

STRATEGY OF ASSET MANAGEMENT INFORMATION SYSTEMS IN REDUCING ASSETS FROM DAMAGE WITH VISUAL MONITORING

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INFORMATION ARTICLE

History Article:

KEYWORD

Strategies, Information Systems, Asset Management, Visual Monitoring

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ABSTRACT

The development of information systems has resulted in changes in many things, one of which is asset management. As is done in institutions, the use of asset management information systems is a necessity, where existing assets need to be recorded in real time and can be accessed at any time, making it easier in the data collection process, monitoring / monitoring assets to reduce damage to assets. For this reason, this research is related to visual asset supervision that combines with web technology with methods used with web engineering systems approach, design using Unified Modelling Language (UML), PHP programming language and for own design using the Bootstrap framework that is easier and more appropriate user needs. The results of this study are the development of a visual control process for asset management information systems in reducing damage to assets

1. INTRODUCTION

Era now it is a strategic era, that is, many things are linked to strategies for achieving organizational goals. Likewise, information technology systems are known as *strategic weapons* (Jogiyanto, 2005), because they can be used to implement strategies to gain competitive advantage. Many companies implement information technology systems to compete, but many of them fail to get sustainable competitive advantages if they are not well planned. An unplanned information technology system only supports certain unit targets in the organization rather than the overall corporate target or does not even clearly support which goals. Competitive advantage is only obtained if the organization is able to exploit this information technology

capability consistently with the goals of the organization continuously. For this reason, it is necessary to have a strategic management that is used to implement the strategy for the company (Jogianto, 2005). Therefore strategic management for company organizations is the most important part, in order to support the company's efforts to improve performance in accordance with the company's vision and mission (Hoga and Harisno, 2014). The management process is carried out from various aspects, one of which is related to assets, which is an important supporting tool for an organization or institution, good asset management is the beginning of a good organization or institution.

Assets are an important resource for a company, as well as an

institution in the world of education, because it is related to existing business processes. Given the large number of assets found in companies and institutions this needs to be managed properly, so that existing assets can be maintained. Currently assets in companies and institutions have not fully implemented asset management properly, this can be seen from the process of data collection of assets itself is still done by recording through books, by checking one by one the room and making monthly reports by moving data into excel, this makes difficulty in monitoring in *realtime*. Given the many assets that are owned in an organization, of course, asset management is good, fast and can be monitored in *realtime*, this is very helpful.

Given the need for a system that is capable of managing the assets of companies and institutions, by combining with information technology that can be accessed at any time, and able to carry out reports in a timely manner, and the person in charge of authority to secure assets can continue to monitor the assets contained in in space. In the data collection process carried out, it is quite good, but there are still many assets in the data that have been damaged due to many factors, therefore a system that controls assets is needed so that the damage that often occurs to assets can be avoided.

Based on the statement above, the researcher provides a solution to make visual control synchronized with the asset management information system. With this system, companies and institutions are expected to be able to carry out asset management properly, quickly and efficiently, and minimize assets from damage.

2. LITERATURE REVIEW

2.1. Information

Systems Systems can be defined as a procedure approach and with a component approach. While the information system is a system that aims to produce information, which is processed into a useful form for the users (Jogiyanto 2009)

According to John Ward and Joe Peppard (2002, p20), Information systems are activities that utilize technology, collect, process, store, use and disseminating information.

Meanwhile, according to Ferdinand Magalin in the book Hoga Saragih and Harisno entitled "Strategic Planning of Information Technology (IT) and Information Systems (SI) in Corporate Business Processes" (2014), said that Information systems are a system in a company that meets the needs of management. daily transactions that support the company's operational functions that are managerial with the strategy activities of a company to be able to provide certain outside parties with information needed for decision making.

Information system is a system that provides information for all levels in the company, whenever needed. This system stores, retrieves, changes, manages and communicates information received using information systems or other equipment. From some of the definitions above, it means that information systems as a means to enable people and organizations to use technology, collect, process, store, use and disseminate information, so that it is concerned with the purpose of utilizing information technology in an organization.

2.2. Management Information Systems

The term management information system actually shows functional information systems, namely information systems that are applied to organizational functions (Jogiyanto 2009).

Management information systems are also closely related to technology and information systems applied in companies to increase productivity and help achieve quality, standard time, and satisfaction for both consumers and employees. (Ellitan and Anatan 2009)

In addition, it is also related to project management which is interpreted as the cause of science and art related to leading and coordinating resources consisting of humans and materials by using modern management to achieve predetermined goals (Heryanto and Triwibowo 2013)

2.3. Definition of Strategies The

definition of Strategy is a pool of actions that are intended to increase the long-term strength of company that is related to its competitors. This strategy can create a new policy that can be used in practice such as redesigning the production process in business. (Ward and Peppard: 2002).

Strategy is planning, and execution of an activity in a certain period of time. In a good strategy there is coordination of the work team, having a theme, identifying supporting factors that are in accordance with the principles of implementing ideas rationally, efficient in funding, and having tactics to achieve goals effectively (Hoga and Harisno, 2014).

The *company's strategy* is defined as "game plan" ("*game plane*") carried out by management to position the company in the chosen market arena in order to win the competition, satisfy its customers and achieve good business performance (Jogiyanto, 2005).

From this definition, it can be seen that a strategy consists of a game plan consisting of a series of competitive activities and business approaches applied by management in conducting their business so as to increase the long-term strength of the company associated with its competitors.

2.4. Strategy Management Strategic

management consists of several activities related to strategy. There are several definitions of this strategic management. In the book Jogiyanto (2005) entitled "Strategic Information Systems for Competitive Advantage", Dess and Lumpkin (2003) define strategic management (*strategic management*) as activities consisting of analysis, decisions, and actions of an organization to create, carry out, and maintain competitive advantages. While Thompson and Strickland III (2004) define strategic management (*strategic management*) as a process in *strategy-making*.

Jogiyanto (2004) mentions several processes of strategic management, namely:

- 1) Analysis of the external environment
- 2) Analysis of the company's internal situation
- 3) Competitive advantage analysis
- 4) Forms a strategic vision (*business vision*) and business mission (*business mission*).
- 5) Determine goals (*setting objectives*).
- 6) Engraving strategy (*crafting strategy*) to achieve the objectives that have been determined
- 7) Implement and execute strategies that have been selected with efficiently and effectively.
- 8) Evaluate performance and make corrective improvements to the vision, long-term direction, objectives, strategies and implementation because of real experiences, changing conditions, new ideas or new opportunities.

2.5. Importance of Strategic Information Systems and Information Technologically

there are several factors that led to the organization needs strategic planning, namely:

1. The results of the planning system can be distributed to the information technology and experts in the management of information technology systems. (Jogiyanto, 2005)
2. Develop a plan for information resources that can help communicate the company's future to other parties in the organization (Jogiyanto, 2005).
3. The results of planning information technology systems can help allocate resources to technology system projects. important and useful information for the company. (Jogiyanto, 2005)
4. Information systems and information technology projects are only evaluated on a financial basis. (Ward and Peppard: 2002)

2.6. Strategic Planning Model

In the preparation of strategic planning, reference is needed to guide strategic planning carried out step by step (Hoga and Harisno, 2005). The methodology used is the development of the John Ward & Joe Peppard (2002) strategy model:

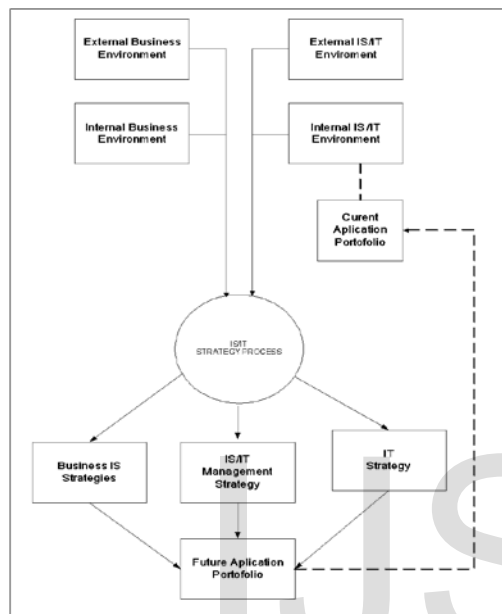


Figure 2.1 The Model Framework Strategic Planning (Ward and Peppard: 2002)

According to Ward and Peppard (2002, pp153-155), the IS / IT strategy model is illustrated in the form of a set of formulas and *strategic planning framework* which consists of several parts, namely

1. *Inputs*, as input in system strategic planning and information technology, consisting of:
 - a) *The Internal Business environment*
Is a business strategy used in the present, goals, resources, processes, and organizational culture and the value of the business itself.
 - b) *The External Business environment*
The political, economic, social, technological, industrial and competitive climate in which the company operates.
 - c) *The Internal IS / IT environment*
The current IS / IT view of business, the company's experience in business, the scope of business, and its contribution to the market, the ability of the company,

the resources in the company and the technological infrastructure used. The current portfolio application of the current system and the system that is under development or has not been developed but has been planned for the company.

d) *The external IS / IT environment*

Technological developments and opportunities exist, as well as IS / IT used by other parties, especially consumers, competitors and suppliers.

2. *IS / IT Strategy Process*, the process by which information is obtained, as well as the results of analysis obtained from inputs, will be processed to produce outputs.
3. *Outputs*, are the results of a process that includes
 - a) *Business IS Strategy*.
How each unit can utilize IS / IT in achieving its business objectives. Includes a portfolio of applications to be developed for each unit and business model. Describe the information architecture of each unit.
 - b) *IT Strategy*
Strategies and policies that are implemented to regulate the use of technology in the company and manage the resources of expert technicians.
 - c) *IS / IT Management Strategy*
 - d) A general element of the strategy that will be applied to the organization as a whole, ensuring consistency of policies based on needs.
4. *Future Application Portfolio*. Details that explain the proposed application to be used by the company in the future, to integrate each unit of the company and adjust technological developments with the development of the company.
5. *Current Application Portfolio*, details about the application of information systems applied by the company today, by looking at the advantages and strengths obtained by using the application and looking at the existing application support for operational activities and system strategy planning and information technology for companies to face competition and markets in nowadays.

2.7. Assets

Based on information from Wikipedia Indonesia assets are economic resources that can provide benefits in the future, or all rights used in company operations (wikipedia 2017)

2.8. Web

Engineering *Web* is an application that uses a systematic, disciplined and measurable approach to development, operation and maintenance *web-based applications*. Technically, the *web* is a system with information presented in the form of text, images, sounds, etc. stored on *anweb server* internet that is presented in the form of *hypertext*. (Simarmata 2009) A

website is a place on the *Internet* where you can place information, so that you can place information, so that anyone in the world knows about yourself, gives you questions giving you input and even knows and buys your product. *The internet* is like the biggest reserve center in the world and *website* your is one of the shops / kiosks in the center of the trade. (Iskandar, 2014) A

website or abbreviated as a *web* can be interpreted as a set of pages containing information in the form of digital data in the form of *Text*, images, *videos*, *audio*, and *animations* other are provided through the internet connection. More specifically, the *website* is pages that contain information displayed by browsers such as *Mozilla Firefox*, *Google Chrome* or others. (Rohi, 2015)

2.8.1. Web Server

Web Server is software that is the home of the *world wide web* (www). *Web server* waiting for requests from *clients* using *browsers* (Kurniawan 2010)

2.8.2. PHP (Hypertext Preprocessor)

PHP is a side programming language *server-* experiencing several changes ranging from version 1 to now version 7 ((Pratama 2016). Essentially PHP is a programming language can help us in making any application and can be accessed by anyone using technology *server-side*. (Kurniawan 2010).

2.8.3. Database

Database is a collection of integrated data that is organized to meet user needs for organizational purposes. (Kurniawan 2010)

DBMS (*Database Management System*) or in Indonesian is often referred to as a database management system is an application system that is used to store, manage and display data. (Rosa, 2013)

RDBMS is a computer program (a set of computer programs) designed to manage a set of data structured (*database*) stored and operation of data at the request of the user (M. Ichwan, 2011).

2.8.4. MySQL

MySQL is one of types of *database servers* the well-known, which are types of *RDBMS (Relational Database Management System)*. (Kurniawan 2010). MySQL also experienced significant changes, currently becoming MariaDB and some applications have migrated using MariaDB as a *database*, such as *xampp* (Pratama 2016)

2.8.5. Xampp

Xampp is a package application consisting of *web-servers*, *PHP*, and *databases* that are used with *one process installation* (Pratama 2016)

2.9. Unified Modeling Language (UML)

UML (*Unified Modeling Language*) is a visual modeling method for design tools *system* object oriented, or UML definition (*Unified Modeling Language*), namely as a language that has become a standard in design visualization and also documentation of *software systems*. (Rosa and Shaludin 2014)

UML diagrams, there are 4 UML notations, namely:

1. *Use Case Diagram*
Use case diagrams explain the benefits of the system when viewed in the view of people outside the system (*actor*).
2. *Sequence Diagram*
3. *Sequence diagrams* describe interactions between objects inside and outside the system.
4. *Class Diagram*
Class diagrams show a description and structure of *classes, packages and objects* and their relationships with each other. Objects are the result of an installation of a *class*.
5. *Activity Diagram*
Activity diagrams illustrate various streams of activity in the system being designed.
The list of symbols used to make *Unified Modeling Language*

3. METHODOLOGY

3.1. Data Collection Methods Data

collection methods are techniques or ways that can be used by researchers to collect data (Guritno, Sudaryono et al. 2011).

This research deals with how to collect data, who the source is, and what tools are used. The instrument of data collection is a tool that is selected and used by researchers in collecting data so that the activity becomes systematic and easy to do Data collection techniques in this study are:

a. Interview

Interviews are a method of collecting data used to obtain information directly from the source (Guritno, Sudaryono et al. 2011)

b. Observation

Observation is to make observations directly to the object of research to see closely the activities carried out (Guritno, Sudaryono et al. 2011). In this observation, researchers are directly involved in the daily activities of people or situations that are observed as data sources. In this study, observations and recording of phenomena that occur in activities that occur in this STTP will be conducted.

c. Documentation

documentation aims to obtain data directly from the research site, including relevant books, regulations, activity reports, photographs, documentary films, and data relating to research (Guritno, Sudaryono et al. 2011)

3.2. System Development Method

Agar asset management information system that will be built goes according to the plan, then the system development method is used, *web engineering* which is a method of developing a new system and replacing the old system as a whole or improving the running system. (Mukti, 2017)

The method of development is to develop a new system to replace the old system as a whole or improve the system that has been running. In developing this system the method used uses *Web Engineering*, because this method gives an idea to developers and *users* about the system to function and will be developed (Roger S. Pressman, 2005: 184).

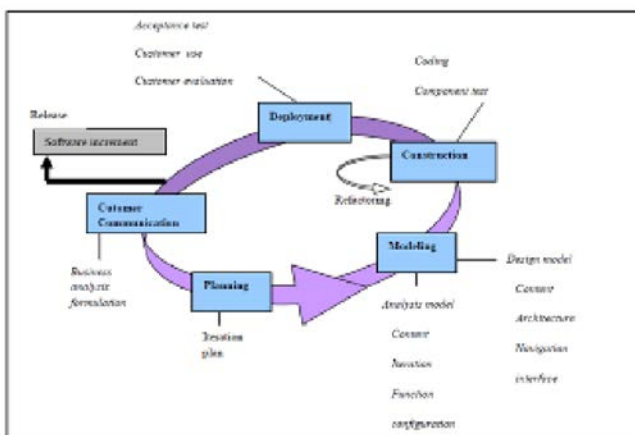


Figure 3.1 Stages of web engineering In web engineering it is divided into 5 stages, namely:

1. Customer communication

Communication in this case is mainly concentrated between the maker and the user connected with the software, and the software will define what things are contained in the application web for example users web to be built, databases to be used, integration between webs that will be built.

2. Planning

Working on a application development project webis done by making a plan that consists of job definition and making a target time for work. The definition that is carried out is to carry out the following activities:

1. Conduct research on the existing system.
2. Identify problems that occur.
3. Collect data related to the system that will be created.
4. Make system design.
5. Implement results from system design.

3. Modeling The

purpose of this activity is to explain what things are really needed / needed in the application to be built and the solutions to be offered that are expected to answer what is implied and the results of analysis and data collection.

4. Construction The

development of applications web combines the development of technology with existing tools development web , which means choosing tools effectivebut still able to adapt to the technology that is currently developing.

5. Deployment

applications Webare created to be able to integrate technological developments with existingdevelopment tools web , meaning choosing tools effectivewhile still being able to adapt to emerging technologies. The reason the system maker usesmethods web engineering, because this method is quite effective in software engineering, because it gets clear needs and rules, in making software can be done quickly in accordance with customer needs

3.3. Current System

Currently the system is running for data collection and reporting assets that are started from the administration and equipment that conducts data collection to the person in charge of the room and then makes a report to be submitted to the leadership. Like the use case following:

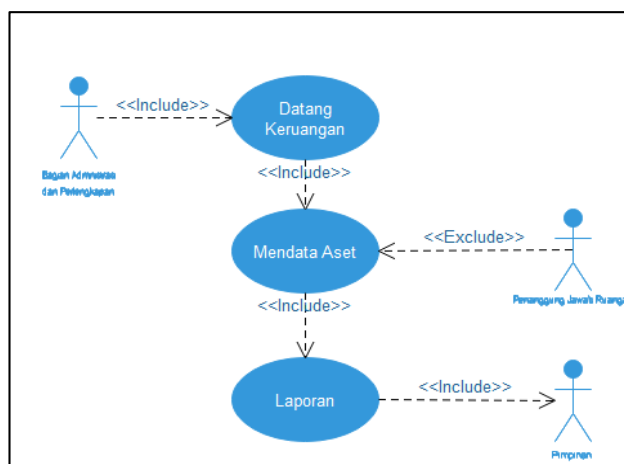


Figure 3.2 Use Case System that Runs

3.4. the Proposed System In

order for the asset management process to work properly, it is necessary to have a system that can integrate the administrative and equipment parts with the responsibility section in each room, and can provide reports in *real time* that can be accessed at any time by the leader. The *use case* proposed system can be seen in Figure 3.3, where the equipment section arranges assets in accordance with the room, and monitors assets *online*, and the person in charge of the room monitors the assets in the room and provides information about the assets that are maintained. And in the leadership section, simply access the system and view reports *online*.

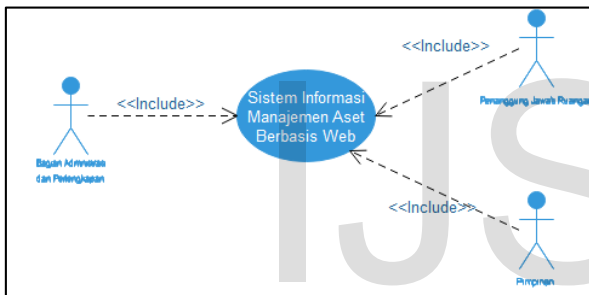


Figure 3.3 Use Case System proposed

Next for monitoring items contained in the room, done visually starting video data through CCTV, images, and temperature, then analyzing the existing data and entering it into the system, then the system will identify the data, to know the condition of the item.

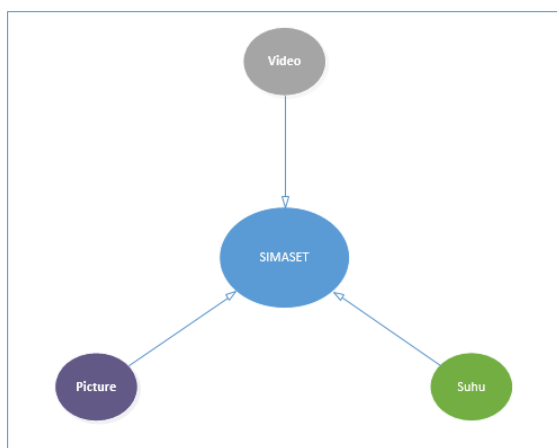


Figure 3.4 Data Visual Monitoring

3.5. Activity Diagram

Activity diagram describes the process of activities carried out by the *user* starting from opening the *system* asset management information through a *web browser*, and then the *system* displays the *login form*, the *user* enters a *username* and *password* to be validated if the system will direct the management information system page asset, if it fails, return to the *login form*. Then the *user* can do activities *input*, edit and view data.

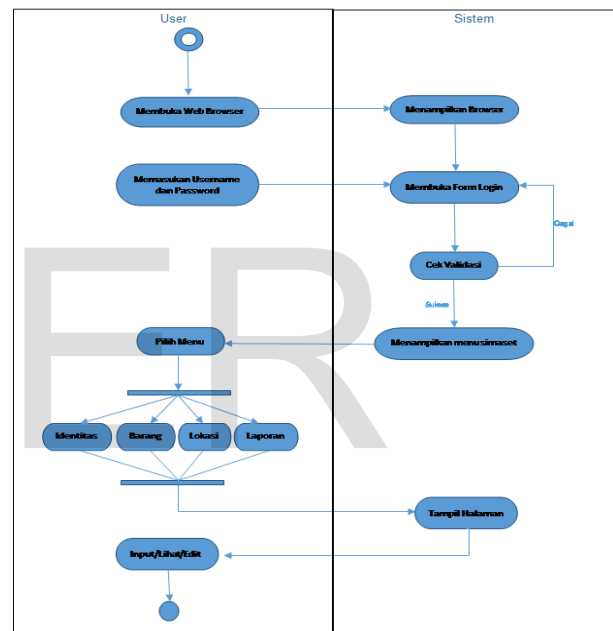


Figure 3.5 Activity Diagram

In the activity diagram the monitoring system describes the process that occurs starting from the user running SIMASET, then the system will check the video, image and temperature data then analyze the data to determine the life of the item, the condition of the goods, the cause of the damaged item.

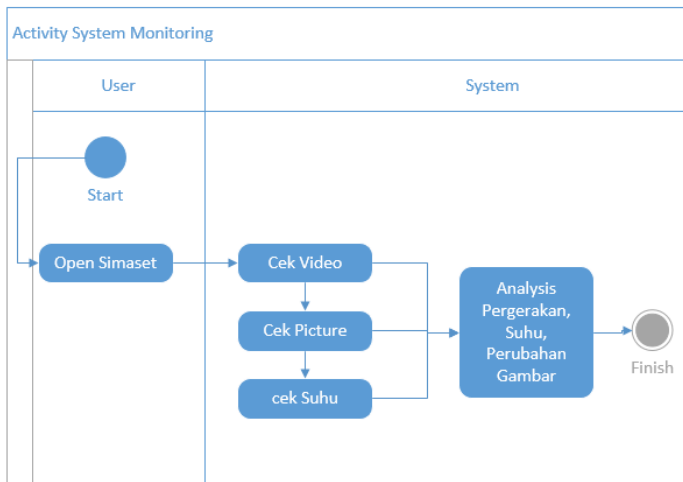


Figure 3.6 activity monitoring system

3.6. Class Diagram

Class diagram describes relationships between tables, which are interrelated, which consists of table categories, item tables, space tables, location tables and reports. In addition there are table users and level.

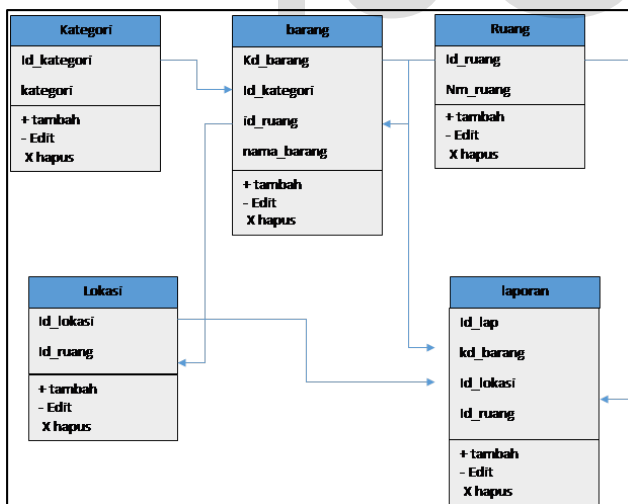


Figure 3.5 class diagram Program

4. RESULTS AND DISCUSSION

After an analysis and study of the system is running, and proposes an asset management information system strategy to

reduce the damage, the results are that the-based asset management information system *web* can be implemented and the results are as planned. The monitoring system itself combines with CCTV cameras, which record the activities that occur in the room, plus a room temperature gauge. With this combination it is expected to be able to collect data relating to images, motion of objects and temperature, which will be processed so that the cause of damage to the goods is obtained. It is also hoped that this system will be able to analyze the lifetime of the item. Each item in the room is differentiated based on the type of goods, such as electronic goods, goods made from wood. This system is still private, the access link is at <http://simaset.sttpagaralam.ac.id>.

The results of *layout* the information system by combining it with *the framework* Bootstrap, which has an easy and appearance *friendly*.

1. Login

Form This login form is used by the *user* in accessing the asset management information system, which consists of a *username* and *password*. For the *user* himself divided into three parts, the first administrator who has full control of the system, the second *user* in charge has the obligation to control the room, such as the homeroom teacher who controls the situation of the students, the third is the who is *user* responsible for the goods in the room.

Figure 4.1 Login Form

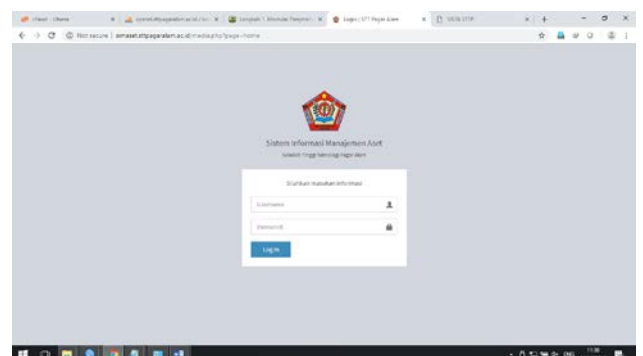


Figure 4.1 login form

2. Dashboard

pagepage is the first page that appears when the *user* successfully *login*. Which consists of *thesidebar* upperconsisting ofprofiles *user login*, *sidebar* side has menus and *content* which consists of information about good assets, broken, out and repaired. As well as asset categories, and the location of assets / spaces, and at the bottom consists of *footers*. On this page also displays information on the number of items that are still good, items that have been damaged, items coming out and also information about items that are being repaired. Next is the display of thepage *dashboard*.
Figure 4.2

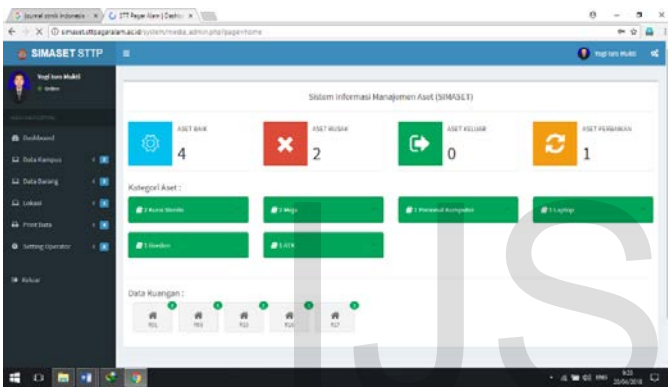


Figure 4.2 Dashboard

3. Institutional Identity

Page This page is used to regulate institutions that use asset management information systems, which consist of institutional codes, names of institutions, standing dates and addresses. The usefulness of this page is to identify if it has more than one institution, so that assets can be distinguished by institution

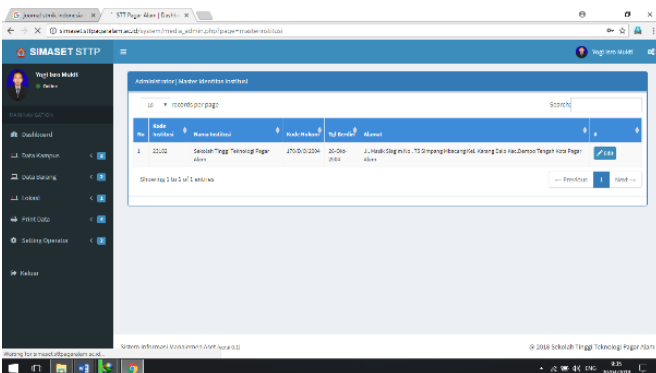
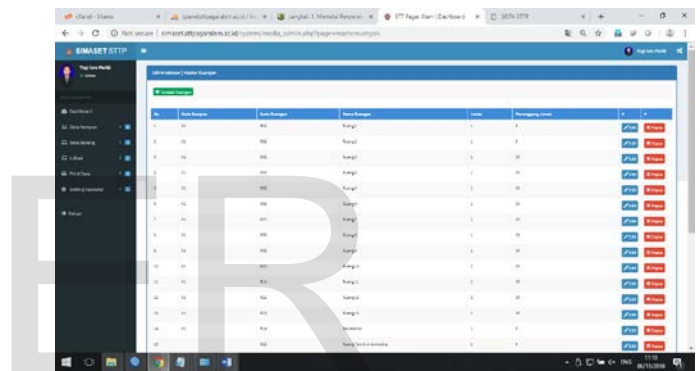


Figure 4.2 Page Institution

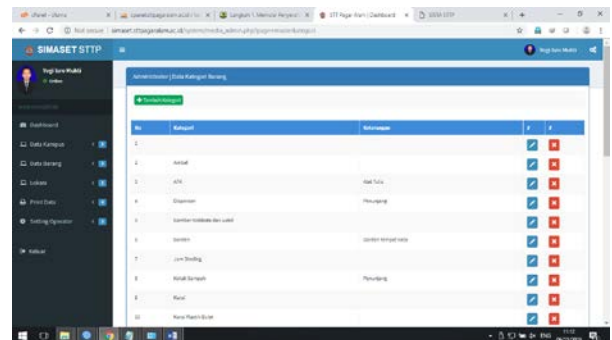
4. Space

Every asset that is recorded is synchronized with space data so that it is easy to monitor assets, for display design *input* space dataconsists from the Institution Code, Space Code, Room Name, Location, for example, the campus has a building that is located far apart and the room responsible for data.



5. Item Category

Given the number of items that exist in an institution or organization, it is necessary to group items based on categories so that the items in the data are in accordance with their respective categories, making it easier in grouping and data collection if there are items, both damaged, outgoing and repaired. For the *input* itself, it consists of *id_ categories*, categories and information. Which is synchronized with the item table.



6. Item Data Page This page

is used to enter and view data items that will be in the data, which are integrated with categories, locations and spaces, so that there is no wrong data possible, in the process of entering data.

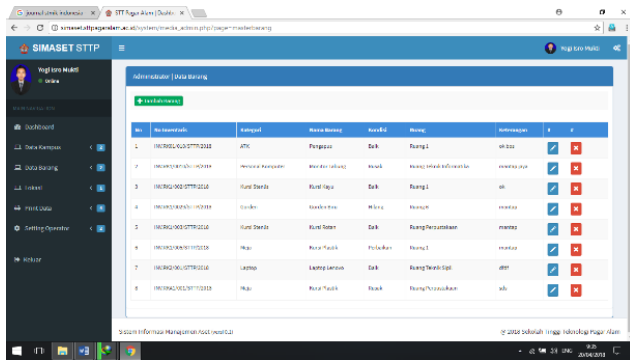


Figure 4.3 Item Data

7. Location Page

On this page is used to show the location or location of assets in each room, which is used by the *admin*, to facilitate the process of asset monitoring without having to visit the rooms one by one, and monitor the condition and condition of goods or assets.

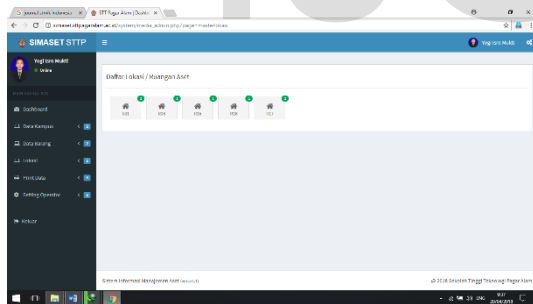


Figure 4.5 Page LocationAsset This

8. Reportreport

page is used to make asset reports in the form of overall assets and room assets. Both by the *admin*, the person in charge of the room and the leader himself.



Figure 4.6Report

5. CONCLUSION AND SUGGESTIONS

After designing and building a-based asset management information system *web* usingsystem development methods *web engineering*, designing using UML (*Unified Modeling Language*), *databases* using MySQL, PHP programming language and *layout* using the *framework* bootstrap can be concluded that : A

1. -based asset management information system has been produced *web*.
2. The asset management information system built on the *web* can work well.
3. The system is built and realized at the institution, according to needs.
4. For administration and equipment, the existence of a system facilitates the process of monitoring and reporting asset data.

In order for a system to be built sustainably, it is suggested:



1. In the future it is hoped that the system built will continue to be developed to make it better.
2. With thesystem *online* , from the security side, it is certainly very vulnerable, therefore it is necessary to develop and improve security.

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7. BIODATA PENULIS

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Lahir di Kota Pagar Alam Sumatera Selatan Pada 28 Februari 1988. Pendidikan dimulai dari SDN 40, SMP Muhammadiyah Pagar Alam, dan melanjutkan ke MAN 1 Pagar Alam. Pendidikan S1 di Program Studi Teknik Informatika STTP, dan S2 Program Studi Teknik Informatika Universitas Bina Darma Palembang. Bidang keahlian akademik yaitu Programming Web, Mobile Programming, dan Mikrotik.