

## Osase Information System In Web-Based Operation And Device Monitoring At Pt. Telkom Indonesia Arnet Witel Division Medan

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### ABSTRACT

PT.Telkom Indonesia is a State-Owned Enterprise (BUMN) which is engaged in information and communication technology (ICT) services and telecommunications networks in Indonesia. Telkom provides fixed wireline services, fixed wireless telephone services, mobile telephone services, data/internet and other multimedia services. PT.Telkom Indonesia has an information technology-based information system that can support and support employee performance every day. This information technology is a Web-based OSASE Information System. This OSASE information system functions as an early warning against disturbances in the CME (Civil Mechanical Electrical) sub-division system.

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## 1. INTRODUCTION

The development of technology and information is currently progressing very rapidly. Its development is increasing day by day and the competition is getting more intense. This happens because of the many innovations made in the context of developing science. The existing innovations are used to support the development of various existing fields, in this case telecommunication services, telecommunication companies to further develop and concentrate on building and achieving goals so that they can be implemented immediately. These competent human resources come from graduates who have good quality. Universities certainly have an important role in creating superior scholars in their fields.

To produce high-quality, ready-to-use, and skilled Human Resources (HR), the government and the private sector make efforts to educate HR before entering the world of work. One way is through educational institutions such as schools, vocational education and universities that form high-quality human resources in all respects from the competencies taught, because of that the State Islamic University Of North Sumatera provides KP programs into the teaching and learning process in order to compete with other institutions. other education in producing qualified and high-quality HR graduates. Students must be introduced to the world of work early so that students can have knowledge and add insight to the field of work they are engaged in, every student must be able to have skill readiness and mental readiness before facing the real world of work.

## 2. RESEARCH METHOD

Some of the methods or system designs used will be explained as follows:

### a. System Analysis

Systems analysis is a problem-solving technique that describes component parts by studying how well they work and interact to achieve their goals [1] . System analysis is the decomposition of a complete information system into its component parts with the aim of identifying and evaluating problems, opportunities, obstacles that occur and expected needs, so that desired improvements can be proposed [2].

**b. System Design**

The flow design is made to make it easier to see what processes occur in the system. System Design According to Pressman (2009) design is a series of procedures for translating the results of the analysis and a system into a programming language to describe in detail how the system components are implemented [3]Flowchart can be interpreted as a tool or means that indicate the steps that must be implemented in solving a problem for computing by expressing it in a series of special graphic symbols [4]. The benefits that will be obtained when using flowcharts in solving computing problem:

- a. Accustomed to think systematically and structured
- b. Easy to check and find parts invalid and verbose procedures
- c. Procedure will be easy to develop

The flow of this web-based OSASE Information System is explained through a flowchart (Flowchart). According to [5] Flowchart (Flowchart) is a method to describe the stages of problem solving by presenting certain symbols that are easy to understand, easy to use and standard. The flowchart is as follows.

	<b>Flow Direction symbol</b> Yaitu simbol yang digunakan untuk menghubungkan antara simbol yang satu dengan simbol yang lain. Simbol ini disebut juga connecting line.		<b>Simbol Manual Input</b> Simbol untuk pemasukan data secara manual on-line keyboard
	<b>Terminator Symbol</b> Yaitu simbol untuk permulaan (start) atau akhir (stop) dari suatu kegiatan		<b>Simbol Preparation</b> Simbol untuk mempersiapkan penyimpanan yang akan digunakan sebagai tempat pengolahan di dalam storage.
	<b>Connector Symbol</b> Yaitu simbol untuk keluar - masuk atau penyambungan proses dalam lembar / halaman yang sama.		<b>Simbol Predefine Proses</b> Simbol untuk pelaksanaan suatu bagian (sub-program)/prosedure
	<b>Connector Symbol</b> Yaitu simbol untuk keluar - masuk atau penyambungan proses pada lembar / halaman yang berbeda.		<b>Simbol Display</b> Simbol yang menyatakan peralatan output yang digunakan yaitu layar, plotter, printer dan sebagainya.
	<b>Processing Symbol</b> Simbol yang menunjukkan pengolahan yang dilakukan oleh komputer		<b>Simbol disk and On-line Storage</b> Simbol yang menyatakan input yang berasal dari disk atau disimpan ke disk.
	<b>Simbol Manual Operation</b> Simbol yang menunjukkan pengolahan yang tidak dilakukan oleh computer		<b>Simbol magnetik tape Unit</b> Simbol yang menyatakan input berasal dari pita magnetik atau output disimpan ke pita magnetik.
	<b>Simbol Decision</b> Simbol pemilihan proses berdasarkan kondisi yang ada.		<b>Simbol Punch Card</b> Simbol yang menyatakan bahwa input berasal dari kartu atau output ditulis ke kartu
	<b>Simbol Input-Output</b> Simbol yang menyatakan proses input dan output tanpa tergantung dengan jenis peralatannya		<b>Simbol Dokumen</b> Simbol yang menyatakan input berasal dari dokumen dalam bentuk kertas atau output dicetak ke kertas.

Figure 1 flowchart description

Figure 1 describes some of the symbols that will be used in making a web-based Osase information system flowmap. The symbol represents a process that will run on the current system and on the proposed system later.

### 1. System Running

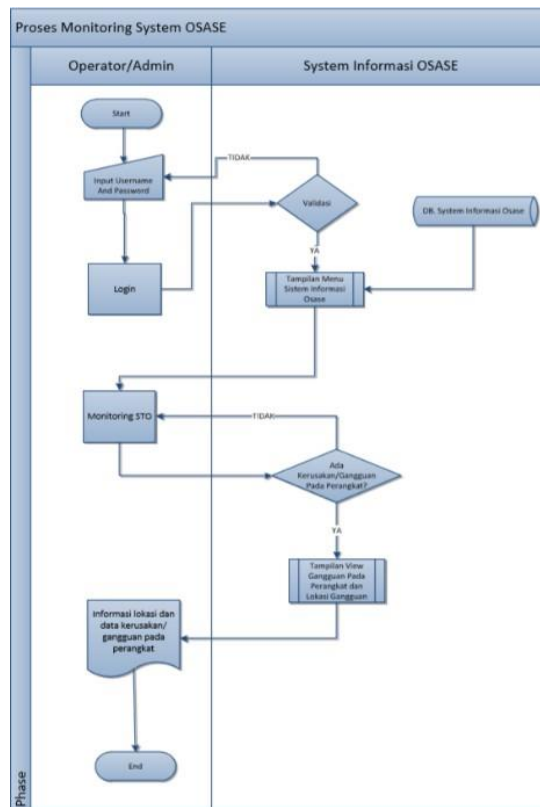


Figure 2 Running System Flowmap View

### 2. System Proposed

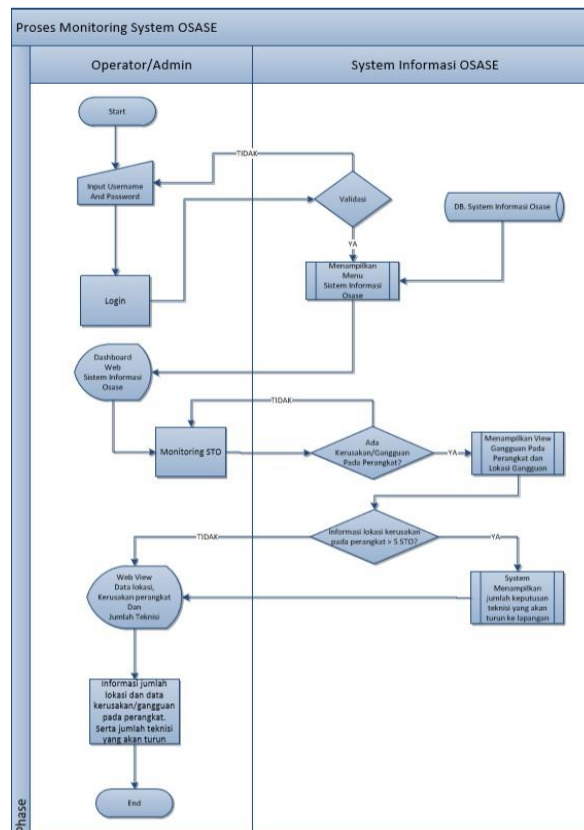


Figure 3 Proposed System Flowmap View

### 3. Context Diagram

Context diagram is a diagram that consists of a process and describes the scope of a system. Context diagram is the highest level of DFD which describes all inputs to the system or outputs from the system. DFD describes a system that is running and is proposed logically without considering the physical environment of the data [6].

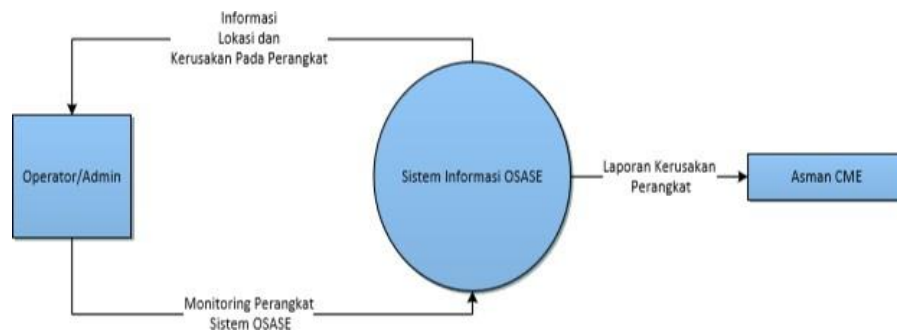


Figure 4 Information System Context Diagram Display

Based on Figure 4.10, the Context Diagram above can be explained as follows:

- a. The operator performs a monitoring process on all devices monitored by the OSASE system.
- b. The operator gets information on the location of device damage/interference which is monitored by the OSASE system.
- c. Asman CME gets crash and activity reports on the device.

### 3. RESULTS AND DISCUSSION

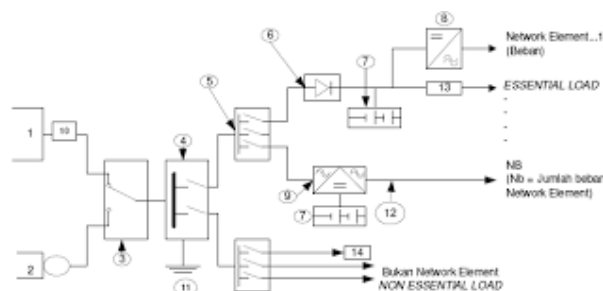
The following will explain the results and discussion that has been obtained

#### 3.1. OSASE Information System at a Glance

Osase is a system which has a function as a monitor of the state of the electricity supply from PLN, electricity supply from DEG (Diesel Engine Generator), monitoring certain room temperatures, monitoring the volume of the fuel tank supplying DEG. This report only discusses each function in general [7]. Osase (Operation Supervisory and Alert System for Electrical) is a system that functions as an early warning against disturbances in the CME (Civil Mechanical Electrical) system, which was developed by PT. Telkom on March 3, 2010. Other functions of Osase are measuring the volume of the fuel tank for Diesel, monitoring room humidity (temperature and humidity), monitoring electricity supply, both kWh (kilowatt-hour) from PLN and AC and DC voltages [8]

With the development of the company, PT. Telkom makes information technology-based information systems that can support and support employee performance every day. Information technology created to unify the condition of the device without having to look directly at the location.

#### 1. OSASE Architecture



The design used in the OSASE system refers to the configuration of the energy system owned by PT. Telkom.

Figure 5 PT.Telkom energy system configuration

## Information:

1. PLN Transformer and TM Panel
2. DEG (Diesel Engine Genset, starter battery, and AMF-ATS)
3. Supply source transfer system (COST/ATS)
4. MDP
5. SDP
6. Recifier
7. Battery
8. Inverters/converters
9. UPS
10. PQE (AVR, Bank Cap)
11. Grounding system
12. Power cable system
13. DCPDB/battery panel
14. Air conditioning device

In the OSASE design, PLC is selected for hardware, PLC selection is due to the following reasons:

The programming method is relatively the same

Same basic concept

Widely used in industrial environment

Product circulation is large.

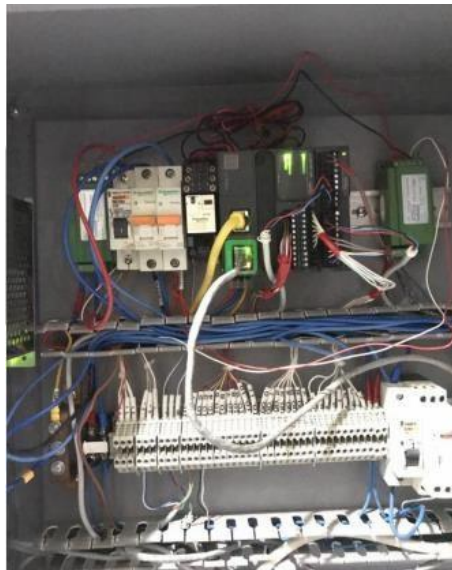


Figure 6 PLC on OSASE

Figure 6 is an OSASE device installed in each STO which is monitored by a web-based OSASE information system in the form of an RTU (Remote Terminal Unit).

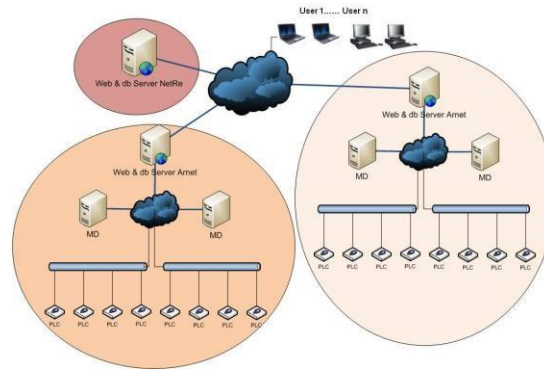


Figure 7 IP-based OSASE network configuration

Figure 7 is an IP-based OSASE network configuration used by OSASE devices. OSASE devices in each STO are connected to a network with the configuration shown in the picture above. The data in the PLC for each STO will be sent to the Arnet server. And then the data from the arnet server will be sent to the netre server (regional network).

### 2.OSASE Web View

OSASE web can be accessed through PT. Telkom. This website has features and tools that are quite complete for operators & admins. This website consists of the Netre, Arnet, and STO sections as well as a recap section of each alarm on the Netre, Arnet, and STO.



Figure 8 OSASE Web view display

Figure 8 is the navbar view of the OSASE web. In this view, it is useful to provide information to technicians if there is a problem with the device monitored by the OSASE system. The number of STOs monitored by the OSASE web is 26 STOs in the city of Medan. If there is trouble or damage to the equipment in each STO, the indicator in the table will turn red and show the amount of damage to the device.



Figure 9 OSASE Web Alarm Navbar Display

Figure 9 is the Alarm navbar display on the OSASE web. This display is useful for notifying the information technician that there is damage or interference that occurs in the equipment in each STO that is monitored and detected by the OSASE system. If there is interference or damage to the device, the data in the table will show which device has the damage and disturbance along with the location of the STO that is experiencing interference, then the admin will broadcast to every employee of the Arnet Infratel division.



Figure 10 Navbar Display Change Password Web OSASE

Figure 10 is the Change Password navbar display on the OSASE web. This display is useful for every technician to change the user password which is required for the technician to change once a month to avoid unknown login access

### 3.2. User Interface Prototype

User interface prototyping is a testing and evaluation approach, which is a crucial component of User-Centred Design (UCD) methodology, widely used in IT projects since the 1990s [9]. Involving users in evaluating prototypes is an important part of all iterative approaches for IT projects management, and of agile methodologies [10] in particular. Originating from User-Centred Design, prototyping has also become a popular method for user-based validating design concepts in service design and development [11].

#### 3.2.1 UI Prototype Login



Figure 11 UI Prototype Login

Figure 11 above is the display of the proposed Osase Information System Login UI design. Operators and Admins if they want to access the Web Osase will do the login process first.

#### 3.2.2 UI Prototype Menu Dashboard



Figure 12 UI Prototype Menu Dashboard

Figure 12 above is a display of the proposed Osase Information System Information System Dashboard UI design. Based on the instructions symbol, it is explained that:

Symbol 1 is a navigation menu tool for the proposed Osase Information System design.

Symbol 2 is the user information and the date of login access.

### 3.2.3 UI Prototype Device Monitoring Process

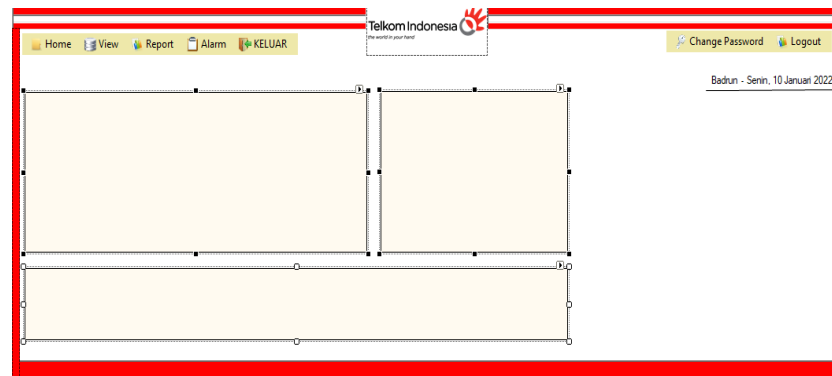


Figure 13 UI Prototype Device Monitoring Process

Figure 13 above is a display of the UI design view of the device monitoring of the proposed Osase Information System. Based on the symbols from the picture instructions, it can be explained that:

Symbol 1 is a table data display which will later show data information from devices and locations monitored by the Osase system.

Symbol 2 is a table data display which will later show the room temperature or humidity.

Symbol 3 is the display made by the system on the decision-making process for the number of technicians who will go out in the event of a device failure in several different locations.

## 4. CONCLUSION

From the observations made by the author, the following conclusions are obtained, OSASE Information System is a system owned by PT. Telkom Indonesia which has a function as a monitor of the state of the electricity supply, monitoring room temperature, monitoring the volume of the fuel tank supplying DEG (Diesel Engine Generator), and as an early warning against existing disturbances on the CME system. Purpose of using PLC in OSASE so that connected devices can be more easily connected and more effective and efficient. The OSASE information system is able to provide an early warning of disturbances to the CME system, so that incidents that affect service disruptions can be avoided.

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