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Web-based Technical Service Work Monitoring Information System at PT PLN (Persero) UP3 Lhokseumawe

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Abstract

PT PLN (Persero) UP3 Lhokseumawe has a data management process for monitoring work and materials which are a means of supporting electricity distribution. Work is a relationship that involves two parties between the company and workers / employees. While the material is a tool that is used to meet the n eeds of employees and the community in supporting the distribution of electricity to the community. At PT PLN (Persero) UP3 Lhokseumawe when collecting data on materials and work still uses Microsoft Excel. If you pay attention, the system that is run is very unsafe, because if the data is lost it cannot be recovered. Therefore, an information system is needed for monitoring technical service work so that the data stored is kept more secure. The purpose of this research is to make a web-based system for monitoring work technical services at PT PLN (Persero) UP3 Lhokseumawe. Based on the results of system testing using the Black Box Testing (Boundary Value Analysis) method where data entry is very accurate, functionally appropriate. The results of this technical service work monitoring system research are to assist PIC (Person In Charge), supervisors and managers in managing material data, work, stock control and reporting in the planning section.

Keywords: Monitoring, Material, Work, PT PLN (Persero) UP3 Lhokseumawe

1. Introduction

The need for information technology in the era of globalization is absolute and increasingly needed. A clear example of this need is information about monitoring work and company material which of course will greatly affect the accuracy and clarity of the company's material data.

PT PLN (Persero) UP3 has its own extension, namely Limited Liability Company (PT), State Electricity Company (PLN), Company (Persero), and Customer Service Implementation Unit (UP3) Lhokseumawe. PT PLN (Persero) UP3

Lhokseumawe is a company engaged in community services, especially in the field of electricity distribution. At PT PLN (Persero) UP3 Lhokseumawe there is a process of managing material data, work and controlling goods. Work is a relationship that involves two parties between the company and the workers / employees. While material is a tool used to meet the needs of employees and the community in supporting the distribution of electricity to the community or everything that has mass and occupies space [1].

Monitoring is monitoring which can be explained as awareness about what one wants to know [2]. The monitoring process here is carried out by inputting data from materials, stock items, incoming goods, outgoing goods and work. Reporting is a record that provides information about certain activities and the results are submitted to the authorities or related to certain activities [3]. The monitoring will produce a report on each activity that has been completed and the report is in the form of a report for stock items, incoming goods, outgoing goods and work.

The process of service work is work that has been done in accordance with the use of materials at PLN UP3 Lhokseumawe. The process is carried out by using material and then doing work with different locations and different work periods.

PT PLN (Persero) UP3 Lhokseumawe in the planning section has problems in collecting data, these problems can be inventoried as follows:

1. There is no computerized system, resulting in ineffective and efficient work.
2. Data collection is still using excel, so that the system that is run is not safe, because if you lose data, then the data cannot be recovered.
3. Reporting is still in excel form, thus slowing down the level speed access data (reports) needed at any time.

Based on the problems above, then will be made Information System Monitoring Work Technical Services at PT PLN (Persero) UP3 Lhokseumawe Web Based. The target of this system research is to help PIC, supervisors and managers in the planning division in collecting data quickly. This system is expected to facilitate the PIC in managing all data and also help supervisors and managers in obtaining information and reports.

2. Methods

In this research method this research is qualitative. Qualitative research is also called natural research because the data in this research is natural or natural. Researchers as a research tool carried out by interview method techniques used to make this system is to interview directly to the source in this case, namely the planning section at PT PLN (Persero) UP3 Lhokseumawe interviews regarding material data, stock controllers and work.

2.1. Context Diagram

Context Diagram is the top level of the data flow diagram. Context Diagram describes the input / output relationship between the system and the outside world (external unity) [4].

The context diagram of the Technical Service Work Monitoring Information System at PT PLN (Persero) UP3 Lhokseumawe can be seen in Figure 1.

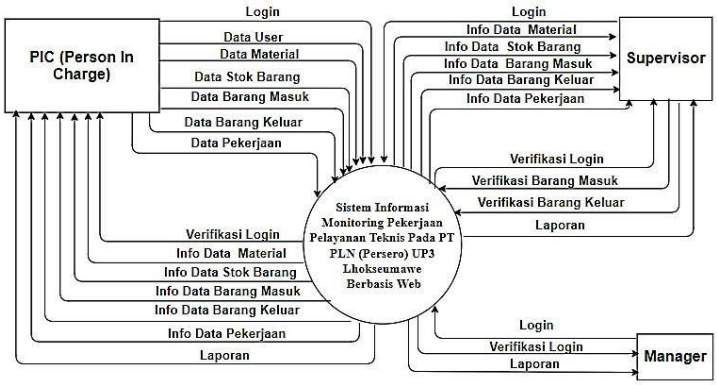

Figure 1. Context Diagram

At this stage, searches and studies are carried out on various kinds of literature such as Based on Figure 1. Context Diagram of the Technical Service Work Monitoring Information System at PT PLN (Persero) UP3 Lhokseumawe, it can be concluded that:

1. The Technical Service Work Monitoring Information System at PT PLN (Persero) UP3 Lhokseumawe consists of 3 entities, namely PIC, Supervisor and Manager.
2. PIC has full access rights to manage this monitoring system.
3. After a successful login, the PIC can:
   a. Input user data
   b. Input material data
   c. Inputting stock data
   d. Inputting incoming goods data

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e. Inputting data on outgoing goods
f. Inputting job data
g. Print reports on stock items, incoming goods, outgoing goods and jobs

4. After a successful login, the supervisor can:
   a. Get material data information
   b. information on stock data
   c. Obtain information on incoming goods data
   d. Obtain information on outgoing goods data
   e. Obtain work data information
   f. Verifying incoming goods
   g. Verifying outgoing goods
   h. Print reports stock goods, goods in and goods out
5. After successful login, the manager can :
   a. Print reports incoming goods, Print outgoing goods, Print jobs.

2.2. DFD (Data Flow Diagram)

DFD (Data Flow Diagram) is a diagram that uses notations to describe the system data, whose use is very helpful to understand the system logically, structured and clear [5]. The data flow in the system to be developed can be seen in Figure 2.

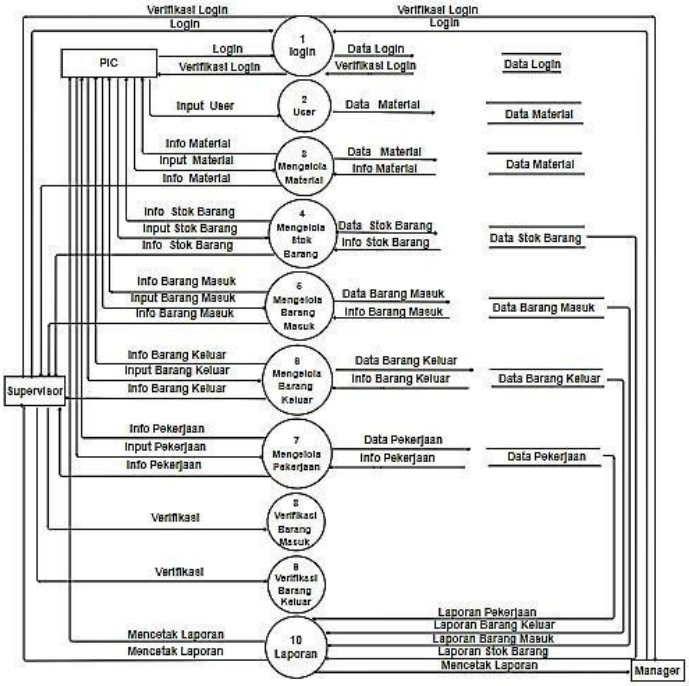

Figure 2. DFD Level 0

Based on DFD level 0, it can be described that each process of system management includes its respective access rights, where the PIC after logging in can manage all existing data, namely material data, stock data, incoming goods data, outgoing goods data, work data. Supervisors also must login first, then they will get detailed data information and reports on stock data, incoming goods, outgoing goods, work data. Meanwhile, the manager only logs in and gets the incoming goods report, outgoing goods report and work report.

2.3. ERD (Entity Relationship Diagram)

ERD (Entity relationship Diagram) is a set of ways or tools to describe data or objects that are made based on and derived from the real world called entities and relationships between these entities using several notations [6]. The relationship between entities in the system is seen in Figure 3.

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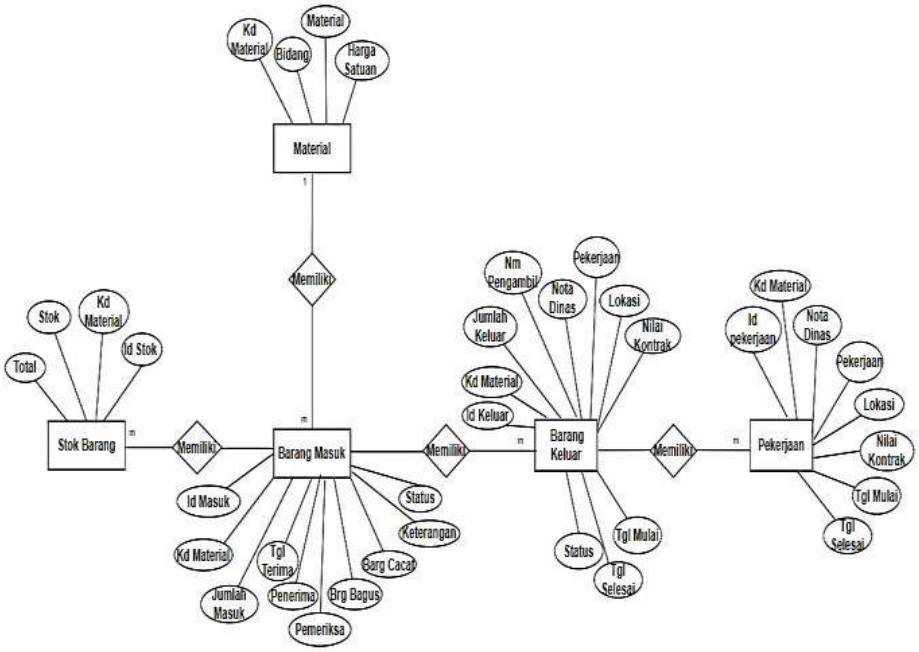

Figure 3. ERD (Entity relationship Diagram)

Based on Figure 3. ERD (Entity relationship Diagram) it can be seen that the ERD uses material tables, stock tables, incoming goods tables, outgoing goods tables, work tables. The stock table, incoming goods table, outgoing goods table, and work table are related to the material table.

2.4. Database

A database is a collection of data that is integrated and organized in such a way that data can be manipulated, retrieved, and searched quickly. [7] A database is a set of tables that are related to each other. The relationship can be indicated by the key of each table.

The database table system information monitoring technical service work at PT PLN (Persero) UP3 Lhokseumawe can be seen in Figure 4.

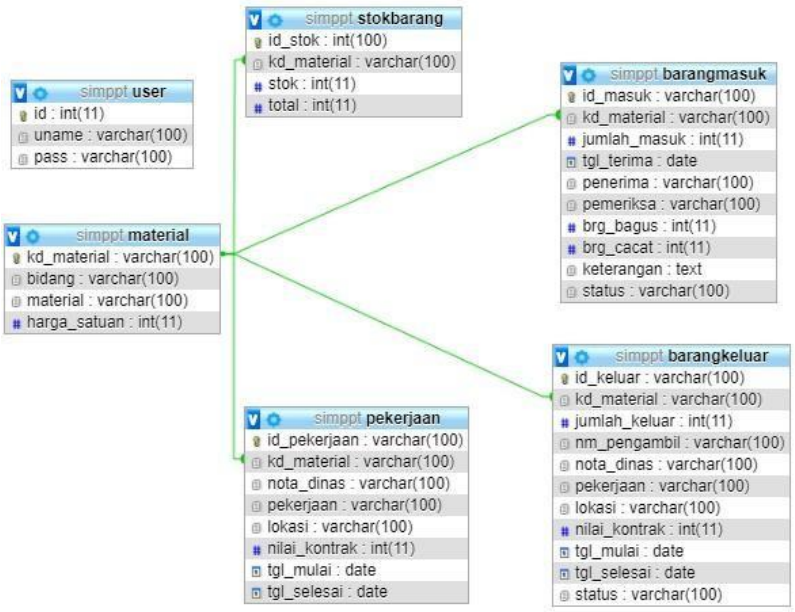

Figure 4. Database Table

Based on Figure 4. Database Tables, it can be seen that the database table has 6 tables, namely the user table, material table, stock table, incoming goods table, outgoing goods table, work table. The stock table, incoming goods table, outgoing goods table, and work table are related to the material table.

3. Result and Discussions

3.1. System Implementation

Chapter IV is the implementation of the design results into a Web-Based Technical Service Work Monitoring Information System at PT PLN (Persero) UP3 Lhokseumawe.

3.2. User interface implementation

nterface implementation aims to meet the needs of users to easily interact with computers. The simpler and less complicated the facilities used, it is very helpful for users to understand the processes carried out by the system.

3.2.1 Login Page

To access System Information Monitoring Technical Service Work at PT PLN (Persero) UP3 Lhokseumawe, users must first enter their username and password.

In this system there are three users, namely PIC, Supervisor and Manager. PIC, Supervisor and Manager must enter the username and password that has been registered previously. If the username and password entered are correct, it will enter the user's main menu page. The login page can be seen in Figure 5.

Figure 5. Login Page

In Figure 5. the design of the login page can be concluded that, Username and password contained on the login page, must be filled in correctly, in order to enter into system monitoring work technical services at PT PLN (Persero) UP3 Lhokseumawe.

3.2.2 PIC Main Page

On the main PIC page there are several menus. The appearance of main page PIC can be seen in Figure 6.

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Figure 6. PIC Main Page

In Figure 6. the PIC main page can be concluded that, on the PIC main page, there is a dashboard menu, material data menu, stock data menu goods, incoming goods data menu, outgoing goods data menu and work menu. The dashboard page is the first page that appears if the PIC has successfully logged in. Dashboard is a plated control panel center that functions to manage all activities on a site or website. In this system there are several menus, namely the dashboard menu, the simppt menu which consists of (material data menu, stock data menu, incoming goods data menu, outgoing goods data menu, work data menu), user data menu, change password and logout.

3.2.3 Material Information Page

The material data page contains about material data that has been inputted by the PIC. The display of material data that has been inputted can be seen in Figure 7.

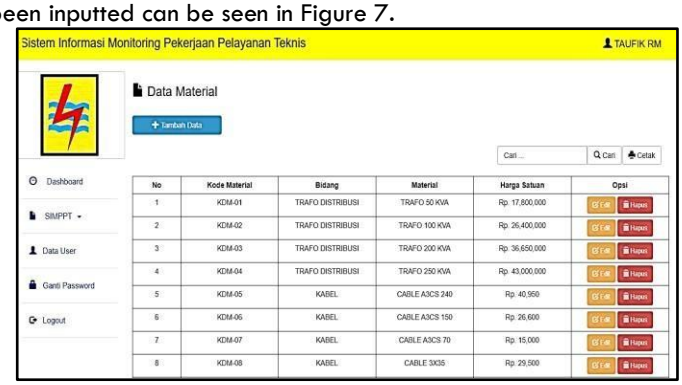

Figure 7. Material Information Page

In Figure 7. the material data page can be concluded that, on this page PIC can see field item code, field, material and unit price.

3.2.4 Stock Information Page

On the stock data page contains data on stock items. The display of stock data that has been inputted can be seen in Figure 8.

Figure 8. Building Information Page

3.2.5 Incoming Goods Information Page

On the incoming goods data page contains data on incoming goods that have been inputted by the PIC. The display of incoming goods data that has been inputted can be seen in Figure 9.

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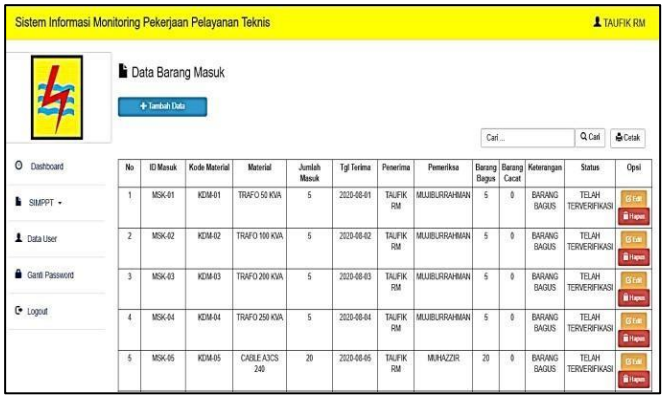

Figure 9. Incoming Goods Information Page

In Figure 9. page goods in it can be concluded that, on this page the PIC can see the fields id_masuk, kd_material, material, number_masuk, date_received, recipient, examiner, brg_bagus, brg_cacat, description, status.

3.2.6 Outgoing Goods Information Page

On the outgoing goods data page contains data on outgoing goods that have been inputted by the PIC The display of outgoing stock data that has been inputted can be seen in Figure 10.

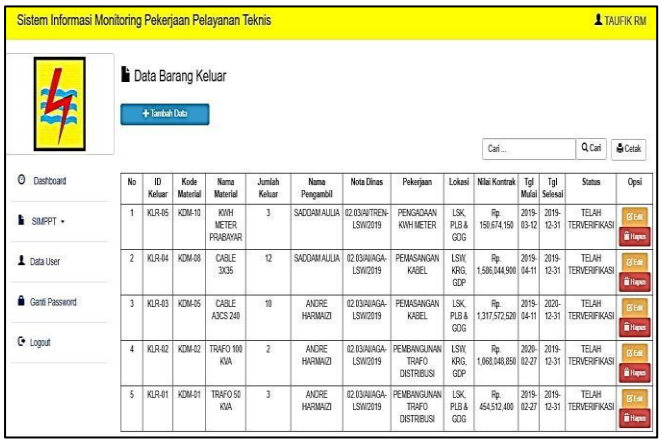

Figure 10. Outgoing Goods Information Page

In Figure 10. the outgoing goods display page can be concluded that, on this page the PIC can see the id_keluar field, kd_material, material, number_keluar, nm_pengambil, nota_dinas, work, location, value_contract, date_started, date_finished, status.

3.2.7 Job Information Page

On the job data page contains job data that has been inputted by the PIC The display of job data that has been inputted can be seen in Figure 11.

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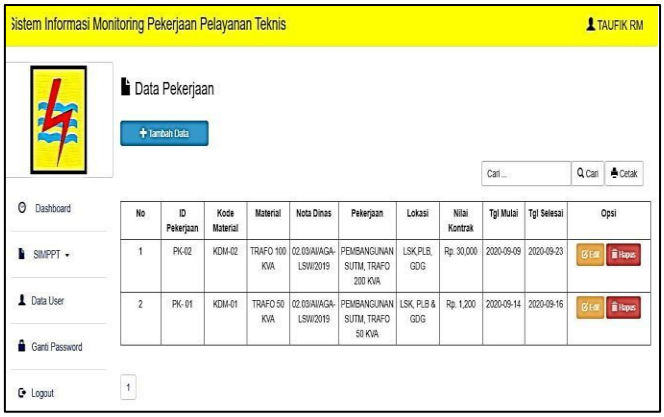
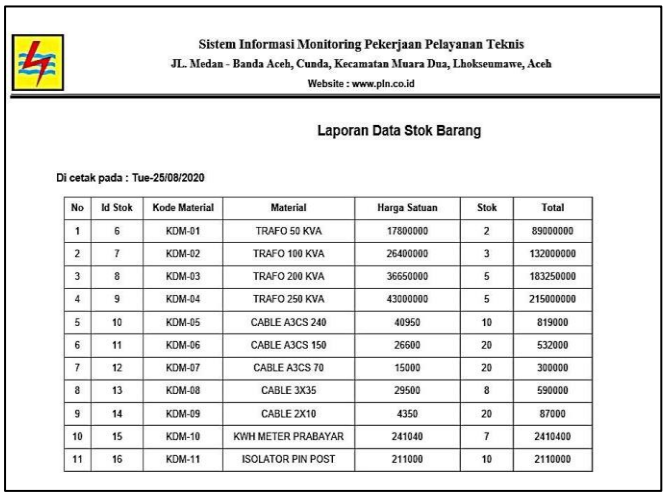


Figure 11. Job Information Page

In Figure 11. the job display page can be concluded that, on this page the PIC can see the id_job field, kd_material, material, nota_dinas, work, location, value_contract, date_start, date_finish.

3.2.8 Stock of Goods Report

The stock item report page can be seen in Figure 12.



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Laporan Data Stok Barang

Di cetak pada : Tue-25/08/2020

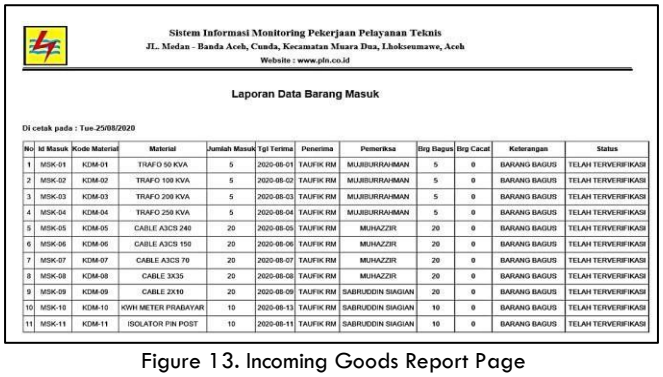
No	Id Stok	Kode Material	Material	Harga Satuan	Stok	Total
1	6	KDM-01	TRAFO 50 KVA	17800000	2	89000000
2	7	KDM-02	TRAFO 100 KVA	26400000	3	132000000
3	8	KDM-03	TRAFO 200 KVA	36650000	5	183250000
4	9	KDM-04	TRAFO 250 KVA	43000000	5	215000000
5	10	KDM-05	CABLE A3CS 240	40950	10	819000
6	11	KDM-06	CABLE A3CS 150	26600	20	532000
7	12	KDM-07	CABLE A3CS 70	15000	20	300000
8	13	KDM-08	CABLE 3X35	29500	8	590000
9	14	KDM-09	CABLE 2X10	4350	20	87000
10	15	KDM-10	KWH METER PRABAYAR	241040	7	2410400
11	16	KDM-11	ISOLATOR PIN POST	211000	10	2110000

Figure 12. Stock Item Report Page

From Figure 12. the stock of goods report is made to make it easier for the PIC to see the stock of goods. This report is useful for PIC so that know stock goods that have entered.

3.2.9 Incoming Goods Report

The report page incoming goods can be seen in Figure 13.



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Laporan Data Barang Masuk

Di cetak pada : Tue-25/08/2020

No	Id Masuk	Kode Material	Material	Jumlah Masuk	Tgl Terima	Penerima	Pemeriksa	Brg Bagus	Brg Cacat	Keterangan	Status
1	MSK-01	KDM-01	TRAFO 50 KVA	5	2020-08-01	TAUFIK RM	MUJIBURRAHMAN	5	0	BARANG BAGUS	TELAH TERVERIFIKASI
2	MSK-02	KDM-02	TRAFO 100 KVA	5	2020-08-02	TAUFIK RM	MUJIBURRAHMAN	5	0	BARANG BAGUS	TELAH TERVERIFIKASI
3	MSK-03	KDM-03	TRAFO 200 KVA	5	2020-08-03	TAUFIK RM	MUJIBURRAHMAN	5	0	BARANG BAGUS	TELAH TERVERIFIKASI
4	MSK-04	KDM-04	TRAFO 250 KVA	5	2020-08-04	TAUFIK RM	MUJIBURRAHMAN	5	0	BARANG BAGUS	TELAH TERVERIFIKASI
5	MSK-05	KDM-05	CABLE A3CS 240	20	2020-08-05	TAUFIK RM	MUHAZZIR	20	0	BARANG BAGUS	TELAH TERVERIFIKASI
6	MSK-06	KDM-06	CABLE A3CS 150	20	2020-08-06	TAUFIK RM	MUHAZZIR	20	0	BARANG BAGUS	TELAH TERVERIFIKASI
7	MSK-07	KDM-07	CABLE A3CS 70	20	2020-08-07	TAUFIK RM	MUHAZZIR	20	0	BARANG BAGUS	TELAH TERVERIFIKASI
8	MSK-08	KDM-08	CABLE 3X35	20	2020-08-08	TAUFIK RM	MUHAZZIR	20	0	BARANG BAGUS	TELAH TERVERIFIKASI
9	MSK-09	KDM-09	CABLE 2X10	20	2020-08-09	TAUFIK RM	SABRUDDIN SIAGIAN	20	0	BARANG BAGUS	TELAH TERVERIFIKASI
10	MSK-10	KDM-10	KWH METER PRABAYAR	10	2020-08-13	TAUFIK RM	SABRUDDIN SIAGIAN	10	0	BARANG BAGUS	TELAH TERVERIFIKASI
11	MSK-11	KDM-11	ISOLATOR PIN POST	10	2020-08-11	TAUFIK RM	SABRUDDIN SIAGIAN	10	0	BARANG BAGUS	TELAH TERVERIFIKASI

Figure 13. Incoming Goods Report Page

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From Figure 13. incoming goods report is made to make it easier for PIC to see incoming goods. This report is useful for PIC to know the date of entry of materials and what materials have entered.

3.2.10 Outgoing Goods Report Page

The report page goods out can be seen in Figure 14.

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Laporan Data Barang Keluar

Di cetak pada : Tue-25/08/2020

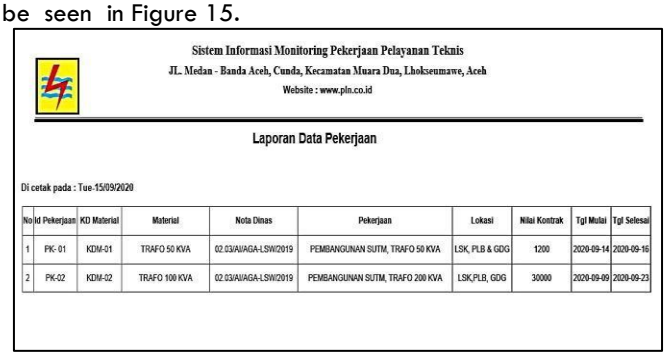
No	Id Keluar	KD Material	Material	Jml Keluar	NM Pengambil	Nota Dinas	Pekerjaan	Lokasi	Nl. Kontrak	Tgl Mulai	Tgl Selesai	Status
1	KLR-01	KDM-01	TRAFO 50 KVA	3	ANDRE HARMADI	02.03/AI/AGA-LSW/2019	PEMBANGUNAN TRAFO DISTRIBUSI	LSK, PLB & GDG	454612400	2019-02-27	2019-12-31	TELAH TERVERIFIKASI
2	KLR-02	KDM-02	TRAFO 100 KVA	2	ANDRE HARMADI	02.03/AI/AGA-LSW/2019	PEMBANGUNAN TRAFO DISTRIBUSI	LSW, KRG, GDP	1066046850	2020-02-27	2019-12-31	TELAH TERVERIFIKASI
3	KLR-03	KDM-05	CABLE ASCS 240	10	ANDRE HARMADI	02.03/AI/AGA-LSW/2019	PEMASANGAN KABEL	LSK, PLB & GDG	1317572520	2019-04-11	2020-12-31	TELAH TERVERIFIKASI
4	KLR-04	KDM-09	CABLE 3X35	12	SADDAM AULIA	02.03/AI/AGA-LSW/2019	PEMASANGAN KABEL	LSW, KRG, GDP	1568004800	2019-04-11	2019-12-31	TELAH TERVERIFIKASI
5	KLR-05	KDM-10	KWH METER PRABAYAR	3	SADDAM AULIA	02.03/AI/TREN-LSW/2019	PENGADAAN KWH METER	LSK, PLB & GDG	150674150	2019-03-12	2019-12-31	TELAH TERVERIFIKASI

Figure 14. Outgoing Goods Report Page

From Figure 14. the outgoing goods report was made to make it easier for the PIC to see the outgoing goods. This report is useful for the PIC so that knows the date material came out and what material has come out.

3.2.11 Job Report Page

The job report page can be seen in Figure 15.



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Laporan Data Pekerjaan

Di cetak pada : Tue-15/09/2020

No	Id Pekerjaan	KD Material	Material	Nota Dinas	Pekerjaan	Lokasi	Nilai Kontrak	Tgl Mulai	Tgl Selesai
1	PK- 01	KDM-01	TRAFO 50 KVA	02.03/AI/AGA-LSW/2019	PEMBANGUNAN SUTM, TRAFO 50 KVA	LSK, PLB & GDG	1200	2020-09-14	2020-09-16
2	PK-02	KDM-02	TRAFO 100 KVA	02.03/AI/AGA-LSW/2019	PEMBANGUNAN SUTM, TRAFO 200 KVA	LSK,PLB, GDG	30000	2020-09-09	2020-09-23

Figure 15. Job Report Page

From Figure 15. the job report is made to make it easier for the PIC to see the work. This report is useful for PIC to know what work has been done.

4. Conclusion

Based on results research and discussion, the authors can conclude the following:

1. The monitoring system work service technical has been successfully designed and built as an acceleration of reporting, has also conducted testing using the blac box testing method.
2. The monitoring system as a reporting acceleration for the planning section has succeeded in providing reporting to managers in making incoming goods reports, outgoing goods reports and work reports.
3. With the existence of this s,istem the manager can view information regarding incoming goods reports, outgoing goods reports and reports of work that has been used and done.

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