database administration and allow you to focus more on application development.

In building an application, the database serves as a data store that can be accessed, managed, and manipulated by the application to provide the functionality required by the user. By designing and managing databases properly, application developers can ensure that the applications to be built have fast and secure access to the data they need. At this stage the researcher did coding, namely implementation into a programming language. The programming language used uses PHP and Database Management System software uses MySQL. after the system has been completed with the database structure attached in the image below :

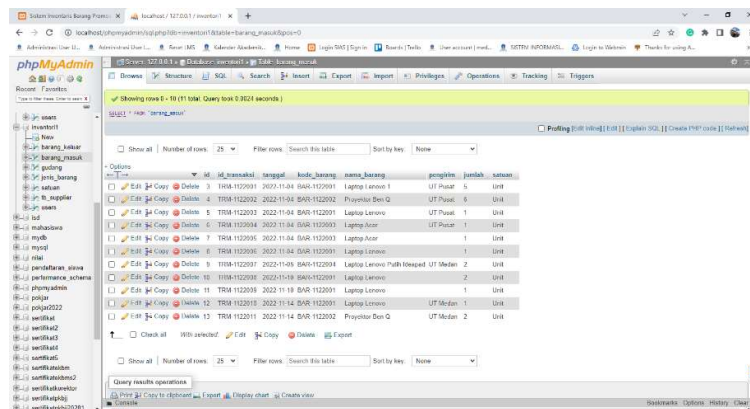


Figure 2. Database Structure in PHP MyAdmin

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4 CONCLUSION

Based on the research conducted, the following conclusions can be drawn:

1. The implementation and control of State Property (BMN) at the Medan Open University (UT Medan) is quite good, although the BMN application information system has not yet facilitated the information required by the ISO 9001:2015 standard, so the financial team's internal audit findings must be closed with create an additional supporting inventory application to increase BMN monitoring at UT Medan.
2. The performance of the inventory information system is influenced by the good internal management controls that exist at UT Medan. Apart from that, it is also influenced by user involvement in system development, education and training regarding the BMN inventory application information system.
3. Internal management control through the inventory application created is able to increase effectiveness and efficiency in processing inventory data, transactions and accounting data, reducing all forms of errors, fraud and misappropriation of accounting information so that all confidential company information data can be properly maintained.

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