# Web-Based Inventory Data Processing Information System At The Regional Development Planning Agency (Bappeda) North Sumatra Province

**Rukiah Nasution*, Aninda Muliani Harahap***

Information System Study Program, North Sumatra State Islamic University, Medan

## ARTICLE INFO

## ABSTRACT

BAPPEDA of North Sumatra Province is one of the government agencies in charge of carrying out government affairs in the field of regional planning and development. BAPPEDA conducts inventory recording activities that are still manual with the given standardization. Weak supervision has a negative impact on management so that reporting of receipts or expenditures of goods and supervision of the use of goods is hampered. It is necessary to make improvements in the management of government-owned inventories in order to increase the effectiveness and accuracy of better data so that it does not require a long time in the processing process. Departing from these problems, a digitalized information system is needed to record inventory of goods. So, the goods data contained in the agency can be stored in the database to avoid loss and other unwanted things. This system will play a role in the goods inventory process which includes archiving goods data, ongoing goods transactions, and detailed reporting on goods at the agency. Searching data is also easier and faster because officers or employees do not need to look for archives in books or files listing items that have piled up because they can look at the inventory database at the agency. This well-digitized inventory system is expected to assist and improve services at the agency and to carry out better supervision.

*Corresponding Author:*

Rukiah Nasution,
Department Information System,  North Sumatra State Islamic University, Medan ,
Email:  ukhtikiae31@gmail.com

## 1. INTRODUCTION

Today the development of technology is growing rapidly so that it encourages us to keep up with the times that use technology a lot. This is beneficial for individuals, companies or agencies and organizations in carrying out their duties. Information technology makes it very easy to do work and produce accurate and efficient information. Various information and management of current agency management are very supportive to be developed into a system that relies on technological advances. One of them is in the field of data processing. BAPPEDA (Regional Development Planning Agency) of North Sumatra Province is a regional service apparatus. In general, the activities carried out by BAPPEDA of North Sumatra Province include assisting the Governor in the administration of Regional Government in research and regional development planning. Currently, inventory is the main asset for BAPPEDA, as well as computers (hardware and software) needed to support the business processes of a government agency. The operator section of each agency is tasked with managing and managing good information technology inventory data to know what hardware and software are. What are the current conditions and the extent to which the use of information technology inventory in each - each agency in each section. The factors that exist in the processing of information technology inventory include what hardware and software inventory is in the agency. In processing inventory data, the agency has not used any application but uses manual recording of inventory documents by using paper document sheets containing inventory data to be recorded in each SKPD (Regional Work Unit) to be reported each period determined by BAPPEDA to collect data all inventory items at the agency. In the application of the system there are several obstacles in the processing of inventory of goods from existing inventory data, the operator of each SKPD section of the technology section must conduct another inspection of the inventory data to find out the amount of inventory availability. Departing from these problems, it is necessary to have an inventory

data processing information system at the BAPPEDA of North Sumatra Province in order to minimize time and work more efficiently as well as better supervision.[1]

## 2.   RESEARCH METHOD

This discussion uses data analysis with a qualitative approach. The subject of this research is the observation of research results and discussion in journals research result. The data collection technique used is the observation technique in the form of comparing and concluding the results of research journals regarding archive management. Data collection is carried out in order to Archiving can be more effective and efficient. Discussion about interpretation of data regarding the discussion of archive management as a source of information for an organization through manual archives and digital archives in the era of globalization.[2] The place of practical work is at the Regional Development Planning Agency (BAPPEDA) of North Sumatra Province, the methods used are:

a. Observation
Observation according to Morris is the activity of recording a symptom/event with the help of tools/instruments to record/record it for scientific purposes or other purposes (Amir Syamsudin, 2014). At this stage, the method of collecting data is through direct observation or careful and direct observation in the field or research location. In this case, the practitioner finds a habit in the agency that can cause a problem so that ideas and plans for a new breakthrough are needed to solve the problem. The practitioner observes various things or conditions that exist in the company where the Internship is located and asks for the necessary data as material for writing reports.

b. Interview
According to Newman (2013) interview is one of the most commonly used data collection methods in research to obtain information related to facts, beliefs, feelings, desires and so on that are needed to fulfill research objectives [3]. In this case, the interviewee was Mr. Arfian Azhar, S.E. as Staff in the General Head of Subsection at the Regional Development Planning Agency of North Sumatra Province.

c. Literature review
This stage is the stage of collecting data obtained from books in the library, journals related to research or other literature as well as the website page of the Regional Development Planning Agency of North Sumatra Province which can be used as a reference for making the BAPPEDA inventory system. [4]

### 2.1  System Development Method
The method used in developing this system uses a waterfall model approach. According to Rosa and Salahuddin (2013:28) "The waterfall model provides a sequential or sequential software lifeflow approach starting from analysis, design, coding, testing, and support stages"[5]. Here is a picture of the waterfall model:
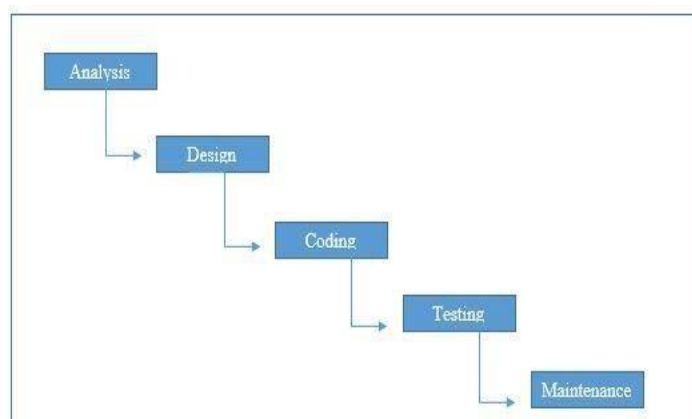


Figure 4. 1 Illustration of the Waterfall Model

This method describes a systematic approachand sequentially on software development, whichhas the following stages:
a. Analysis
Analysis is the overall requirements of the system elements and user requirements analysis which includes I/O.
b. Design

Design is using the CodeIgniter Framework to design an information system interface for processing inventory data at BAPPEDA, North Sumatra Province.

c. Coding

Coding uses HTML, PHP, CSS, and JavaScript to create program code.

d. Test

Test the correctness of the code - programming code.

e. Maintenance

It is a regular software maintenance. [6]

## 2.2 System Analysis

a. Website

The website is a collection of web pages that are related to other interrelated files. On a website there is a page known as the home page. The home page is the first page when someone visits a website. From the home page, visitors can click on hyperlinks to move to other pages on the website. A home page is usually a file named index.htm or index.html.

b. Model View Controller

The concept or architecture of the Model View Controller (MVC) makes it easier for programmers to manage database queries, code management, data validation and security. There are several frameworks that can be used by programmers who use the PHP language such as Laravel, Zend Framework, Yii, Codeigniter and others. The framework has been designed with the MVC architecture equipped with tools that facilitate system design and of course with a high level of security[7]

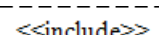## 2.3 System Design

UML (Unified Modeling Language) is a "language" that has become the industry standard for visualizing, designing and documenting software systems. By using UML we can create models for all types of software applications, where these applications can run on any hardware, operating system and network and are written in any programming language [8]. (Sri Dharwiyanti Romi Satria Wahono n.d.) It is important to note that although UML brings structure to the project modeling and diagramming process, it is not a development methodology and does not provide any formal structure with regard to how diagramming techniques are used [9]. Several cycles usually consist of an analysis stage demand, design analysis stage, design stage, stage coding, and implementation phase. UML Implementation carried out at the analysis and design stages. Design that generated in the form of diagrams which later translated into program code at the stage coding. There are 9 types of diagrams that can be handled by UML, namely Use Case Diagrams, Class Diagrams, State Chart Diagrams, Activity Diagram, Sequence Diagrams, Collaboration Diagrams and Component Diagrams.[10]

1) Use Case Diagrams

According to Sommerville (2001), the use case diagram presents the interaction between the use case and the actor. Where the actor can be a person, equipment or other system that interacts with the system being built, the use case describes the functional system or the requirements that the system must meet from the user's point of view. [11]

Table 2.1 Symbol Use Case Diagram

| Gambar | Keterangan |
|---|---|
| | Use cases describe the functionality provided by the system as units that exchange messages between units with actors expressed using verbs. |
| | An Actor or Actor is an Abstraction of another system person that activates the function of the target system. In order to identify the actors, it is necessary to define the division of labor and the tasks related to the roles in the context of the target system. People or systems can appear in several roles. It should be noted that actors interact with Use Case, but has no control over the use case. |
| | The association between the actor and the use case, depicted by the line without arrows indicating who or what requested direct interaction instead of indicating data. |
| | An association between an actor and a use case that uses an open arrow to indicate when the actor is interacting directly passive with the system. |
| <<include>> | Use case by another use case, for example is calling a program function. |

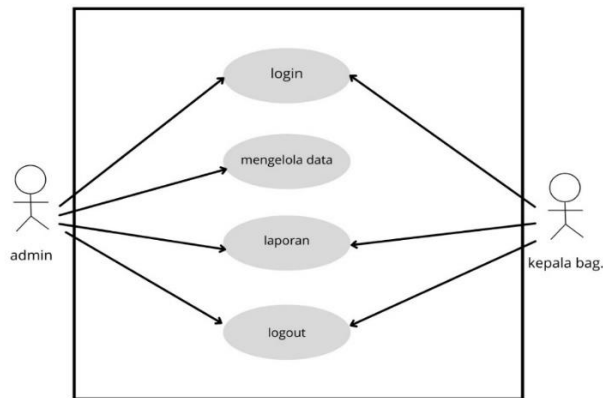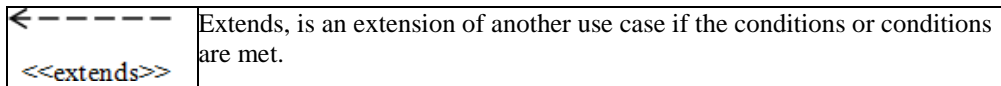| ←– – – – –<br><<extends>> | Extends, is an extension of another use case if the conditions or conditions are met. |
|---|---|



Figure 2.2 Use Case Diagram

In the use case diagram above, it can be seen that there are two actors, namely the BAPPEDA admin and the head of each field in BAPPEDA. The BAPPEDA admin has several access rights such as logging in, processing data, receiving reports and also logging out. The head of each field in BAPPEDA also has the same access rights as the BAPPEDA admin, namely logging in, inputting data and also logging out.

2) Sequence Diagrams
Sequence diagrams are used to describe the behavior of scenarios, this diagram shows a number of examples of objects with messages placed between these objects in the use case, the main component of a sequence diagram consists of objects that are written in a rectangular box named Message represented by a line with arrows and time indicated by vertical progress. Sommerville (2001).
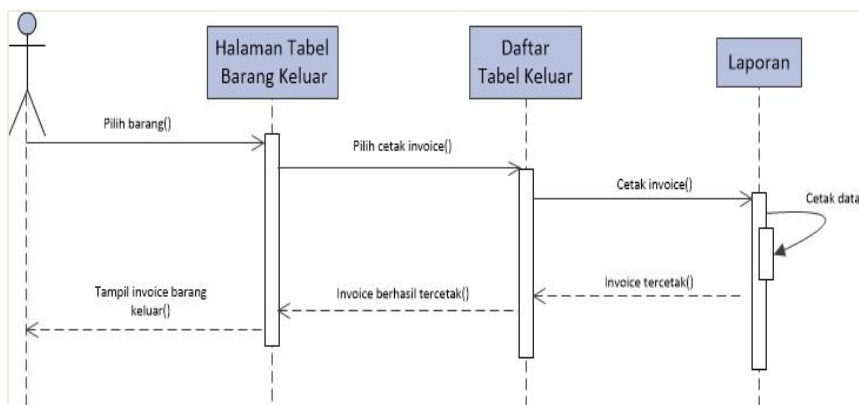


Figure 2.3 Sequence Diagram

## 3. RESULTS AND DISCUSSION
The program is a series of systematic and logical instructions to control the computer in achieving its goals according to certain rules.[12]
### 3.1 Login Page
The login page is used to distinguish the access rights of users who may enter and access the system are users who have usernames and passwords. Then the admin must login first when he wants to enter the system with the username and password that are already available. If the username and password are entered incorrectly, the admin will fail to login to the system.
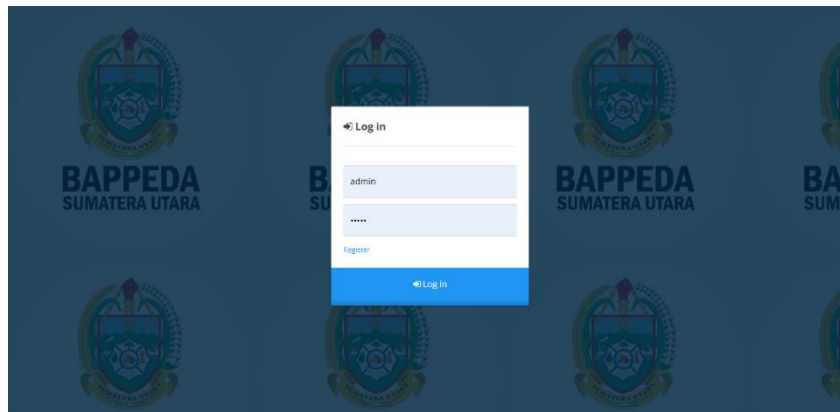
Figure 3.1 Login Page Display

### 3.2 Dashboard Page

When successfully logged in, the admin will enter the system dashboard page. On this dashboard page, there will be a logo and the total amount of data available. If you have entered this page, the admin can do input activities and view incoming reports.


Figure 3.2 Dashboard Page Display

### 3.3 Admin Table Page

When you click "Admin", the BAPPEDA admin will enter this page which contains a list of Admins who have access rights to login and manage inventory data. If there is suspicious data, the admin can immediately delete it.
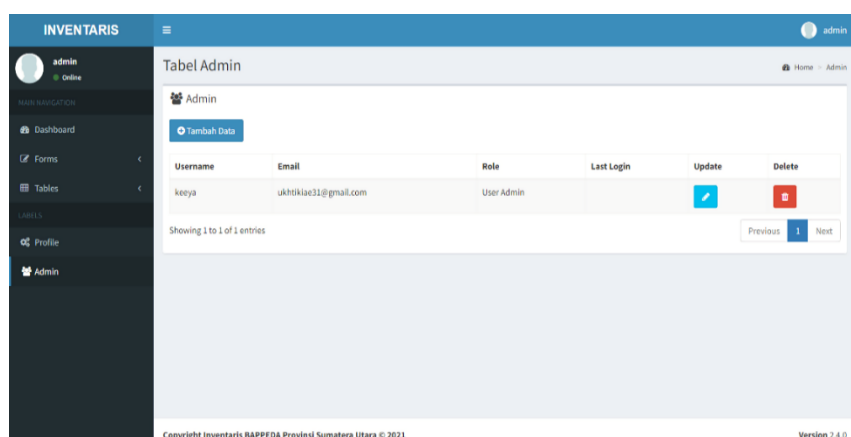

Figure 3.3 Admin Table Page Display

### 3.4 Add Admin Data Page

On the add admin data page, it contains an empty column, if the BAPPEDA admin wants to add new admin data, it will enter this page. To input the new admin data, the admin must enter data such as username, email and password. If you have filled in the data, the admin can click the "Submit" button.
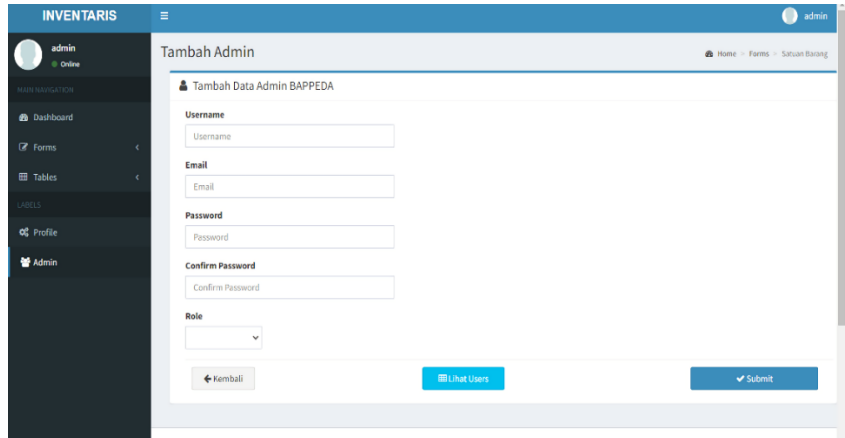
Figure 3.4 Add Admin Data Page Display

## 3.5 Update Admin Page

On this page the admin can change the registered Username or Password to maintain account confidentiality.
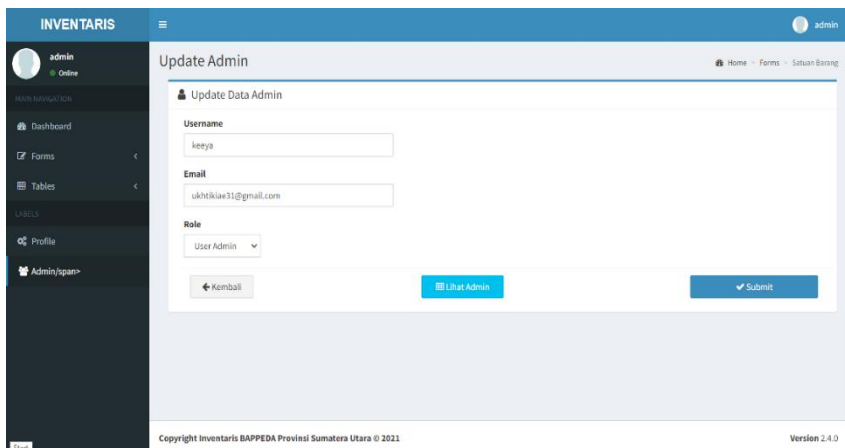


Figure 3.5 Update Admin Page Display

## 3.6 Admin Profile Page

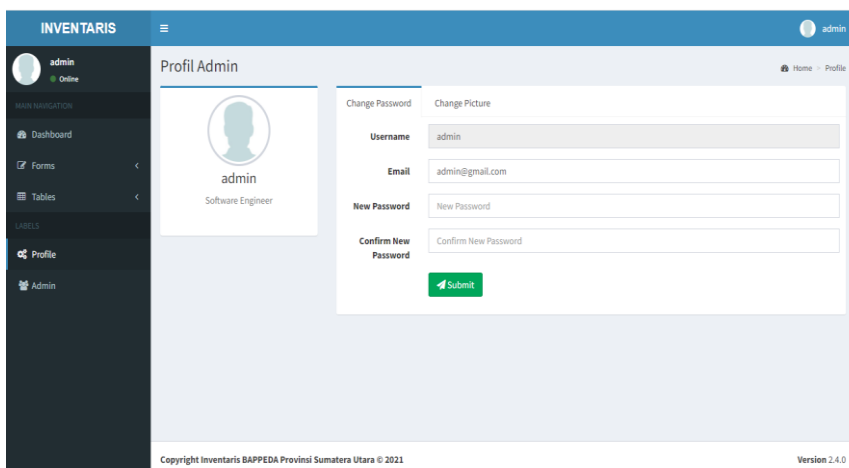On this page admin can change password and profile picture.
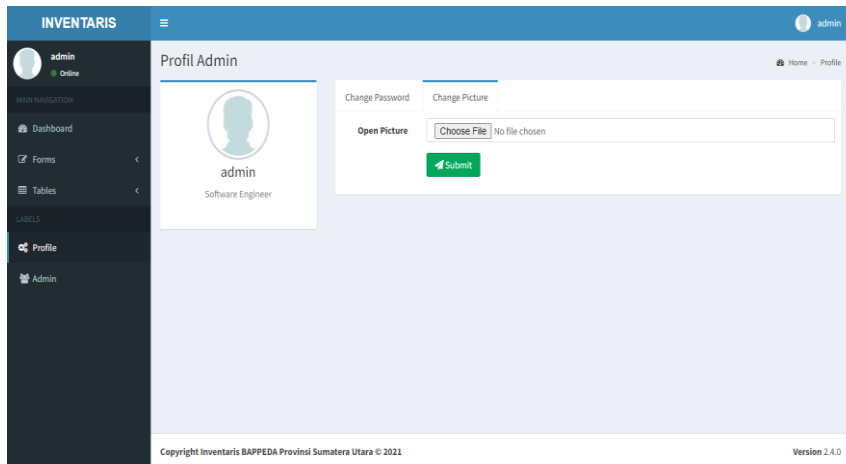


Figure 3.6 Admin Profile Page Display

Figure 3.7 Next View Admin Profile Page

## 3.7  Unit Table Page

On this page the admin can edit the incoming mail that has been selected by filling in several tables, then clicking the "update" button. After that a message will appear that the letter has been saved, the message indicates that the letter has been entered and saved into the database.
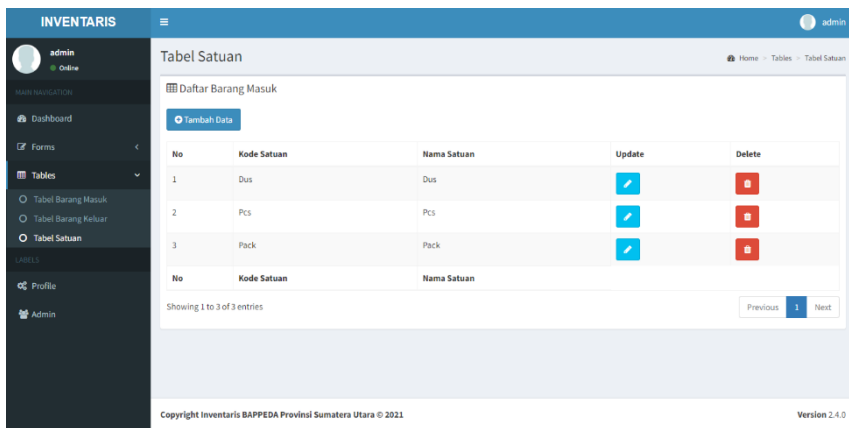

Figure 3.8  Unit Table Page Display

## 3.8  Item Unit Input Page

On this page the admin can add new units of goods. If you have filled in the data, the admin can click the "Submit" button.
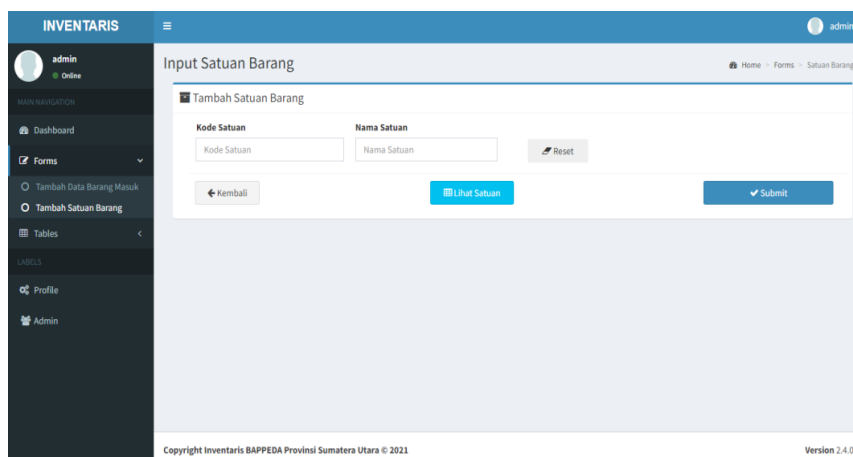

Figure 3.9 Item Unit Page Display

**3.9  Incoming Items Table Page**

The following is a table page for the list of incoming goods, which on this page displays a list of goods that have been entered into BAPPEDA.
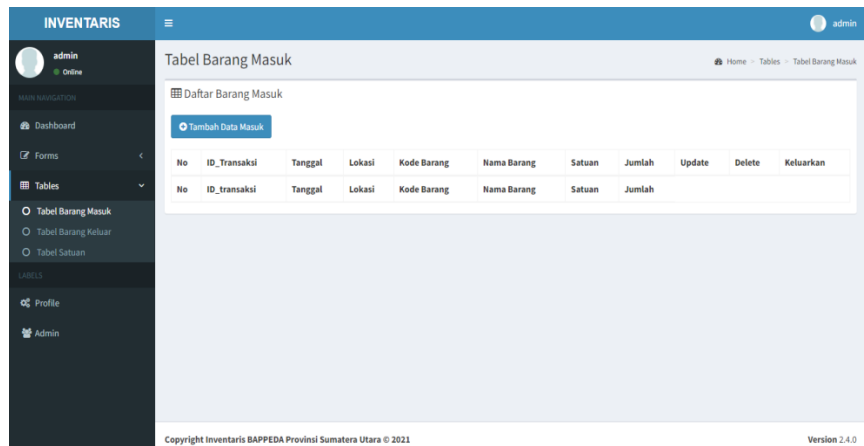


Figure 3.12 Display of Incoming Goods Table Pages

**3.10 Incoming Items Table Page**

On this page the admin can add item data, then complete the required item data. If you have filled in the data, the admin can click the "Submit" button.
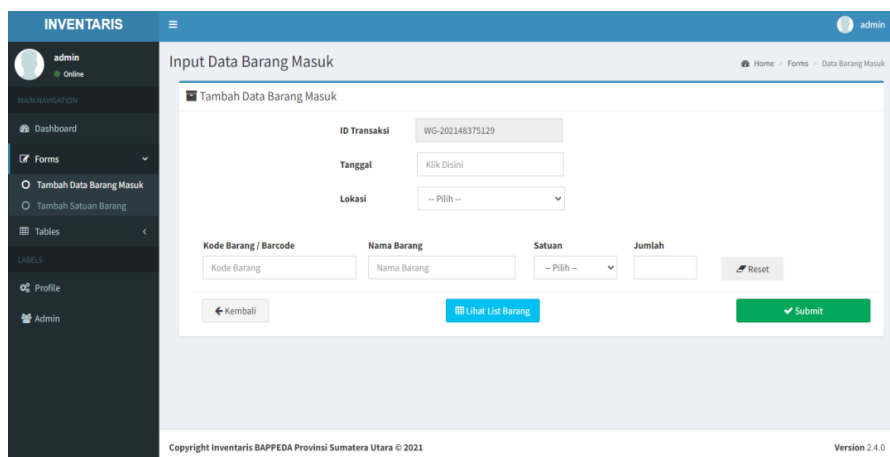


Figure 3.11 Display of Incoming Goods Data Page

**3.11 Outgoing Items Table Page**

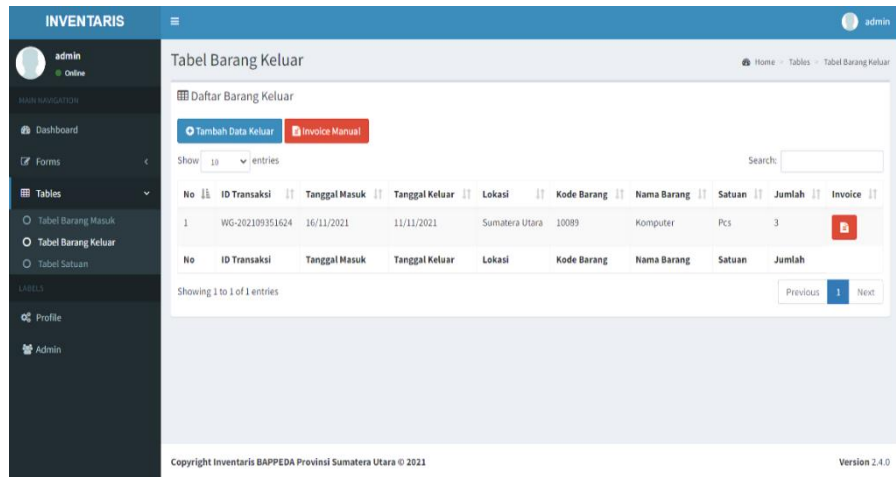On this page there is a list of outgoing goods along with the completeness of the data for these goods.

Figure 3.12 Display of Outgoing Goods Table Page

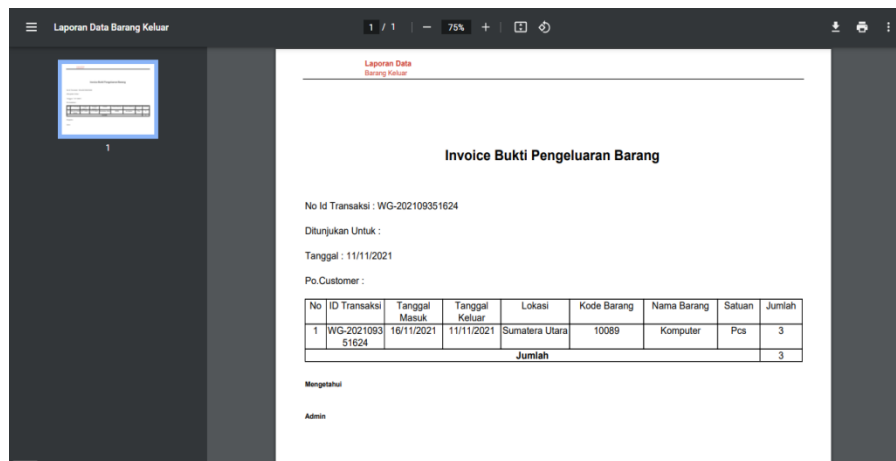## 3.12 Outgoing Goods Data Report Page



Figure 3.13 Display of Outgoing Goods Data Report Page

## 4.   CONCLUSION

With a computerized system like this, the following conclusions are obtained:

a. This Goods Inventory Data Processing Information System can make it easier for admins to process Inventory data and reduce the risk of errors at the Regional Development Planning Agency (BAPPEDA) of North Sumatra Province.

b. Avoid losing data on items in BAPPEDA, because every item will be stored in the database.

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