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DESIGN AND ANALYSIS ADMINISTRATION APPROVAL ORDER SYSTEM IN PT SYSMEX INDONESIA

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Abstract -- PT Sysmex Indonesia is representative of a foreign company headquartered in Kobe Japan which is engaged in the principal of medical devices in Indonesia, especially in the field of laboratory. Currently, PT Sysmex Indonesia has implemented a computerized information system that is good enough, but there are some parts of its business processes that currently still use a standard program that is Microsoft Excel, especially in the case of submission of documents order approval of internal medical devices. This is something that needs improvement, in order to create the fast and accurate of the data presented. One of the obstacles that often occur in the process of filing documents, is starting from the wrong numbering of letters, then the wrong date, until the column information that if less precise than should be inputted, and so forth. From several obstacles that are often found, of course, it is necessary the process of transformation of the submission of documents using print out of Microsoft Excel into a software that is specifically made to accommodate the approval of the order of medical equipment.
Keywords: Document Submission; Medical Devices; Information System;

I. INTRODUCTION

Today, thecompany as an open system must continually adapt to the new situation change if the company wants to maintain and develop the business that is being undertaken. One of the elements that trigger the change of business environment is very important is the rapid technological change so that the company's organizational resources must be changed in a planned way to follow the developments that occur (Solihin, I. 2011:116). PT Sysmex Indonesia is representative of a foreign company headquartered in Kobe Japan which is engaged in the principal of medical devices in Indonesia, especially in the field of laboratory. Currently, PT Sysmex Indonesia has implemented a computerized information system that is good enough, but there are some parts of its business processes that currently still use a standard program that is Microsoft Excel, especially in the case of submission of documents order approval of internal medical devices. This is something that needs improvement, in order to create the fast and accurate of the data presented. One of the obstacles that often occur in the process of filing documents, is starting from the wrong numbering of letters, then the wrong date, until the column information that if less precise than should be inputted, and so forth. From several obstacles that are often found, of course, it is necessary the process of transformation of the submission of documents using print out of Microsoft Excel into a software that is specifically made to accommodate the approval of the order of medical equipment.

1.1 Research Problems

Based on the above background, here is the research problem:

1) How to find a solution to the frequent numbering of mailing problems on the process of approval of medical equipment orders?

1.2 Limitation of Research

The limitation in thisresearch areanalyzing and designing a system that only covers the process of applying medical equipment order approval by using cash and credit cooperation method, then the document will get approval from low management to top management and get legality from the legal part, until the process of filling documents in the company's database.

1.3 Purpose and Objectives

The purposes of this research are:

1) Looking for solutions to problems that arise from the order approval process of medical devices.
2) Designing an online-based system.
3) Designing a system so that later users can make order submission of medical equipment through a system.
4) Designing a system so that later users can analyze and approve the submission of order of medical equipment through the system.

With the analysis and design of this system, it can be known some of the obstacles that occur in the process of submitting the order approval of medical equipment, so it can be designed and designed a system as the basis before entering the phases of making the software system.

II. METHODOLOGY

2.1 PIECES Analysis

To perform problem analysis with PIECES analysis (Performance, Information, Economic, Control, Eficiency, Services) can find some major problems. Because in practice that appears on the surface is not the main problem but only the symptoms of the main problem (Al Fatta, H. 2007: 51).

1) Performance

Performance problems occur when the business tasks that run do not reach the target. Performance is measured by the amount of production and response time.

2) Information

Information is a crucial commodity for the final ruler. Evaluation of the ability of information systems to generate useful information needs to be done to address opportunities and deal with emerging problems. Information can also be the focusof a restriction or policy. While information analysis checks system output, analyzes data, examines data stored in a system.

3) Economic

Economic reasons may be the most common motivation for a project. The most fundamental thing for managers is th ecost, which needs to be considered in the form of unknown costs, the cos tis not traced to the source, or the cost is too high. Also worth noting also about new markets that can be explored, marketing that can still be improved, and orders can be improved.

4) Control

Business tasks need to be monitored and improved if substandard performance is found. Controls are installed to improve system performance, prevent or detect system errors, guarantee data security, information, and requirements.

5) Efficiency

It concerns how to produce as much output as possible with minimal input.

6) Services

The development of the organization is triggered by improved services. Improved services to the system developed will provide accuracy in data processing, easy to use system, the ability to handle problems viewed from normal conditions, able to coordinate activities to achieve goals and objectives, reliability of consistency in processing input and output and reliability in handling exceptions.

2.2 SWOT Analysis

SWOT analysis is a strategic planning method used to evaluate strengths, weaknesses, opportunities (opportunities), and threats in a project or a business speculation. The four factors that form the SWOT acronym (strengths, weaknesses, opportunities, and threats). This process involves determining the specific objectives of business or project speculation and identifying internal and external factors that support and which are not in achieving that goal. The SWOT analysis can be applied by analyzing and sorting things that affect the four factors, then applying them in SWOT matrix images, where the application is how strengths are able to take advantage of existing opportunities, how to overcome weaknesses that prevent the advantages of existing opportunities, then how strengths are able to deal with existing threats, and the last is how to overcome weaknesses that can make threats become real or create a new threat.

2.3 How to Make a SWOT Analysis

Research shows that company performance can be determined by a combination of internal and external factors. Both factors should be considered in the SWOT analysis. SWOT analysis compares between external Opportunities and Threats factors with internal Strength and Weakness factors (Rangkuti, F. 2009).

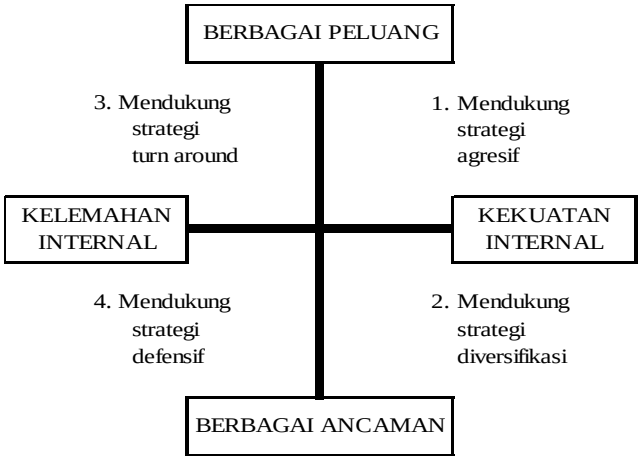

Fig. 1 SWOT analysis diagram

1) Quadrant 1

This is a very favorable situation. The company has the opportunity and power so that it can take advantage of existing opportunities. The strategy to be implemented under these conditions is to support an aggressive growth policy (Growth oriented strategy).

2) Quadrant II

Despite facing various threats, the company still has internal strength. The strategy to be implemented is to use the power to capitalize on long-term opportunities by means of a diversified strategy.

3) Quadrant III

The company faces enormous market opportunities, but on the other hand, companies face some internal constraints / weaknesses. The business condition in quadrant 3 is similar to the Mark Question on the matrix BCG. The focus of this company strategy is to minimize internal company problems so as to seize better market opportunities.

4) Quadrant IV

This is a very unfortunate situation; the company is facing various internal threats and weaknesses.

III. ANALYSIS AND DESIGN SYSTEM

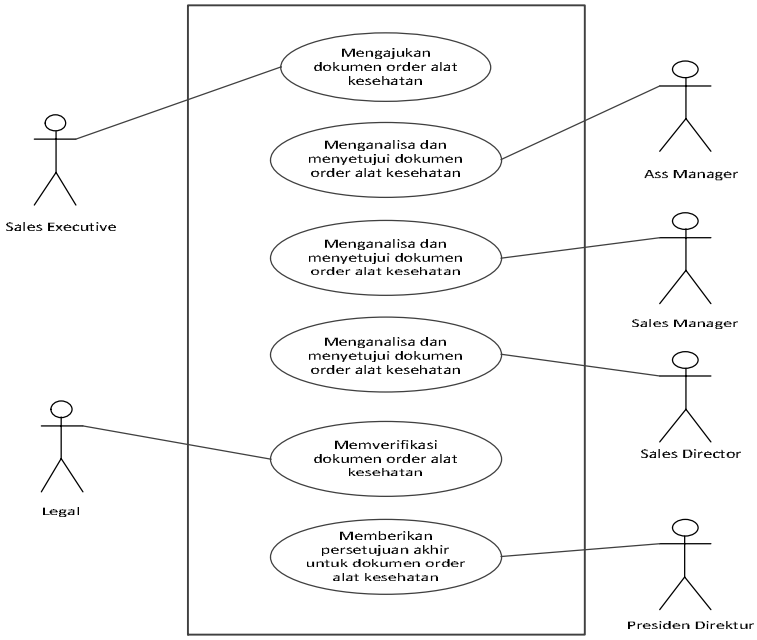

Fig. 2 Use case diagram of medical equipment orders approval in current system

3.1 Business Process Analysis

In the on-going system analysis phase is done to find, learn the systems and procedures that are currently running in the company, to know the actors who are involved in the system and determine the procedures that will be designed as a step of system improvement or system development.

3.2 Use Case Diagram of Current System

This use case illustrates who the actors are involved in the system and describes the current process in the system.In the use case diagram the system goes on to explain the process document submitted by the sales executive, then analyzed by management, until then the legal section will file a document to the president director for final approval.

3.3 Proposed System Analysis

Based on current system analysis, then performed system analysis that gives recommendation to repair or making system that can be implemented in the future. The following analysis based on problems and some constraints that occur at this time and analysis of this system using PIECES and SWOT analysis method.

3.4 PIECES Analysis Method

By using PIECES system analysis, it is expected to find some major problems needed for improvement and to identify problems, analysis of performance, economy, control, efficiency and service.

TABLE I - PIECES Analysis

Parameter	Explanation
Performance	System design is designed to provide benefits in performance improvement for sales executive staff as well as management staff.
Information	System design is designed to provide ease in obtaining information about the submission of tools that have been submitted by the sales executive staff as well as information on the submissions that have been approved or postponed.
Economy	Once the system design is implemented in a software system, the excessive use of paper and printer ink will decrease as all submissions and approvals of the ordering process will be computerized.
Control	System design is designed to control the submissions submitted, so that the processed submissions can be quickly completed by the management.
Efficiency	System design is also designed to improve the efficiency of power and time in the process, so that staff can improve their performance.
Services	System design is designed to provide convenience for the user in submitting medical equipment orders, as well as analysis and approval of health equipment orders.

IV. SWOT ANALYSIS METHOD

SWOT analysis directs strategy analysis by focusing attention on strengths, weaknesses, opportunities and threats that are critical to the success of the firm.

Fig. 3 SWOT analysis

V. USE CASE DIAGRAM OF PROPOSED SYSTEM

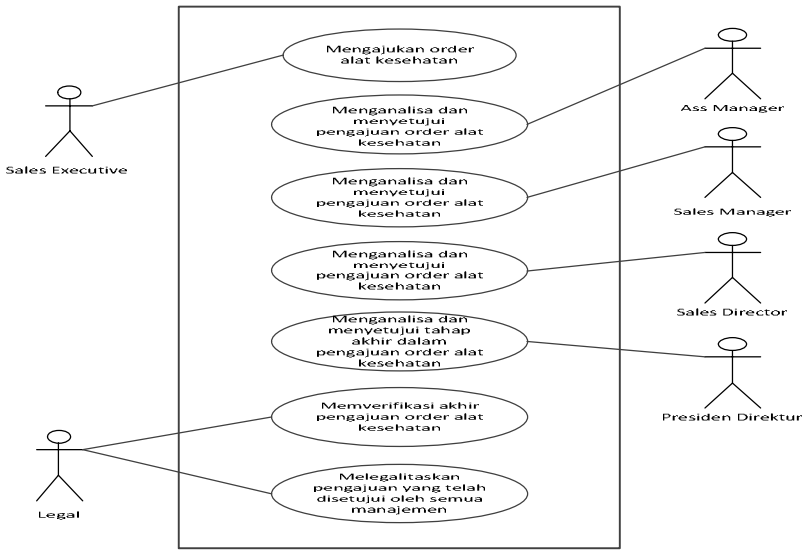

Fig. 4 Use case diagram proposed system of medical equipment order approval

VI. Sequence Diagram of Medical Equipment Order Approval

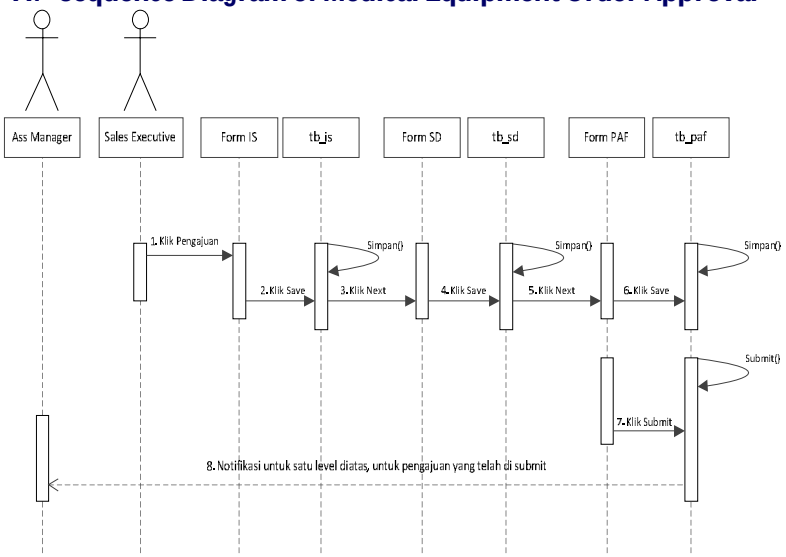

Fig. 5 Sequence diagram proposed system of medical equipment order approval

VII. CLASS DIAGRAM OF PROPOSED SYSTEM

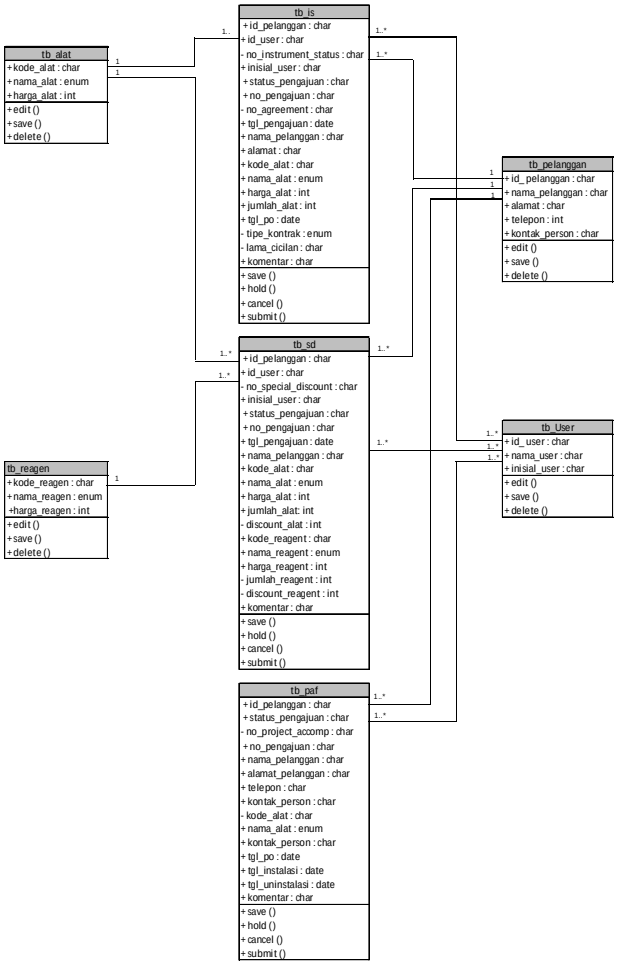

Fig. 6 Class diagram of proposed system

VIII. IMPLEMENTATION

8.1 User Interface Design

After analyzinganddevelopingthesystem, in thenextstagewillbe the process of user interface design that is poured in mock up views. The main purpose of user interface design is that all designs that have been created can be imagined in accordance with thegroovesthathavebeenmade.

8.2 User Interface of Submission Status page

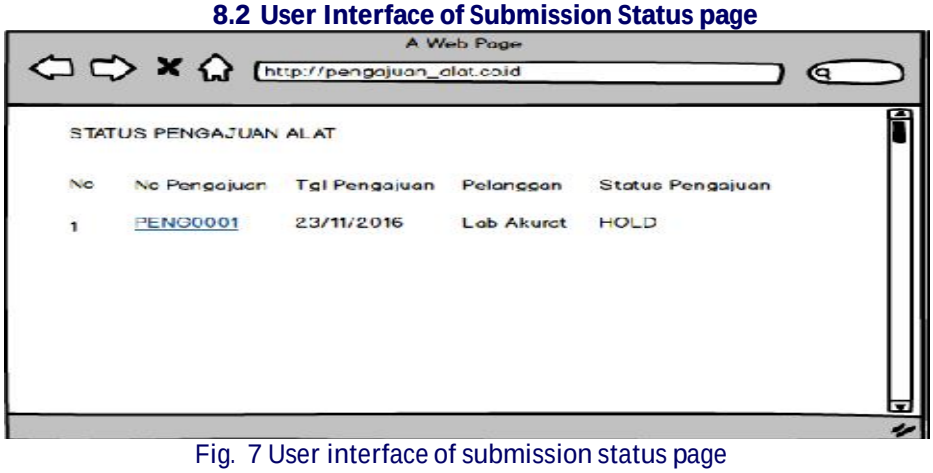

Fig. 7 User interface of submission status page

The user interface design above is the status menu screen of the submission tool, on this menu sales executives can see the status of submissions are still in process or that have been processed in the management level. If the status hold, sales executive can see the reason why the filing in hold by looking at dikolom comments, comment column visible after clicking no submission, then the system will go to the instrument status page, special discount and project accomplishment.

8.3 User Interface of Instrument Status Page

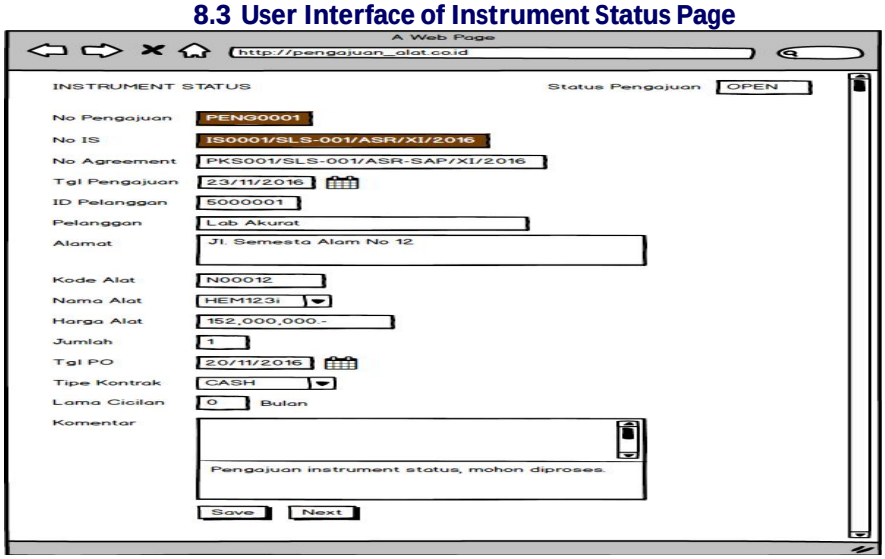

Fig. 8 User interface of instrument status page

The user interface design above is a page for the submission of tools starting from Instrument Status data, this form has a function to know some information, ranging from customers, what tools will be sold, as well as the number of tools to be sold, as well as the status of the contract whether the purchase with cash or installments.

8.4 User Interface of Special Discount Page

The user interface design below is the advanced page for the submission of the tool, on these page sales executives can perform input data tools and reagents that will be sold along with discounts that have been agreed by the customer.

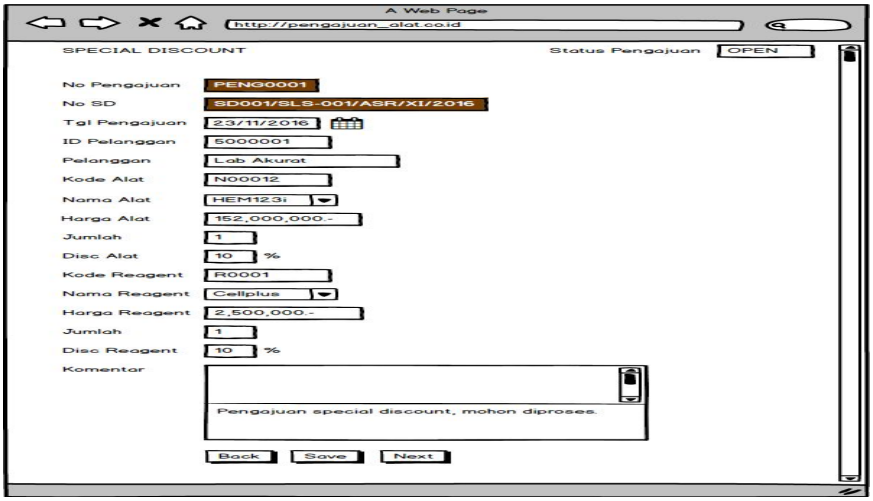

Fig. 9 User interface of special discount page

8.5 User Interface of Project Accomplishment Page

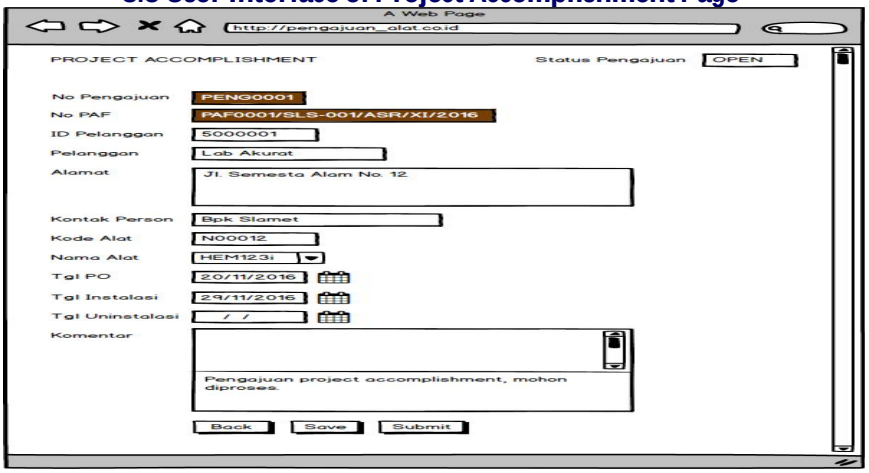

Fig. 10 User interface of projectaccomplishment page

The user interface design above is the last page for the submission of the tool, the project accomplishment page has a function to provide information to technicians when the equipment will be installed or un installation, and this page can also provide information to the supply chain to be able to prepare the delivery tool.

8.5 User Interface of Analysis and Approval of Medical Equipment Submission

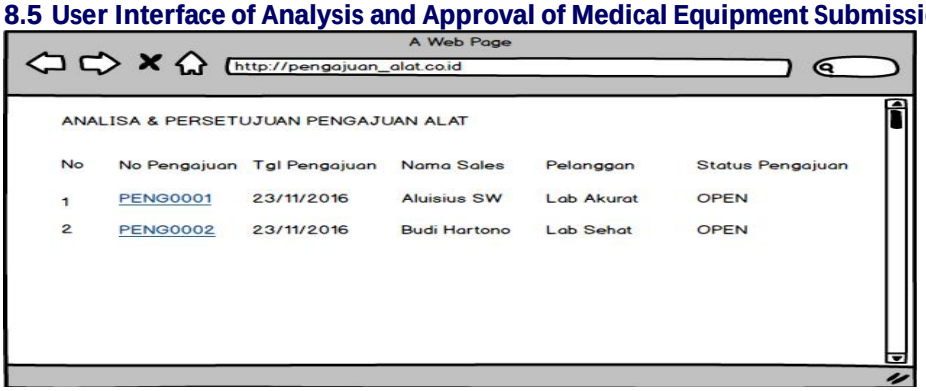

Fig. 11 User interface of analysis and approval of medical equipment submission

The user interface design above is a page of analysis of the submission of tools, on this page management level can see the submissions that are in the process or who have completed the process.

8.6 User Interface of Analysis and Approval of Instrument Status Page

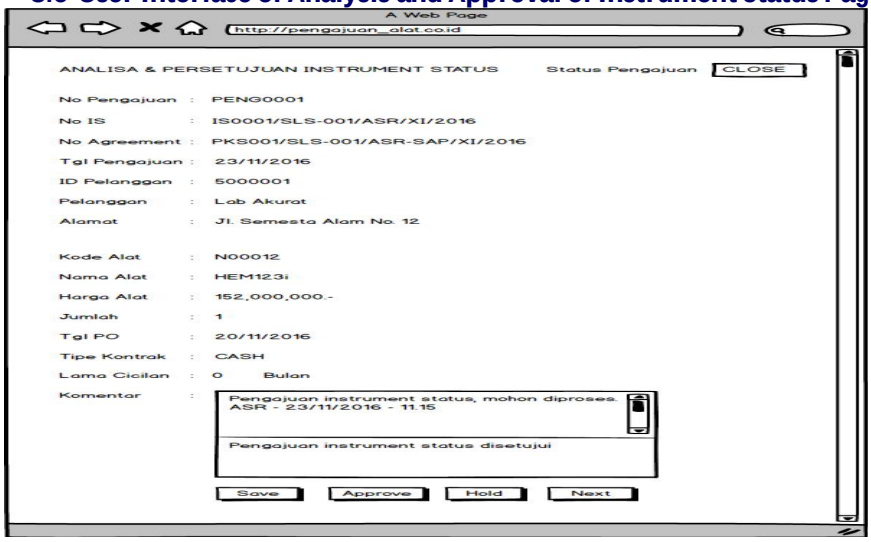

Fig. 12 User interface of analysis and approval of instrument status page

The user interface design above is the analytics and approval page for the status instrument proposed by the sales executive, after the management or director completes the analysis of this page and continues on the next page.

8.7 User Interface of Analysis and Approval of Special Discount Page

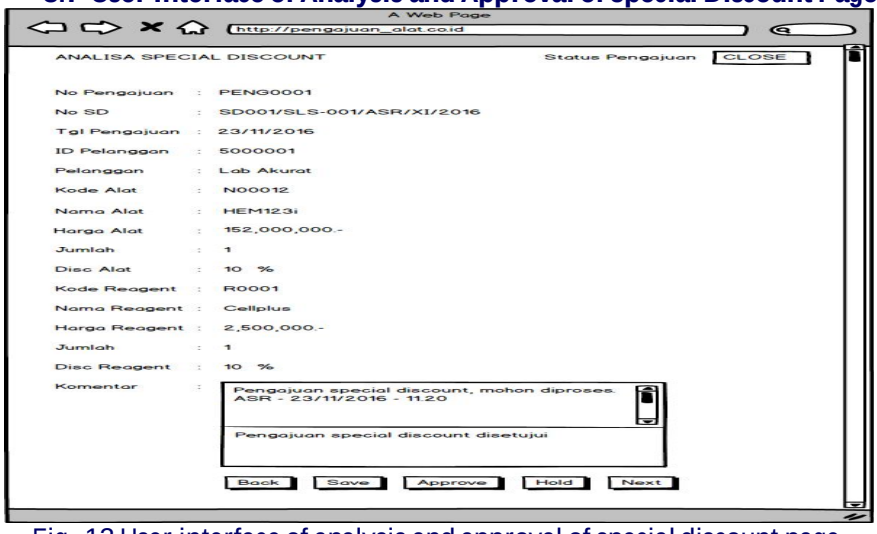

Fig. 13 User interface of analysis and approval of special discount page

The above screen design is an advanced analysis page that is a special discount analysis page, on this page management level or the director can see the discount for the tool or for the reagent given on the submission of the tool.

IX. CONCLUSION

The design of the system created to provide an overview of the system design that can allow providing a solution in the problems that occur in the process of ordering medical equipment. We can implement the design of the system into an online-based system. If the design of this system has been implemented in the form of an online-based system, then the most important thing that needs to be done is periodic evaluation of the existing system.

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