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Editorial

It is our pleasure to announce that the Journal of Informatics and Computer Sciences is published for the purpose of covering all academic works in this field. It is aimed at promoting the effort that made by faculties/researchers either from Universitas Ubudiyah Indonesia or other institutions. It is, by the publishing of this journal, noted as the first step that critically taken to elevate the achievement of the university in advancing the knowledge.

In regards with the aim at promoting research publication in UUI, Rector of UUI and Directorate of Research and Community Services UUI decided to publish the first issue of this journal on June 2015, at the same time two other journals also published in order to fulfill the requirement for each faculty to have its own journal. This first issue comprises of 8 papers submitted at the 1st International Joint Conference of Indonesia, Malaysia, Bangladesh and Ireland (IJCIMBI), especially in Informatics and Computer track.

This issue covers paper which relate to the empirical studies and conceptual thought in the field of Application, Technology, Wireless Power transfer, Information system, interconnection, intranet, internet, network, Digital map . Generally, the context of the studies is unique to Indonesia geography, yet there is one paper that highlights the ASEAN context.

Thus, hereby The JIC Editor owes much to all parties who contribute in realizing the issuance of the journal. In this opportunity we would like to extend our gratitude to IJCIMBI Committee who strife hard in providing these valuable papers to be presented in this journal. Hopefully, this first issue will be subsequently followed by the next issue and will sustain as the prominent journal in the future.

Journal of Informatics And Computer Sciences

Juli Dwina Puspita Sari, SE., M.Bus (Adv)

Editor

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ACADEMIC APPLICATION USING SMS GATEWAY IN MUTIARA MANDIRI SUNGAILIAT HEALTH ACADEMIC INSTITUTION

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ABSTRACT

SMK Mutiara Mandiri Sungailiat is one of the health academic institutions that in data processing still using manually record on a sheet of paper. It caused infrequent errors when inputting and processing of data that resulted infrequent loss of data or damage due data accumulation. At the time of academic information provision on students is still a way attached to the bulletin board that become inefficient because it can't be accessed anytime, anywhere. This research purpose is to make the academic Information Systems in SMK Mutiara Mandiri based sms gateway in order to facilitate the data processing. Research method used is data collecting that includes data observation and literature study, analysis of system requirements, system design, coding, and evaluation. The result from this research is to get an application takes in action after receiving SMS messages via mobile phones as the medium. Once processed by the computer, the results will be sent back to the sender of the request, also via mobile phones. In addition there is a broadcast system that serves to convey massal announcements or information. Broadcast is a facility that can only be used by the school.

KeyWord : *Sms Gateway, Mobile Applications, Java NetBeans, Mobile, Message*

1. Introduction

Technology at the present time is needed in all aspects of life. Facilitate human technology to maximize the performance. In everyday life, the benefits of technology is increasing. Especially in recent years, information and computer technology has grown by leaps and bounds. Activities we used to do outside the home, can easily do at home with a relaxed and comfortable. With the rapid development of such technology then directly proportional to the priority needs of the community in finding using technology media.

1.1. Purpose and objectives

By knowing the above subject matter, then developed an SMS-based application that will be able to meet the needs of the students. The purpose of this paper is:

- a. Facilitate students in knowing the daily test scores, grades midterms, the value of final exams, extra curricular test scores, student attendance, violation points, exam schedules or school information.
- b. Introducing the SMS facility for the students academic.
- c. Motivate students to be more active in increasing the value when the students can learn the value of timely and can make improvements if the value obtained is less than satisfactory.
- d. Make students better prepared if there is information that shipped with your school teaching and learning activities.

1.2. Research Methods

In writing this essay, used several methods to perform data collection that includes the observation and study of literature, analysis of system requirements, system design, coding, and evaluation.

1.2.1. Software Development

The development of this software using methods OOAD (*Object Oriented Analysis and Design*). While the methodology nor a systematic way to do analisys and design used is OOSE (*Object Oriented Software Engineering*)

1.2.2. Stages of Development

The main basis of this methodology is based on the use of the use case. All the main stages of the life cycle of object-oriented development is based on the use case, the analysis, design and testing.

1. Analysis System

At this stage, the authors conducted a case-based approach to use (use case) or the case with the current system is (*application domain*),

In the use case analysis in this case using the following tools:

- 1) *Actifity Diagram*
- 2) Analysis of Document Output
- 3) Input Document Analysis
- 4) *Use Case Diagram*
- 5) Description of Use Case
2. System Design
In the construction phase, the next model of the authors using the java programming language to implement the design in the form of program code (coding).
 1. ERD (*Entity Relationship Diagram*)
 2. LRS (*Logical Record Structure*)
 3. Specifications Database
 4. Design Input
 5. Draft Output
 6. Class Diagram
 7. Sequence Diagram
 8. Draft Screen
 9. Flow cart
 10. algorithm
3. Coding
4. Compiler
5. Installation / Implementation
 - a. Implementation Program
 - b. Implementation of SMS Gateway Applications
 - c. Operation way SMS Gateway application. After all the necessary requirements are met, the next step is to run the SMS Gateway application.

1.3. Scope Of Problem

The main problem encountered is the students often too late to get information about the daily test scores, grades midterms, the value of final exams, curricular extra test scores, student attendance, violation points, exam schedules, or information on the activities carried out in schools.

2. Basis Theory

2.1. Definition of SMS

SMS is a service delivery in the short messages to and from mobile phones and landlines. This service is called short message service because it is the width of the character just as much as 160 alpha numeric characters and contain no images or graphics.

2.2. Software Used

Java language certainly is not foreign to us, in addition to his famous motto is "write once run everywhere", the use of java also been widespread of web-based applications to the devices that are mobile, such as mobile phones. On this occasion we also use the Java language to create SMS application server.

a. introduction to Java

Java is an object oriented programming language (Object Oriented Programming) and can run on various operating system platforms. Java development is not only focused on one operating system, but is developed for a variety of operating systems and is open source.

b. Excess characteristics and Java

Java has several characteristics that make java has advantages compared to other programming languages. As these characteristics are:

- 1) Simple
- 2) Object-oriented
- 3) Can be distributed easily
- 4) Strong
- 5) *Multiplatform*
- 6) *MultiThread*
- 7) *Interpreter*
- 8) High Performance

c. Main tool of the Java 2 SDK 1.6.0

Java 2 SDK provides the tools necessary to compile and run Java programs. In the Java 2 SDK, there are two main tools used to compile and run Java programs.

1) Javac

This command is used to compile Java programs. This command will change extensions .java files into byte code (.class extensions file).

How to use it:

C:> javac name file java.java

2) Java

This command is used to run a java program or file compilation (extensions .class files).

How to use it:

C:>javac namaclass

Or

C:>javac -classpath namaclass.

2.3. MySQL

MySQL is a database server where the data processing occurs on the server, and the client only sends the data and data request. Therefore, the processing occurs on the server so that the data access is not limited.

MySQL has a license which is quite complex, installed on Microsoft Windows operating system is shareware but has no expiration date.

3. Modeling Project

In this chapter the author is expected to create a model that can define the final project well. This model can be found in the course of project management or project management information systems department information systems and informatics techniques. Completion of this chapter is assumed when the time thesis writer will actually be made in the project.

3.1. Project objectives

The Objectivity project contains things about the purpose of the project, the things that underlie creation a project and the benefits and purpose of the project in detail.

3.2. Identification of stakeholders

This section describes the whole party the associated with the procurement, implementation and use of related projects. Stakeholders may include parts of the company itself as well as outside the company depending scope of the project.

Some stakeholders on the scope of project management, among others:

1. *Customer / End User*
2. Sponsors
3. Portfolio Manager, Program Manager, Project Manager
4. Operations Manager, Vendor

3.3. Identification Deliverables

Deliverables literally interpreted as the result of the work. In this case may mean Identification / estimate of the work or the results of relevant projects such as product / goods and services resulting from the project. The results of the project work can be a material

that can be calculated (tangible) or in the form of results that can't be calculated (Intangible) such as Fame, pride, and so forth.

4. Analysis Design

4.1. Identification Of Problems

The Problems of time and distance is also an obstacle, students must come to school to perform academic activities and obtain the information. Because it would be much better created an application that is more flexible for students to perform academic activities as above without having to bother to come to the school as well as save energy and time. By doing so, the school also benefit because the teacher's job becomes more lightweight and efficient, as well as students' academic information received was to be accurate and timely, and save money and energy.

4.2. Problem Solving Strategies

Some of the above the problems, can be addressed by making use of sms gateway-based applications that can provide convenience to students in providing the required information.

Of problem-solving strategies that have been described, the expected problems of time and distance that still hamper academic activities can be resolved and can save time, expense, and effort.

4.3. Application program

The application program is proposed and Application Analysis Method Proposed work.

4.3.1. Analysis Applications

The application program which consists of SMS Gateway. Mobile Application as a support for easy application to send SMS request. SMS Gateway application acts as an information processor, which is where the information is packaged in the form of SMS, the information presented in accordance with what is direquest by students. Process information requests can be made by sending an SMS or using the Mobile Application support.

4.3.2. Proposed Working Methods

SMS Gateway application is run on a computer that is connected to a database and using a mobile phone as a server, where it will answer all messages that come and answer the SMS response automatically. Mobile is attached to the computer's USB port, which is used to send and receive messages. Message received and to be sent, processed by SMS based applications.

4.4. Draft Database.

In making an application program based academic value of this text, it takes a database to store data. Here below is a draft ER-diagrams, and tables of data bases following specifications:

4.4.1. ER - Diagram (Entity Relationship Diagram)

ER-Diagram is a model of relational database based on the perception in the real world. ERD is always composed of a set of objects that are interconnected with each other. An object called entities and relationships of its so-called relationship. An entity is unique and has the attribute as a differentiator.

4.4.2 Screen Design

The design of the screen is an important thing in making an application. Views are made to be interesting, not confusing and easy to understand. Ease it is necessary for the user to feel comfortable and not saturated when running the system.

4.4.2.1. The design screen menu form main

In the Main Menu, there are three menus are menus Applications Academic using SMS Gateway, Master File, SMS Server Broadcast. Each of the menu have a sub menu when clicked. To run the application and get more information officer can select a sub menu of each menu. More details can be seen in the figure below:



4.4.2.2. The design of Student Data Screen

In the design of this screen will appear when the officer pressed

the sub menu Students in the Master File menu.

4.4.3. Implementation Program

Implementation of the system is useful to determine whether the program has been created to run optimally, for it then the program must be tested first on the ability to run as expected at the time of implementation later.

4.4.4. Way SMS Gateway Application Operation

After all the necessary requirements are met, the next step is to run the SMS Gateway application. When first run, the application will check whether the database has been created or not, if not then the application will provide information to the database connection problem, please check out or call a technician. If it appears a login form, the user must fill in the username and password to gain entry to the system. Here is a screen display of all the forms that exist on this system.

4.4.4.1. Main Menu Screen Display

Display the main menu screen is an early look at this application, the main menu there are three menu choices: File, File Master, of SMS Server. If we choose the File menu contained login, logoff, and exit. If we choose the Master File Form values are menu, Students, Leadership, and Administrators. And if we choose the SMS Server then there is an SMS server and Broadcast.



4.4.4.2. Display Form Login

On the View Menu Login user must have a password in order, to enable the sub menu value, students, administrators and servers. So not just anyone can get into this application as a whole only has a password that could. For more details, there is the figure below:



4.4.4.3. Display Form Students



4.4.4.4. Program Evaluation

Each application program certainly has advantages and disadvantages of each, as well as the application's SMS Gateway. The

advantages and disadvantages in this application are as follows:

a. Excess Program

- 1) The application can be run easily because it has a zoom that is user friendly.
- 2) The administrators don't need to backup the data continuously in each semester, because each data is unique, then there will be the same data in the same period.
- 3) The mobile phone battery condition. The location of the data cable and charger cable into one. With these conditions we do not need to do a backup of the battery charging again, because the mobile phone battery has been filled automatically.
- 4) Create Administrator faster in doing Announcements value because there is a deadline for students to get a timely manner.

a. Shortage Program

- 1) The condition frequently used mobile phones will reduce signal conditions and type of sim card is used. Therefore, the location, the place and also election kind used sim card will support the application's SMS Gateway.
- 2) Installation of this application is still quite difficult, because they have provided some other supporting applications such as Java Jcreator, Java SDK, NetBeans and MySQL SERVER.

4.4.4.5. Screen Display Form About Me on the form there is a profile about the system maker.



5. Cover

After collecting information for analysis has been done on the problem of the application on the server sms, it can draw some conclusions and suggestions are necessary for the development of SMS Application Server at this school to stage more complex and perfect that it becomes more beneficial to the school.

1. Conclusion

From the analysis of the problems and applications are developed, it can be drawn several conclusions, among others:

- With the SMS-based applications, this allows students to know, the value of the semester, the value end of the semester, criticism and school information.
- With this SMS-based application, automatically deliver information more efficiently because they do not need to notice orally or circulars that consume a lot of time and paper media.
- This application still requires an administrator to run the SMS Broadcast system.

2. Suggestions

In addition to drawing some conclusions, also put forward suggestions that might be taken into consideration in the development of the system, among others:

- Specification requirements must be met so that the application program works correctly and with fast processing time.

- b. Without the care and supervision of the responsible party in the maintenance of the system, then the system will not run properly and smoothly.
- c. Need plus features a more complete, so as to meet the needs of more complex.
- d. Information accessed through SMS is limited to students, it is necessary plus other information that can be accessed over again for students.
- e. To support the administrative activities and student data collection, then you should do a thorough computerization of the existing systems for administrative purposes and with supported cooperation between the divisions that exist of course.

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MORPHOLOGY OF SPRAY DRIED RED PITAYA PIGMENT POWDERS

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ABSTRACT

Betacyanin pigments from red pitaya fruit (*Hylocereus polyrhizus*) could be an alternative source of natural red colourant for food application. The extraction of betacyanin pigment was extracted from the flesh of red pitaya fruits grown locally in Malaysia by using water as the extracting solvents. Spray-drying technique was also performed on the pigment extracts to increase the stability and shelf life of the pigment extracts obtained. Two types of maltodextrin with different DE's (10 DE and 25 DE) and mixtures (10 DE + 25 DE) were used as coating agents in the spray drying technique to give a total soluble solid (TSS) ranging from 20 % - 30 %. The objective of this study was to investigate the effect of different types of maltodextrin on the morphology of pigment powder. The morphology of the red pitaya pigment powders produced at drying temperatures (200 °C) in the spray drying technique were characterized by using Scanning Electron Microscopy. The morphology of pigment powders upon storage (0 - 6 months) with the ascorbic acid (0.1 % and 1.0 % w/w, respectively) addition was also investigated. Maltodextrin 25 DE had smoother outer structures when compared to 10 DE. The SEM micrographs showed that 10 DE samples had more surface indentations and cracks in wall system.

Keywords: *pigment, red pitaya, spray dry, SEM*

1 Introduction

Most natural pigments including betacyanins are easily affected by temperature, oxygen, light and water activity. Stability is an important aspect to consider when using of natural pigments as colourants in foods. The stabilization of betacyanin could be improved using microencapsulation technologies, such as spray drying [1]. Microencapsulation is described as a technique wherein a sensitive ingredient is encapsulated to produce microcapsules, thereby protecting it from oxygen, water or other conditions to improve its stability. In addition, microencapsulation can convert liquids into powders, which are easy to handle [2]. Spray drying is a widely used process to produce fruit juices powders and pigment powders. This process resulted with a good quality, low water activity and easier transport and storage of the powders. The physicochemical properties of powders produced by spray drying depend on viscosity of liquid feed, flow rate, air drying temperature, pressure and type of atomizer. Different types of maltodextrin as coating materials could provide different protection against oxidation since they create different wall thicknesses and densities of the spray dried powder particles.

Scanning Electron Microscopy (SEM) analysis can be to evaluate the encapsulating ability of various polymers [3]. It's important to analyze the morphology of the pigment powder, because it can show the surface of the coating agent. From previous study, found that the surface of powder gave effect to the stability of the pigment powder.

In this study, red pitaya pigment extract was subjected to spray drying process to produce pitaya pigment powders using 2 different types maltodextrins (10 DE and 25 DE) and maltodextrin mixtures (10 DE + 25 DE) concentration as coating materials at several of total soluble solid (TSS) concentration. The spray dried pitaya pigment powder obtained was examined for their morphology characteristic.

2 Materials and Methods

Red pitaya fruits (*H. Polyrrhizus*) were obtained from plantation in Johor, Malaysia. Fresh fruits samples were cut, peels removed and kept frozen at -18 °C for further analysis. Maltodextrin M100 (10DE) and M250 (25DE) were kindly provided by Grain Processing Corporation (USA). Maltodextrin was used as the wall materials for encapsulating red pitaya pigment.

2.1 Production of Red Pitaya Pigment Powder

The pigment extract thoroughly mixed with the coating material using an Ultraturrax IKA Labortechnik and stirred to homogeneity for the feed mixture. Three different mixtures of maltodextrin were formulated as the coating materials, there are maltodextrin 10 DE, maltodextrin 25 DE and maltodextrin mixture (10 DE and 25 DE, 1:2 ratio). Maltodextrin was added to the pigment extract to obtain the TSS content of 20 - 30 % (w/w). High TSS obtained by increasing amount of maltodextrin. Solid contents were measured using a PAL-1 digital refractometer (Atago Co., Ltd., Japan). The feed mixture was spray dried in a Büchi Mini Spray Dryer (B290, Flawil, Switzerland) at 200 °C inlet air temperature and 98 °C outlet air temperature, feed rate of 0.8 l/h (40 % maximum pump speed). The morphology of pigment powders (Mixture 10 DE and 25 DE) upon storage with the ascorbic acid (0.1 % and 1.0 % w/w, respectively) addition was also investigated.

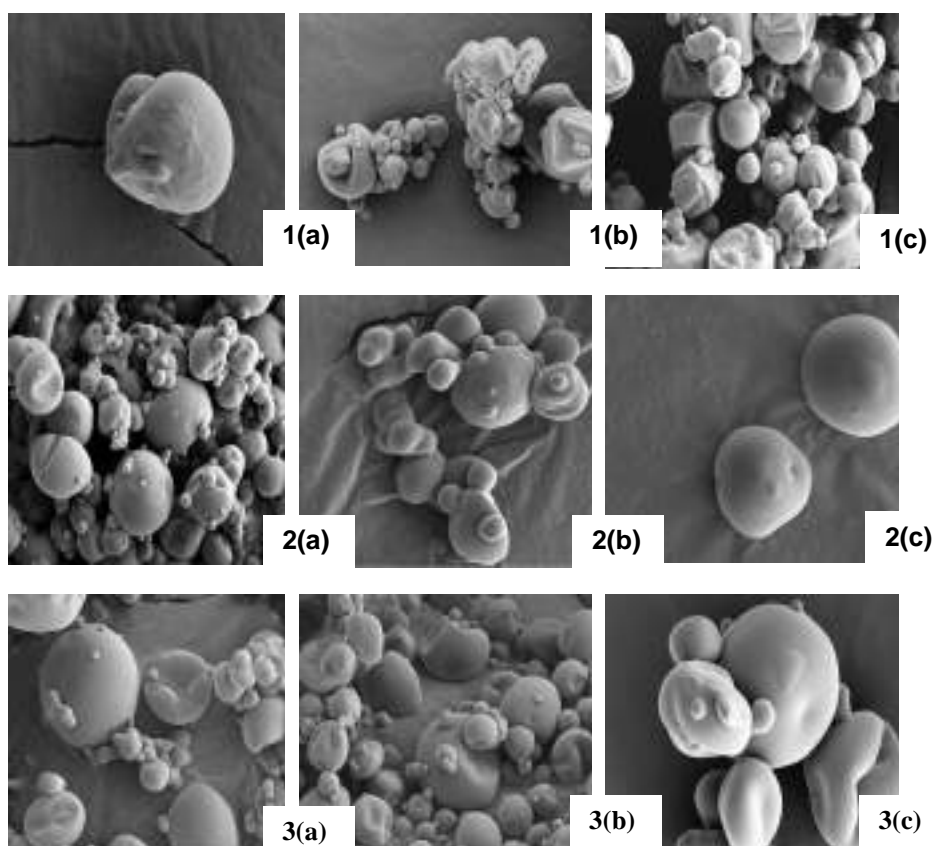
2.2 Scanning Electron Microscopy (SEM) Analysis

Scanning electron microscopy (SEM) images were obtained for all the pitaya pigment powders to examine pigment powder were using a Scanning electron microscopy Leo Supra 50vp (Oberkokhen, Germany). Samples were fixed onto SEM stubs using a two aside adhesive tape. The surface was sputtered for 120 seconds and coated with a thin layer of gold. Representative photographs were taken at 3000 x magnification and operated at 5 kV.


3 Results and Discussions

Scanning Electron Microscopy (SEM) analysis can be to evaluate the encapsulating ability of various polymers (Moshe et al., 1985). Figure 1 shows SEM micrographs of spray dried pitaya pigment powder produced. The spray dried pitaya pigment powder or microcapsules showed spherical shapes with smooth and some shrinkage surfaces. Samples with maltodextrin 25 DE had smoother outer structures when compared to samples with 10 DE. The SEM micrographs showed that 10 DE samples had more surface indentations and cracks in wall system. Low molecular weight sugars may act as a plasticizer preventing shrinkage of the surface during drying [2]. With maltodextrin mixtures (10 DE + 25 DE), smoother surface microcapsules were obtained and the microstructure of microcapsules seemed to improve. The smooth outer surfaces of these samples were similar to those samples with 25 DE. Samples with 10 DE especially at 30 % TSS had many deep dents compared to the others. For the samples with mixtures (10 DE + 25 DE) increasing TSS content to 25

% gave better outer structure and the surfaces of microcapsules were smoother and more uniform. It was found that all the pitaya pigment powder with various coating materials at 30 % TSS was irregular in shape and also sticky. The outer surfaces of the spray dried microcapsules were characterized by the presence of dents. It is concluded with increasing TSS, the structure of betacyanin powder becomes sticky, more surface indentations and cracks in wall system. According to Kalab [4], the dents formed in the spray dried powder are due to shrinkage of the particles during drying and cooling due to the high concentration of maltodextrin



used.

Figure 1. SEM micrographs of spray dried pitaya pigment powders. Pitaya pigment powder samples: with (1) 10 DE; (2) 25 DE; (3) the mixture (10 DE + 25 DE) at ratio 1:2. TSS content: (a) 20 % TSS; (b) 25 % TSS and (c) 30 % TSS. The magnification of all micrograph was 3000x (2μm ).

The use of low and intermediate inlet temperature will caused pliable and collapsed physical characteristics of the outer surface of microcapsules, while the use of high inlet temperature resulted in rigid and porous physical characteristics of the outer surface [5]. With respect to powder morphology, increasing temperature resulted in a greater number of particles with smooth surface with larger sizes, due to the higher drying rate [6].

SEM analysis was performed to observe the physical changes of betacyanin powder upon storage (Figure 2). Based on SEM, it was found that there were differences in the shape of microcapsule obtained between control samples (CoSP) and samples with 0.1 % ascorbic acid. It was observed that control samples show smooth oval shapes microcapsules upon storage period of 0 and 3 months. However, after 6 months of storage, control samples were observed to have indentation with irregular shape microcapsules and showing more signs of shrinkage. Smooth shapes microcapsule was observed in microcapsules of other pigments such as *Opuntia ficus-indica* [7], *Amaranthus* [8] and β -carotene [2].

This degradation may be caused by the collapse of the particle surface, thus more dented and cracks on the surface appeared. Samples with addition of 0.1 % and 1.0 % ascorbic acid appeared to have smooth surfaces through the storage period of 3 months. It was not occurred until storage of 6 months, those microcapsules with 0.1 % and 1.0 % ascorbic acid that tiny cracks or indentation are beginning to appear with more pronounced indentation. These changes may be related to the ability of powder to retain pigment. The degradation of pigment may be caused by shape of particle changes which allow oxygen entered and increasing the oxygen solubility.

In addition, control samples (CoSP) and samples with 1.0 % ascorbic acid microcapsules were found to be sticky and clumping together after 6 months storage. This may indicate pigment degradation. The formation of dented surfaces of the microcapsules was attributed to the shrinkage of the particles during the processing and storing [7].

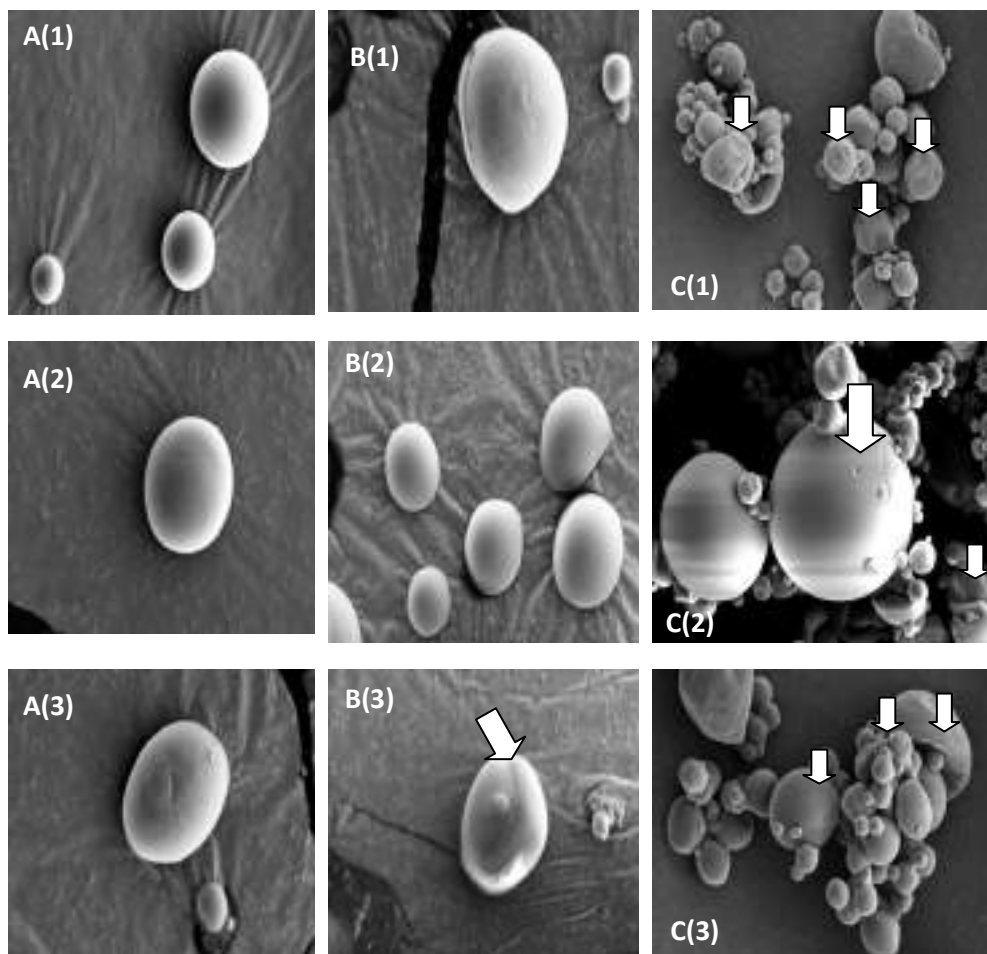



Figure 2. Micrographs of spray dried pitaya pigment powders stored at 25 °C, in the dark condition.
 Pitaya pigment powder samples: (1) Control (CoSP); (2) 0.1 % ascorbic acid (0.1 % VC); (3), 1.0 % ascorbic acid (1.0 % VC).
 Storage period: (A) 0 month; (B) 3months; (C) 6 months;
 Magnification at 3000 x (2µm ).

4 Conclusions

The different coating materials gave effect to the surface of the powder. High TSS content will show sticky surface. The addition of 1.0 % ascorbic acid was found to be sticky and clumping together after 6 months storage.

Spray dried pitaya pigment powder with addition 0.1 % ascorbic acid showed better surface of coating agent compared to the 1.0% ascorbic acid.

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PERFORMANCE OF WIRELESS POWER TRANSFER WITH VARIOUS RECEIVER POSITIONS BY USING INDUCTIVE COUPLING

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ABSTRACT

In this paper, we have study performance of wireless power transfer with various receiver positions are 0° , 90° , and 180° developed transmitter, receiver and 2 structure magnetic resonant couplings. Both of the Transmitter and Receiver couplings are made of enamel coil. Based on experimental performance of wireless power transfer with various receiver positions by using inductive coupling no effect tilted at 0° , 90° , and 180°

Keywords: *Tilted, Power Transfer*

1. INTRODUCTION

Wireless power transfer (WPT) [1] or wireless energy transmission is the transmission of electrical power from a power source to a consuming device without using solid wires or conductors. [2][3][4][5] It is a generic term that refers to a number of different power transmission technologies that use time-varying electromagnetic fields. Basically, wireless charging technology similar to that used in the transformer (better known as Transformer) or dynamo powerhouse. Laws of physics, if an electrified wire coil magnetic field will arise. Conversely, if the coil is subjected to a magnetic field, then there will be electricity in a wire coil.

2. Methodology

In this paper, parameters and design of inductive coupling and transmitter component are proposed. Block diagram of wireless power transfer as shown in Figure 1.

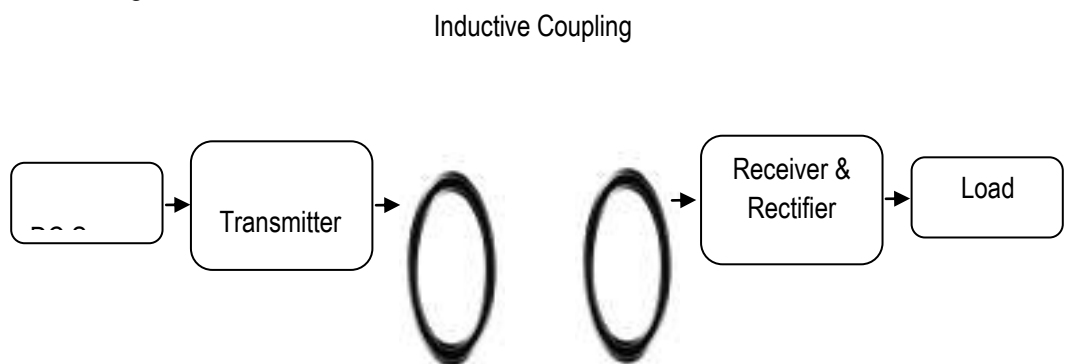


Fig 1: Block Diagram of Wireless Power Transfer by using inductive coupling

1.1. Simulation.

Simulation wireless power transfer has been done simulation by using multisim software [6]

1.2. Principle of wireless power transfer.

As shown in Figure 3, magnetic resonant coupling between structures (usually circular coils) allows energy transfer in the near field area.

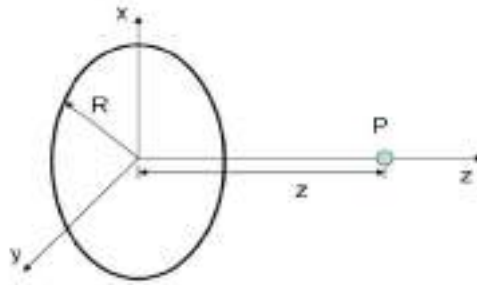


Fig 3: Structures (inductive coupling) allow energy transfer.

Magnetic induction direction parallel to the Z-axis

$$\vec{B}(z) = \frac{\mu_0 I}{2} \frac{R^2}{(R^2 + Z^2)^{3/2}} \vec{k}$$

When the wire is composed of an N windings, the magnetic induction becomes :

$$\vec{B}(z) = \frac{\mu_0 NI}{2} \frac{R^2}{(R^2 + Z^2)^{3/2}} \vec{k}$$



Figure 2: Experiment with tilted 0° with and 2 LED as a Load

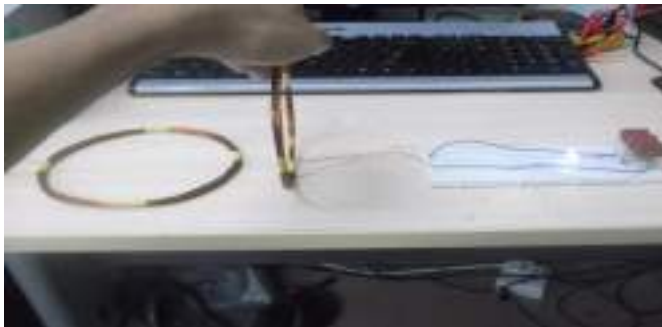


Figure 3: Experiment with tilted 90° with and 2 LED as a Load



Figure 2: Experiment with tilted 180° with and 2 LED (Parallel) as a Load

1.3. Preparing Transmitter and Receiver

1.3.1. Transmitter.

As shown in Figure 5. Transmitter circuit was Experiment has been simulated by using multisim software with N Type Mosfet, R1 and R2 = $150\ \Omega$ 2 Watt, R3 and R4 = $15\ k\Omega$, L1 and L2 = $200\ \mu H$, C1 – C8 parallel = $6.8\ nF$.



Fig 5: Transmitter Prototype

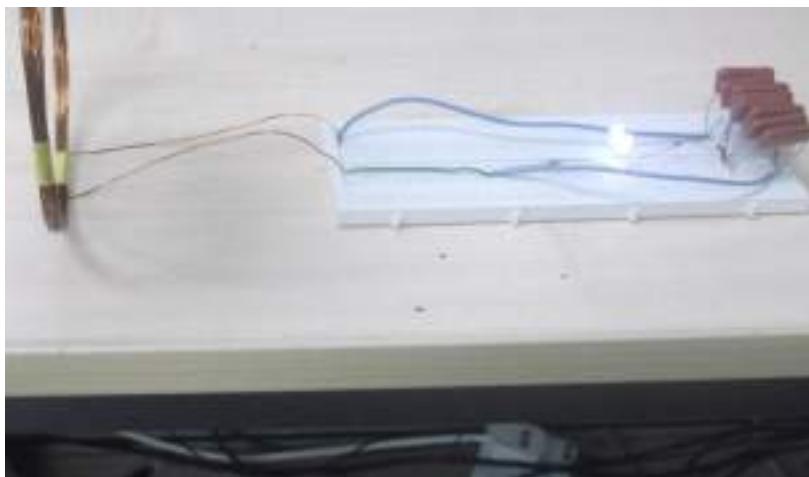


Fig 6: Receiver Prototype

1.3.2. Receiver.

As shown in Figure 6. Receiver circuit with component $C1=6.8\text{nF}$, Full bridge rectifier $C2\ 15\text{ V}, 100\ \mu\text{F}$ and LED as a Load.

1.3.3. Magnetic Resonant Coupling.

As shown in Figure 7. Inductive Coupling was developed. The Transmitter coupling and Receiver coupling are made of enamel coil that is 0.55 mm diameter and have about 10 turns.



Fig 7: Transmitter coupling and Receiver coupling

3. Results

The investigations have been conducted with varied distance from 0 cm to 30 cm. The input DC source was set on 12 Volt and Current 1 Ampere. The table shows the result of varied distance and the voltage differences when the distance is varied.

Table 1 Data varied distances

Tilted	Distance (cm)	Voltage (Volt)	Current (mA)	P (Watt)	Efficiency (%)
0°, 90°, and 180°	0	12	980	11.76	98
	5	11.01	892	9.82	89.2
	10	10.12	762	7.71	76.2
	15	9.05	654	5.92	65.4
	20	8.21	548	4.50	54.8
	25	7.01	423	2.97	42.3
	30	6.3	324	2.04	32.4

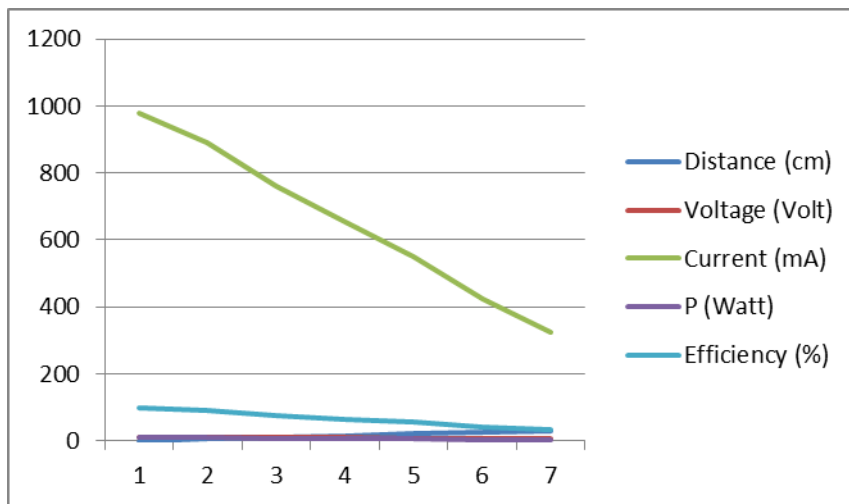


Fig 8: Graph Efficiency vs Distance of wireless power transfer

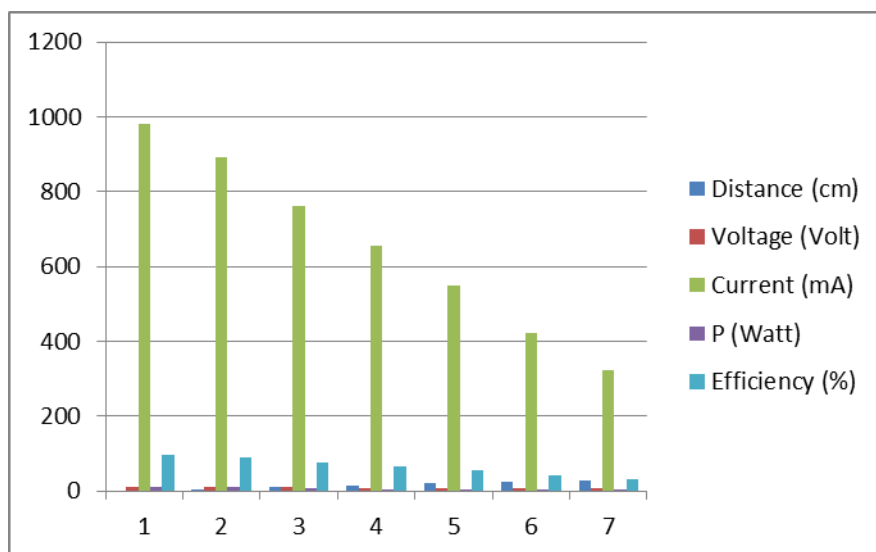


Fig. 9: Graph ratio of Voltage, Current, Watt and Efficiency by distance Change

Figure 9 shows the graph that has been created according to table data. The output voltage and current getting lower as the distance are higher.

Conclusions

From the experiments we have successfully wireless power transfer 30 cm distance, the transmitter and the receiver achieve inductive coupling, at tilted 0° , 90° , and 180° LED Load Light as a normal, Base on experimental performance of wireless power transfer with various receiver positions by using inductive coupling no effect tilted at 0° , 90° , and 180°

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THE INFORMATION SYSTEM OF ACEH CULTURE BASED ON ANDROID

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ABSTRACT

Culture is a medium that has a significant role in introducing and Characterizing the identify of a nation. The Aceh province has a unique culture and diverse. Some cultures that exist today are the result of acculturation between the malay culture, Middle East and Aceh. behind it all, the lack of information about the culture media in Aceh. Make the public, especially young people have less interest in knowing about the culture. Research methods is modeling UML (Unified Modeling Language). Result to be achieved is an Android- Based application Aceh Culture can increase our interest to preserve and conserve the culture of Aceh.

Keywords : *Culture, Android, Aceh*

1. Introduction

Current technological development is so fast that impact on life, no exception to the culture. The Culture is all related matters to human life, who lived and owned together. in the culture there is trust, arts and customs. The Culture is a media that has a major role, for example Indonesia especially Aceh. Views of the culture, Aceh has unique culture and variegates. because of the strategic location and also Aceh is the trade channel, Aceh culture has been affected by Malay and Middles East cultures. some cultures that exist today is result of acculturation between Malay culture, Middles East and Aceh culture.

The problem often arise is less of information media about cultures. Publication of culture has been implemented in several media not only internet, visual but also print media. but that media has some drawbacks needed equipment support such as Personal Computer or laptop. Therefore needed a quick and easy media in introducing Aceh culture. Solution offered is create media such as mobile applications to facilitate the user to know the culture quickly, easily and can be used anywhere and anytime. This application use Android platform because views of enthusiastic young people large enough.

1.1 Method

Methodologi used is Unified Modeling Language (UML) that are: activity diagram, UsecaseDiagram, and sequence diagram.

1.2 System and Problem Analysis

Analysis Of non-Functional System Requirements

To build this system non-Functional System Requirements needed are hardware software support the are:

a. Hardware

- Intel prosessor Core i3 2.4 Ghz
- Ram 2 Gb
- Harddisk 320 GB
- Monitor
- Keyboard

b. Software

- Operating System windows7 32- bit
- Eclipse Juno
- Android SDK
- ADT (Android Development Tools
- JDK (Java Development Kit)
- Xampp 1.5.4

1.3 Analysis of Data Needs

System designed is system to inform culture of Aceh. This application can show the contents of Aceh Culture, Regencies of Aceh, custom and Aceh Culture, musical instrument, and heroes who came from Aceh. To build this application required a information data about Cultures of Aceh has in Aceh.

Use Case Diagram

The following bellow is Use Case Diagram design of the system to be created :



Figure 1. Use Case Diagram

Actor Definition

Num	Aktor	Deskripsi
1.	User	User can operate the history menu, regency, custom and culture, music instrument and art, Hero and about Aceh.
2.	Admin	Admin manage regency data, custom and culture, music instrument and art, Hero and about Aceh

Usecase Definition

Num	Usecase	Deskripsi
1.	History	Sistem show the general information about Aceh
2.	Regency	System show all the regency in Aceh

3.	Custom and Culture	System show the information about custom and culture
4.	Music instruments and Art	System show the information about music instruments and art
5.	Hero	System show the information about history of hero

2. Implementation

Developments of information systems based on android built using the main programming language : Java android, PHP, and used MySQL database server. The test is done entirely on mobile hardware with Android operation System.

3. Result

3.1 Display the Menu

The display application menu consist of pages : Splash Screen, main menu, Aceh history, regency and city list, detail page of regency and city, list of Aceh culture, detail of Aceh hero, art and music instrument, list of art, detail list of art, list of music instruments and detail list of music instruments.

3.2 Splash Screen Page

Splash Screen Interface is loading view before sign in to main menu of used application on mobile devices. The following below is Splash Screen view :



Figure 3.1 **Splash Screen view**

3.3 Main Menu

Main menu interface is main view of application used on mobile devices, in main menu consist 6 button Accessible by user are Aceh history button, regency and city button, hero of Aceh button, culture and custom button, art and music instruments, and about Aceh button.



Figure 3.2 Main Menu view

3.4 Aceh History Page

Aceh history page contains information about brief Aceh history.



Figure 3.3 Aceh History view

3.5 List of City and Regency

List of city and regency is information data view of city and regency existing in Aceh province.



Figure 3.4 List of city and regency

3.6 Detail of City and Regency pages

Detail of city and regency is information data of regency and city existing in Aceh province, display one of regency or city to be selected.



Figure 3.5 Detail of city and regency

3.7 Hero of Aceh pages

Hero of Aceh pages detail is a views information data for Hero of Aceh from Aceh Province, here will views detail of the selected Hero.



Figure 3.6 Detail of Aceh Hero Pages

3.8 List of Custom and Culture pages

Pages of Custom and Culture is views of information data of Culture and Custom in Aceh.

3.9 Pengujian menggunakan Metode Black Box Testing

In this system testing phase performed using Black Box. this methode to know whether software work properly. Black Box testing is testing data design based of Software specification. Testing data raised, executed on software and then output of software checked for compliance.

Table 3.1 Testing Application used Black Box Methode.

Activity	Input	Result	Note
Sign in	Klik icon aplication	success	Valid
Klik History menu	Klik histori button	Success	Valid
Choice regency and city	Klik regency and city menu	Success	Valid
Choice hero of	Klik hero of Aceh menu	Success	Valid

Aceh menu			
Choice culture and custom menu	Klik button custom and culture	Success	Valid
Choice art and music menu	Klik art and music button	Success	Valid
Choice Art menu	Klik art button	Success	Valid
Choice video	Klik detail video menu	Success	Valid
Choice music instrument	Klik music instruments button	Success	Valid

4. Conclusion

The application used to know information about culture and also display the interesting information custom of Aceh so as to increase community interest specially young people to know culture of Aceh.

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AN ANALYSIS ON THE INTERCONNECTION OF INTRANET AND INTERNET NETWORK AT REGIONAL SECRETARIAT OFFICE OF ACEH

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ABSTRACT

An internet network analysis is needed to understand the traffic on a network. This paper attempts to analyze some tests to find out the quality of the existing network at Regional Secretariat Office of Aceh. Browsing test and ping test were carried out for local, national, and international domain in order to know how much time does it takes to open a website considering those three servers have different distances. The download and upload speed tests were conducted to know how much times does it takes to download and upload a specific size file. This speed tests were performed using speedtest.net site to compare the bandwidth on Microtic router RB 1100 with unlimited bandwidth and Microtic router CCR 1016 with 10 Mbps bandwidth. The result of that comparison will be found out by three examiners using Laptop and Desktop. We hope that this paper will help all network administrators and further examiners in conducting a more detail analysis on other existing networks.

Keywords: *Browsing test, Ping test, Download and upload test*

1. INTRODUCTION

1.1. Background

The development in telecommunication is continue to increase, both from the side of community needs for telecommunication services as well as the demand on its system and technology with greater ability and integration that can provide better and higher internet access speed. Current wireless technology system is one step ahead compared to previous wired-system.

The internet access is extremely needed nowadays, for searching information like articles, new knowledge or even for only chatting. As a government institution in Aceh, the existing of a good internet access in this Regional Secretariat Office is very important. Currently, the internet access in this office is provided and managed by Telematika Aceh with bandwidth allocation of 10 Mbps using fiber optic network and 8 Mbps using transmitter.

Thus far, those bandwidths are evenly distributed. This evenly distributed bandwidth is because of the network in this office using star topology. A star topology is a network condition where the whole uspers are connected to one divider point using switch facility. The more users connected to the internet through switch, then the lesser the bandwidth capacity obtained by each user. This causing the internet access of each user is slower and not smooth. Therefore, in order to provide an optimal bandwidth usage, it needs a network technology facility, known as router.

Router is functioned as a bridge for two or more different computer networks so that they can connect to each other without change their own Internet Protocol (IP) address. Router is divided into two types: dedicated router and PC router. Dedicated router is router made by companies in the field of network technology thus it can be directly used. While PC router is personal computer installed with OS that provide routing facility. Generally, this PC router is a Linux-based system, however there is also a Windows-based one. In this paper we use a Microtic dedicated router.

This paper is an undergraduate thesis research titled An Analysis of the Interconnection of Intranet and Internet Network at Regional Secretariat Office of Aceh. This is part of the liabilities of final project in Informatics Engineering Program Study, Faculty of Computer Science, Ubudiyah University Indonesia.

2.1. Problem statement

This paper analyzes the internet and intranet network in Regional Secretariat Office of Aceh in order to find out its traffic and stability conditions.

2.2. Research Objective

The objectives of this research are:

- Optimize the internet network usage by carrying out a filtering process and limiting user access using Microtic Router Board;
- Find out problems on the network of Regional Secretariat Office of Aceh and solve them.

2. RESEARCH METHODOLOGY

This research was conducted in Regional Secretariat Office from February to July 2014. Winbox application and three internet browsers were used in analyzing the network condition. Besides, we also used hardware, i.e.: microtic router RB 1100 and CCR 1016, stopwatch, and three unit laptop/desktop.

The analysis of the intranet and internet interconnection was carried out through several steps as shown in the Figure 1 below.

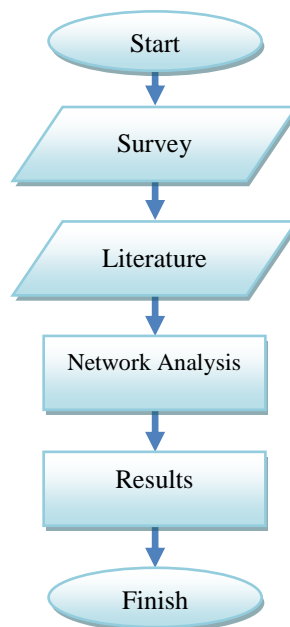


Figure 1. Research scheme

Firstly, we conducted a survey to assess whether the existing system infrastructure and its operational environment support the new proposed system. Besides, we also attempted to assure whether the resources in the regional secretariat office are adequate for developing a microtic router.

In the second step, we reviewed some literatures as theoretical references from books and other sources that support this topic.

In the fourth step, we analyzed the speed of internet network at Regional Secretariat Office Aceh, using two microtic routers, i.e. Microtic Router 1100 and Microtic Router 1016. In this analyzing phase, we compared three examiner using laptop and desktop.

The result was obtained from those three examiners using two microtic routers, but both routers generated much different result, because they have different network input. The input of Microtic Router 1100 is radio transmitter, while the input of Microtic Router 1016 is Fiber Optic Cable. The bandwidth from both of them is also different. Detail result can be seen in the next section.

3. DATA ANALYSIS AND DISCUSSION

In this research we conducted three tests to analyze the network condition in the Regional Secretariat Office Aceh. The detail is discussed below:

a. Browsing Test

This browsing test applied to three main domains, i.e.:

- Local domain, www.lpse.acehprov.go.id is an online auction website owned by local government and is earmarked to the entire government institution and its stakeholders in Aceh;
- National domain, www.detik.com is one of the largest online news portals in Inonesia; and
- International domain, www.ebay.com is one of the largest online trading sites in the world.

The results of the browsing test can be seen in the following tables:

Table 1. Browsing test using Microtic RB Router 1100

No.	Domain tested	Test 1	Test 2	Test 3
1.	lpse.acehprov.go.id	1.18	1.80	1.03
2.	detik.com	6.75	4.05	4.18
3.	ebay.com	5.32	6.76	2.88

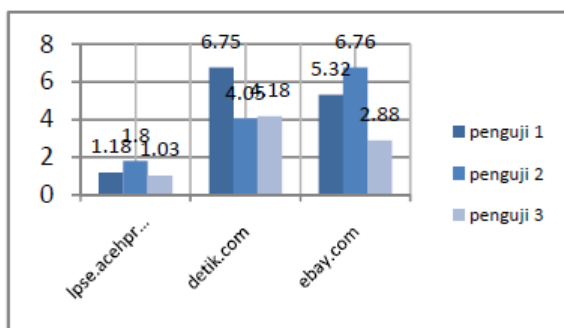


Figure 2. Graphic of browsing test using Microtic Router RB 1100

Table 2. Browsing test using Microtic Router CCR 1016

No.	Domain tested	Test 1	Test 2	Test 3
1.	lpse.acehprov.go.id	2.61	2.51	1.32
2.	detik.com	10.22	2.51	5.39
3.	ebay.com	6.75	8.34	2.60

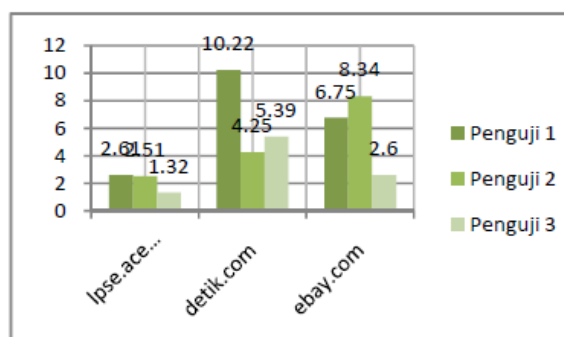


Figure 3. Graphic of browsing test using Microtic Router CCR 1016

b. Ping Test

This ping test is also applied to three main domains, i.e.:

- Local domain, www.humas.acehprov.go.id is a public relation site of Aceh Government;
- National domain, www.detik.com is one of the largest online news portals in Inonesia; and

- International domain, www.bbc.com is one of the largest online news in the world.

Table 3. Ping test using Microtic Router 1100

No.	Domain tested	Test 1	Test 2	Test 3
1.	humas.acehprov.go.id	4	25	6
2.	detik.com	4	36	37
3.	bbc.com	254	248	263

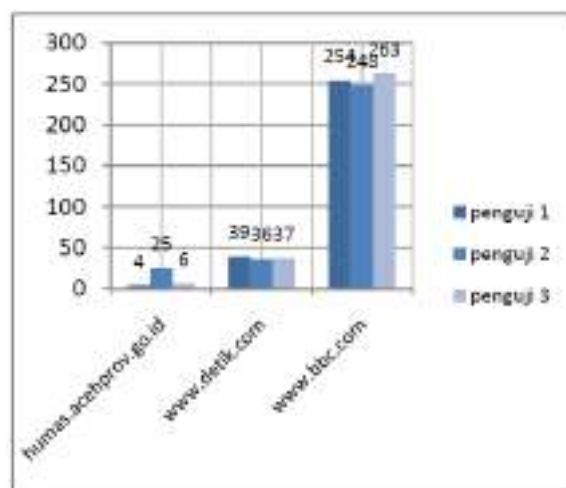


Figure 4. Graphic of ping test using Microtic Router RB 1100

Table 4. Ping test using Microtic Router CCR 1016

No.	Domain tested	Test 1	Test 2	Test 3
1.	humas.acehprov.go.id	6	2	3
2.	detik.com	41	38	59
3.	bbc.com	248	256	298

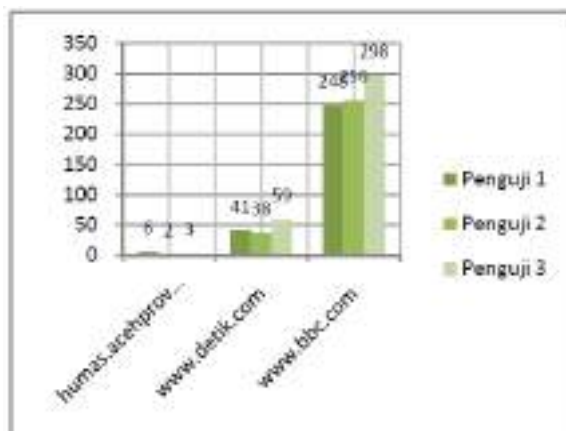


Figure 5. Graphic of ping test using Microtic Router CCR 1016

c. Download Speed Test

Using Microtic Router RB 1100 and Microtic Router CCR 1016, we downloaded a file of driver printer Canon MG 8200 series MP Driver Ver. 1.01 with size of 30.920 Mb. The result showed that times needed by all three examiners to download that file are different to one another. The detail is shown as below:

Table 5. Download speed test using Microtic Router RB 1100 and CCR 1016

No.	Microtic	Examiner 1	Examiner 2	Examiner 3
1.	Microtic Router RB	7.61	21.23	5.97
2.	Microtic Router CCR 1016	34.71	15.44	34.36

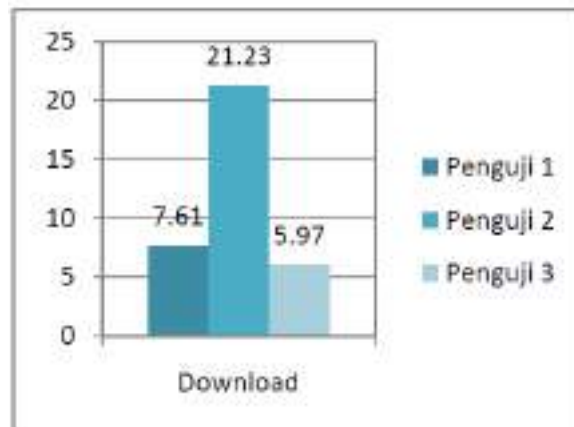


Figure 6. Graphic of download speed test using Microtic Router RB 1100

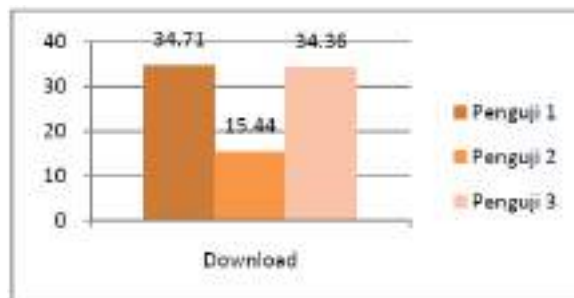


Figure 7. Graphic of download speed test using Microtic Router CCR 1016

d. Upload Speed Test

As the previous step, we also used Microtic Router RB 1100 and Microtic Router CCR 1016 to upload a file of driver printer Canon MG 8200 series MP Driver Ver. 1.01 with size of 30.920 Mb. The result showed is also different from each other, as shown in the table below:

Table 6. Upload speed using Microtic Router RB 1100 and CCR 1016

No.	Microtic	Examiner 1	Examiner 2	Examiner 3
1.	Microtic Router RB	250.83	241.98	236.12
2.	Microtic Router CCR 1016	123.15	106.28	226.39

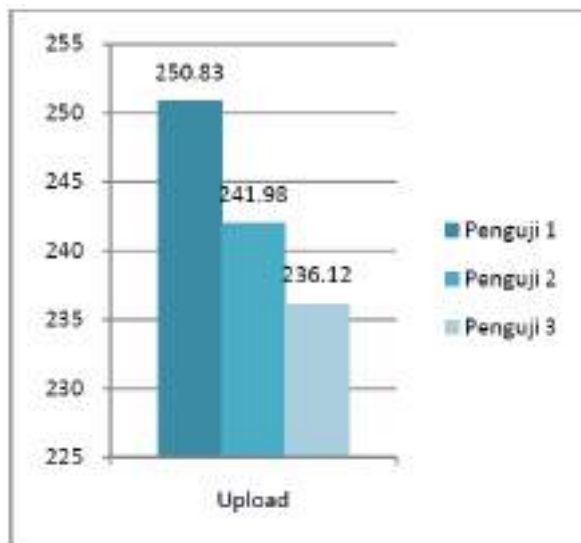


Figure 8. Graphic of upload speed test using Microtic Router RB 1100

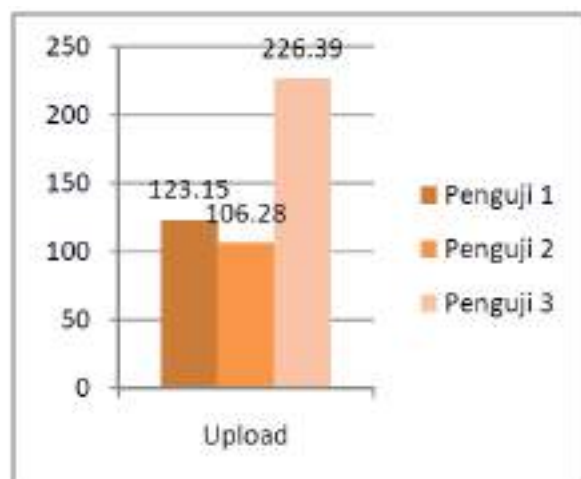


Figure 9. Graphic of upload speed test using Microtic Router CCR 1016

e. Download and upload Speed Test using Speedtest.net

Speedtest.net is a speed testing site which is often used to know the speed of internet access on a network. In this study, we also used this site to test the speed of internet access in the Regional Secretariat Office Aceh. The results obtained were different among all three examiners. The detailed results for both the microtic routers can be seen in the table below.

Table 7. Download and upload speed test using speedtest.net for Microtic Router RB 1100

No.	Speed test	Examiner 1	Examiner 2	Examiner 3
1.	Ping	88 ms	81 ms	87 ms
2.	Download	18.14 Mbps	27.50 Mbps	18.74 Mbps
3.	Upload	4.39 Mbps	15.40 Mbps	2.55 Mbps

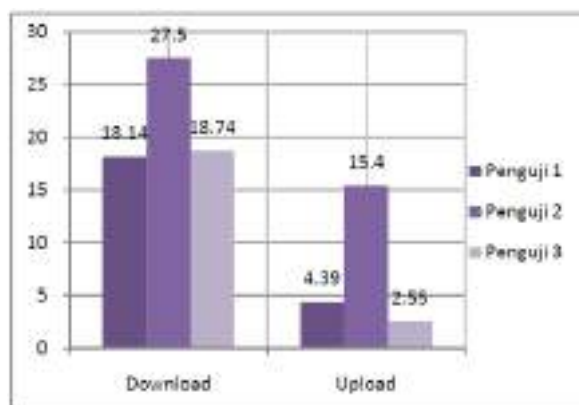


Figure 10. Graphic of download and upload speed test using speedtest.net for Microtic Router RB 1100

Table 8. Download and upload speed test using speedtest.net for Microtic Router RRC 1016

No.	Speed test	Examiner 1	Examiner 2	Examiner 3
1.	Ping	88 ms	85 ms	110 ms
2.	Download	5.88 Mbps	10.36 Mbps	6.63 Mbps
3.	Upload	1.48 Mbps	4.34 Mbps	4.52 Mbps



Figure 10. Graphic of download and upload speed test using speedtest.net for Microtic Router RRC 1016

f. Discussions

From the browsing test of three different sites (local, national and international), we found a very good result, i.e.: using microtic router RB 1100 with unlimited bandwidth the result obtained is 1.5 second in average, while using the microtic router RRC 1016, the result obtained is 2.5 second in average. This test was conducted while the network is lack of user traffic.

As the browsing test, the ping test was also conducted for three different domains (local, national and international). The results obtained are slightly different for both the routers. For local domain the result is in unit ms, national domain in tens ms and international domain in hundreds ms.

For the download speed test, the results showed better using microtic router RB 1100 with unlimited bandwidth rather than using microtic router CCR 1016 with 10 Mbps bandwidth. By using microtic router RB 1100, the download process of file needs about 5-20 seconds, while using the microtic router CCR 1016, the download process for the same file need 15-35 seconds.

For the upload speed test, the result showed contrary to the result of the download speed test. In this test, the times needed for uploading a file using microtic router RB 1100 with unlimited bandwidth are slower rather than using microtic router CCR 1016 with 10 Mbps bandwidth. The RB 1100 needed about 235-250 second to upload a file, while the CCR 1016 only needed 105 – 225 seconds for the same file.

The results of the download and upload speed test using Speedtest.net showed that the both the microtic routers have a very good speed. With the microtic router RB 1100 with unlimited bandwidth, the highest download speed obtained is 27.5 Mbps and the highest upload speed is 15.40 Mbps. While using the microtic router CCR 1016 with 10

Mbps bandwidth, the highest download speed reached its maximum limit that is 10 Mbps, while the upload speed test is 4.5 Mbps.

4. CONCLUSIONS

There are several conclusions that can be drawn from this study, i.e.:

- To maximize the utilizing of internet connection, it needs a management of internet network for all users, so that those users can derive an equal bandwidth;
- The network management allows all computers to have smooth and stable internet connection even all computers use the same connection at the same time;
- This also allows all computers to have same bandwidth according the available internet connection;
- Microtic router allows network administrator to monitor and control the bandwidth usage.

Furthermore, for a better management network, we have several suggestions to be considered by related parties, i.e.:

- A network management should carry out in an appropriate manner so that the traffic can be well managed. Each user or officer in each subdivision should report to the network administrator if they want to make any change to the network equipment;
- We suggest that all subdivisions in the Regional Secretariat Office have their own group of network so that in case one subdivision experiences a network problem, the problem will not affect other divisions.
- We also suggest next research to conduct a study on an effectiveness of the network in the Regional Secretariat Office Aceh regarding the existing database distribution.

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A DESIGN OF COMPUTER NETWORK REPORT MONITORING SYSTEM BASED OPEN SOURCE USING CACTI AT BANDA ACEH

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ABSTRACT

Cacti as an open source application is a network monitoring system based on protocol SNMP (Simple Network Management Protocol) which allows the network manager to monitor the network traffic of each device. This application uses Linux operating system, MySQL database, SNMP module, and also additional plug-in Cereus Reporting on Cacti graphs for easy printing monitoring report. System testing was conducted on the engine performance monitoring network traffic in the process of monitoring network devices. This study results an implementation of network monitoring system using Linux-based Cacti applications and SNMP that can work well according to the design made. The results of the implementation of this application demonstrates the usage of network bandwidth used and facilitate the monitoring graph report that can be used in evaluating the internet services performance in the office of Population and Civil Registration Banda Aceh.

Keywords: *Network Monitoring Systems, Cacti, SNMP, Network Traffic, report*

1. INTRODUCTION

Network monitoring is a function of network management in which to analyze whether a network is still proper enough to be used or otherwise the capacity need to be upgraded. Monitoring results will also assist in redesigning the existing network. There are a number of network matters that can be monitored, such as network load traffic which is go through a router, switch access point or computer interface and server. Monitoring can be conducted with SNMP (Simple Network Management Protocol) standards. Besides network traffic load, network condition should also be monitored, for example the up and down status of a set of network equipment.

Population and Civil Administration Agency Banda Aceh City is one of government agencies which is serve and manage the demography data of Banda Aceh City through a number server of data processing and network equipments which is directly connected to nine sub-districts in Banda Aceh. In order to improve the quality of service and facilitate the care equipment process, this agency wishing for a monitoring application that can monitor those equipments activities particularly regarding the resource server utility and the identification of up and down condition of a network equipment.

Thus far, there is still no application which is specifically performs monitoring process to those equipments which is led to an ineffective monitoring process so far. Therefore, this agency needs to implement that such monitoring application which is able to facilitate the need that present in a report form. The application is known as cacti that will work on SNMP protocol. This SNMP protocol is able to collect data from various network equipments and is easy to implement so that it will be the most appropriate solution for that problem.

The existence of this network monitoring report system will help the concerned agency to directly print their network monitoring graph in pdf format as their references in evaluate the network. This report can also periodically present following the need, such daily, weekly, monthly and yearly thus the network evaluation will be easier and efficient. Furthermore, this application will also be able to provide historical activities of all network equipments in graph form and can be accessed from client computer with browser application.

This paper is structured as follows: Section 2 presents the literature review regarding computer network and its management; section 3 discusses the research methodology; section 4 discusses the data analysis; and we conclude this paper in section 4.

2. LITERATURE REVIEW

a. Network

Network make up of two or more computers that is connected through a cable s(or in a certain case, with non-cable connection) thus those computer can interact and sharing their information to each other. Generally, network is divided into three main types, i.e.:

- Local Area Network (LAN), connecting several computers and printers in a geographically limited area, like a building, room, etc.
- Metropolitan Area Network (MAN), connecting several computer network in a wider area (Rizky, 2006);
- Wide Area Network (WAN), connecting several LAN and MAN together all over the world. The most popular WAN is internet. This can be owned individually or rented from a service provider. Terminologically, WAN refers to a public shared user network (Dong, 2007).

-

b. Network Management

Network management can be defined as OAM&P (Operation, Administration, Maintenance and Provisioning) of a network and its services. The objective of a network management is to ensure that the network users receive a proper technology information services as they are expected (Subramanian, 2000).

The implementation of this network management will help users and network providers cutting down their total cost of ownership (TCO) or cost for procuring equipments and operating the network, improving network quality such as effective bandwidth usage and opening wider business opportunities.

ISO has already defined five network management applications as explained below:

- *Fault management.* Detect, isolate and repair abnormal operations in a network.
- *Configuration management.* Find network topology, mapping the network and arrange configuration parameters in management agent or system agent as well as cover provisioning in regard to network planning and design.
- *Security management.* Provide legal access to network source and secure data from modification, falsification and break-off during transferring phase.
- *Performance management.* Doing tuning to network so that it will constantly be at its optimal condition.

- *Accounting management.* Administration of cost allocation based on the usage of network source.

c. Network Monitoring

Network monitoring can be interpreted as a passive monitoring operation on a network by doing nothing to all passed data packet (Subramanian, 2000). Through network monitoring, we can collect useful information from all parts of network and using those collected information to manage the network properly.

Generally, network monitoring consists of the parts, i.e.:

- *Performance monitoring.* Related to measuring and understanding the network performance.
- *Fault monitoring.* Related to solving problems that appear in the network.
- *Account monitoring.* Related to on how users use the network.

d. Connection Monitoring

Connection monitoring is one of network monitoring techniques which uses ping test between monitoring station and target device to know whether the connection is down or not. However, this method cannot indicate the location of problems and that is not suitable for bigger network.

e. Traffic Monitoring

Traffic monitoring is a more advance network monitoring method which is able to observe the actual traffic packets on the network and deliver reports based on the network traffic. This program not only able to detect the failed in equipments, but also make sure if a component is overload or wrong configured.

The weakness of this program is it commonly works on a single segment in a period of time, if we need more data from other segments, then the software have to move to those segments. This problem can be settled by using an agent on the remote network segment.

f. SNMP

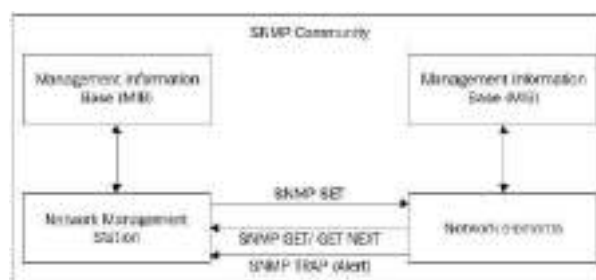
Simple Network Management Protocol is a standard protocol which is developed to process the nodes (server, workstation, router, switch, hub, etc.) in a TCP/IP (Transfer Control Protocol/Internet Protocol) network. This will help network administrator in managing network ability, finding

and solving problems as well designing a network development plan (Dong, 2007).

SNMP is a component of internet protocol which is popular as TCP/IP and defined as Internet Engineering Task Force (IETF). Developed in 1988 in order to deliver a monitoring ability on the TCP/IP-based network, SNMP is recognized as an internet standard in 1990 by Internet Architecture Board (IAB) and has been widely used since that day.

SNMP is part of network management architecture which consists of several elements in accordance with Request for Comments (RFC) definition:

- *Network elements*. Hardware that connected to a network and own an IP, like computer, router, switch, printer, etc;
- *Agents*. A software module in network elements which responsible to collect and store information, like error, status, etc;
- *Managed object*. A characteristic of system manager that can be managed;
- *Management Information Base (MIB)*. A collection of managed object which is stored in virtual information database;
- *Syntax notation*. Language to describe MIB in an independently machine format;
- *Structure of Management Information (SMI)*. Determine rules in describing information management using Abstract Syntax Notation (ASN);
- *Network Management Station (NMS)*. Equipments for executing management applications to monitor or configure network elements.
- *Protocol management*. Protocol for exchanging information among managed system (network elements) and a network management system (NMS).



Source: Dinangkur, 2006.

Figure 1. Working concept of SNMP protocol

g. Cacti

Cacti is a network monitoring tool which is written in PHP/MSQL and is open source. Cacti using RRDTool (Round-Robin Database Tool) to produce and store graphs as well collect data periodically through Net-SNMP (a SNMP implementation application) (Kindu and Lavlu, 2009).

Cacti is outperform other network monitoring plug-in because it has a speedy data ability, advance graph pattern, multiple data acquisition method and user management feature. All are inclusively created in an easu using and easy understanding interface for a complex LAN with hundreds devices.

The cacti operation divided into three different tasks, i.e.:

- *Data retrieval.* Cacti collects data via Poller application. As network infrastructure, consists of varied device, like router, switch, server, etc, is continue to increase, cacti using SNMP to collect data from those device. Thus, all devices with SNMP can be monitored by cacti.
- *Data storage.* Cacti uses RRDTool to store various data. This tool is able to consolidate historical data based on its consolidation function like average, minimum, maximum, etc. in order to keep the storage capacity settled minimum.
- *Data representation.* One of cacti main features is a graph built-in function. Cacti using this function to produce a report in graph form from all data collected via SNMP-user devices in a peride of time.

c. DATA ANALYSIS AND DISCUSSION

This research is conducted in te\he Population and Civil Registration Agency Banda Aceh office from January – February 2014. The method used in this research is based on structured approached. Primary data is collected through interview and observation, while secondary data is obtained from various documents related to cacti topic.

According to survey results, the condition of the current system is described as follow:

- Computer network in this office has not yet implement a specific software processing network management;
- This office is expected to has an application covering bandwidth usage and monitoring, connectivity and network traffic packets.

a. Network topology design

The process of designing this network monitoring system comprises of network topology design as well as cacti and its packets installation.

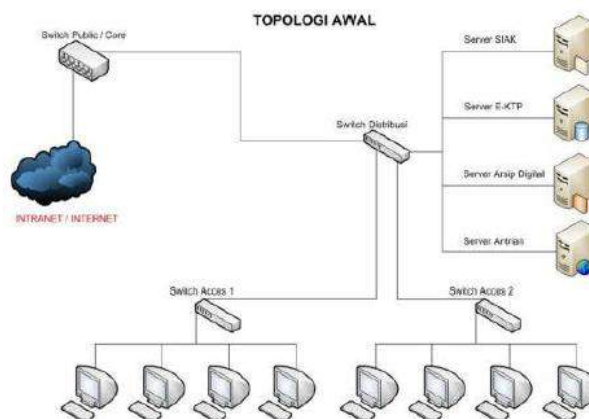


Figure 2. Current topology design

In the current topology there is no cacti server. Intranet/internet connects to public switch as the main switch. This will connect to distribution switch. This distribution switch will be then connected to switch access 1 and switch access as well some servers like SIAK server, E-KTP server, digital archives server and queue server. Lastly, switch access 1 and switch access 2 are connected to all computers in the office.

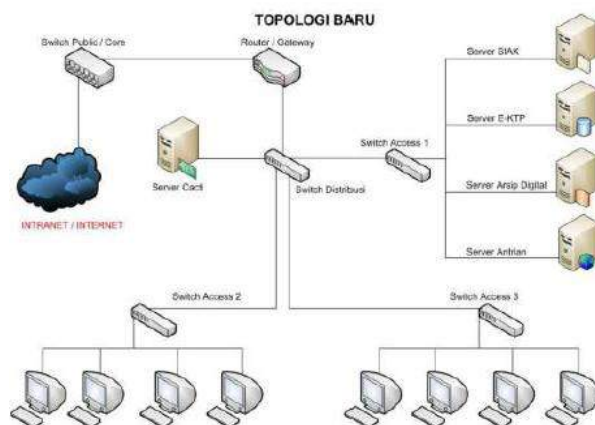


Figure 3. New topology design

- In the new topology, cacti server is connected to distribution switch. Then, this distribution switch connects to switch access 1 and router/gateway that will direct to public switch. Switch access 1 will connected to several servers, while switch access 2 and switch access 4 that connected to distribution server will connect all available PCs.

b. Cacti server design

Cacti server is designed using Apache webserver, with php programming and database Mysql, therefore cacti server should be incorporated with those packets. Apache is functioned as webserver for running PHP and Mysql. While PHP operates script for making graphs that will be appeared and Mysql will store all data resulted by cacti application.

RRDTool is also incorporated to the servers as it will used in showing data in graph form obtained from SNMP port stored in Mysql database and ran by PHP.

Devices to be monitored with cacti have to be firstly registered to the system based on available features in cacti. The most important thing is the IP of each device should be appropriate in executing connectivity.

c. Monitoring process scheme

Monitoring process scheme of the cacti can be seen in the following figure.

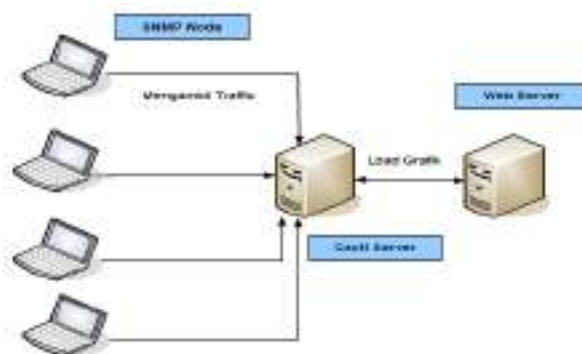


Figure 4. Scheme of monitoring process

Traffic of all node in physical LAN network, both client and server, will be monitored by SNMP module. The result of SNMP analyze will be sent to server to be visualized by cacti server. The output resulted then will be file in PDF format.

d. DATA ANALYSIS AND DISCUSSION

Network monitoring can be conducted using tab menu *graphs*. This tab menu *graphs* consist of tree sub-menus, i.e.: *Tree View*, *List View* and *Preview Tree*.



Figure 5. Graph List View

The above graph shows all graph type of all registered device in cacti. It shows daily graph view in bits per second unit. The Y axis refers to bandwidth size in bits per second unit while X axis refers to time.

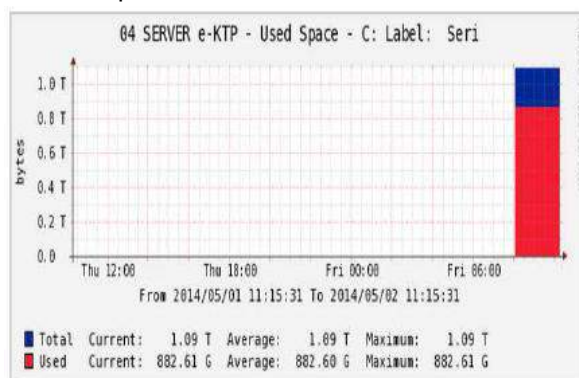


Figure 6. Graph of E-KTP disk space server

Blue color indicates total available disk space, while red color indicates total used disk space. The above figure is the daily graph of E-KTP disk space server started from 1 May to 2 May 2014. Total used disk is 882.61 Gigabyte and total available disk is 1.09 Terabyte.

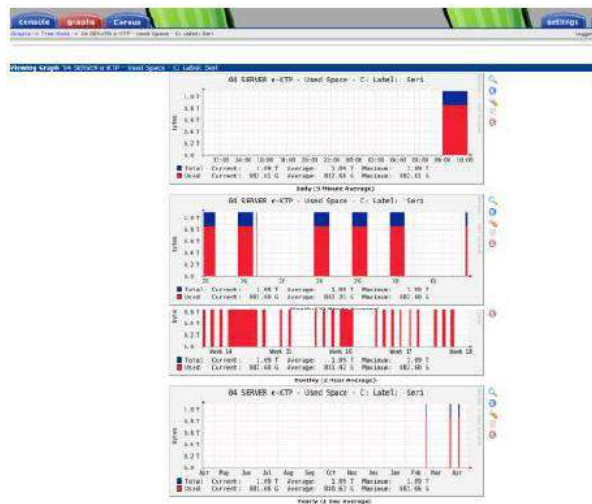


Figure 7. Detail of E-KTP disk space server graph

Daily graph showed in 5 minutes, weekly graph showed in 30 minutes, monthly graph showed in 2 hours and yearly in a day.

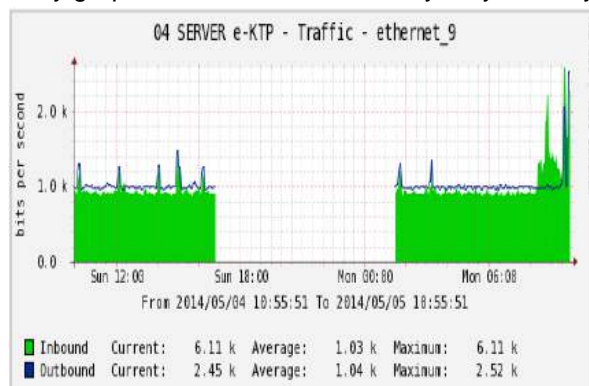


Figure 8. Graph of E-KTP traffic server

Green color refers to the number of request from clients to the server. The above figure is the daily monitoring graph started from 4 to 5 May 2014. The incoming traffic to E-KTP servers counted about 6.11 Kilobytes, while the outgoing traffic counted 2.45 Kilobytes. This means that the incoming traffic is higher than the outgoing one that caused by the high request from clients to server.

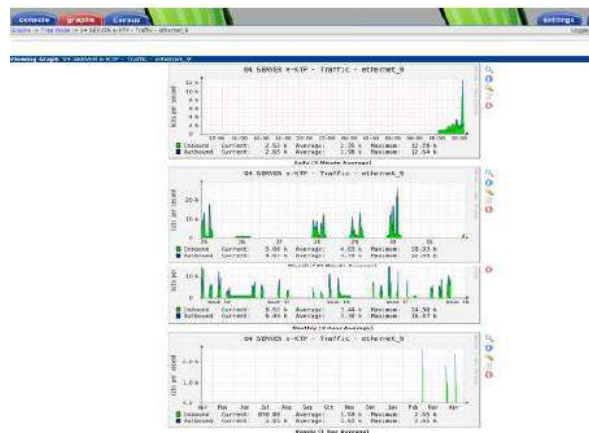


Figure 9. Detail of E-KTP traffic server graph

The above figure shows detail E-KTP traffic server graph which is presented daily, weekly, monthly and yearly.



Figure 10. Printing the PDF report

Before we make the print-out of the monitoring report, we have to make sure whether the plug-in has already active or not. Take a look on the top-right side of the graph, if the icon of *print graph* is already available then just click on the icon to print the report in PDF format. The result is as shown below.

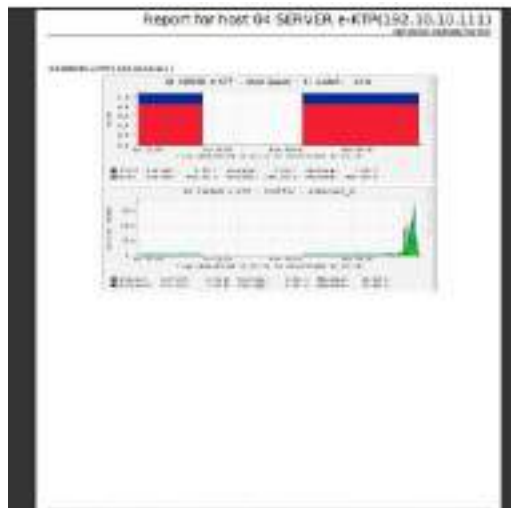


Figure 11. The monitoring report result in PDF format

e. CONCLUSIONS

After conducting an analysis and designing a network monitoring report system using cacti in the Office of Population and Civil Administration Agency Banda Aceh, we deduce several conclusions as follow:

- The application designed facilitate the network administrators in observing network and other peripherals performance as well as make them easier in finding network problems, especially when there is a disconnection on a node or segment that inhibits the clients from getting the internet access. Using this application, network administrators can quickly track the problem without need to check the physical condition of each machine and other additional peripherals.
- Facilitating users in seeing the report from the monitoring graph and can directly print it out as an evaluation reference for periodically network monitoring.
- This application can be implemented effectively either on the middle network or large and complicated network.

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DESIGNING AND IMPLEMENTING COSTUMER DATA INFORMATION SYSTEM OF SPEEDY SERVICES IN PLASA TELKOM SABANG

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ABSTRACT

This system is designed for Direct Field Operational Control section (Teknik Oman) of Plasa Telkom Sabang. This system is able to store and easily search costumer data and present it in detail computationally. According to the result of analysis that had been conducted in the Teknik Oman section of Plasa Telkom Sabang, it can be concluded that this information system can facilitate the process of costumer data modification, like adding, editing, erasing, searching and printing all available costumer data. This will helps the officers efficiently solve various problems in the field and thus increases their performance.

Keywords: *SISKA Application, Teknik Oman, information system, waterfall model*

1. INTRODUCTION

PT. Telekomunikasi Indonesia, Tbk is a national company that is engaged in the field of telecommunication service provider in Indonesia. One of their most popular product is Speedy.

Previously, the company has already had a costumer information system known as SISKAs. However, the application only applied for costumer service and transaction payment sections. While the Direct Field Operational Control section or usually known as Teknik Oman does not have that such application system that can record Speedy costumer's data computationally in Plasa Telkom Sabang. Beforehand, this section usually uses paper to record costumer's data thus the process of managing those data, like storing, updating, searching and viewing them are not efficient.

Given the importance of costumer data information system to success the company's activities, we encouraged to conduct this research in Plasa Telkom Sabang in order to provide solution for this issue.

The general objectives of this research are:

- Design an application that can meet the need on a costumer data information system in the Direct Field Operational Control section, Plasa Telkom Sabang;
- Implement the design to improve the officer performance and increase the efficiency of company activities.

2. LITERATURE REVIEW

a. Internet Speedy

Speedy is a high speed end-to-end internet access service from PT. Telekomunikasi Indonesia, Tbk, based on Asymmetric Digital Subscriber Line (ADSL) technology service which enables communication of data and voice simultaneously through a regular phone line (chopper cable network access media).

b. Information system

According to Alter, information system is a combination of working procedures, information, and information technology which aims to achieve an organization objective. Bodnar and Hopwood define information system as collection of hardware and software which is designed for transforming data into more useful information.

In general, information system consists of components as follow:

- Hardware: including various physical instruments, like computer and printer;
- Software: a collection of instruction or program that enables hardware to process data;

compiler, SDK, integrated Development Environment (IDE) and other documentation (generally MSDN Library). Compiler added to Visual Studio packet are, among others, Visual C++, Visual C#, Visual Basic, Visual Basis.NET, Visual InterDev, Visual J++, Visual J#, Visual FoxPro and Visual SourceSafe.

IDE is a computer program consists of some facilities for software development. This IDE provides all needed utilities for developing a software. An IDE, at least, has facilities, like Editor, Compiler, Linker and Debugger. At a specific phase, IDE can assist in delivering suggestions to accelerate the code writing and showing parts that contain errors.



Figure 2. Interface Ms Visual Studio 2008

d. Data and Information

Data is the plural form of datum which means information. Explicitly, data can formed in any shapes and obtained at any places. This can be used as an objective base in the process of policy development and decision making by organization leaders. According to Suryanto, data is an individual fact and have no inputs.

McFadden defines information as data that processed in such a way thus able to improve knowledge of those who use it.

Davis emphasizes that data which has been processed into fruitful information can be used in making any decisions, for today and future (Suharno, 2009).

From the above explanations, it can be concluded that data is a raw matter that has no benefit yet, thus it has to be further processed in order to making it useful information.

e. DATA ANALYSIS AND DISCUSSION

This research is conducted in Plasa Telkom office, specifically at Tenik Oman section, from April – September 2013.

Primary data is obtained directly from interview with resource persons and observation, while secondary data is obtained from institutional documents that related to costumer service topic. The relevant data that obtained from those documents is made into notes to further be used as references.

In this research, we digitalize the Speedy's costumer data by modified their physical data into digital data. The detail design of this research can be seen in the following figure:

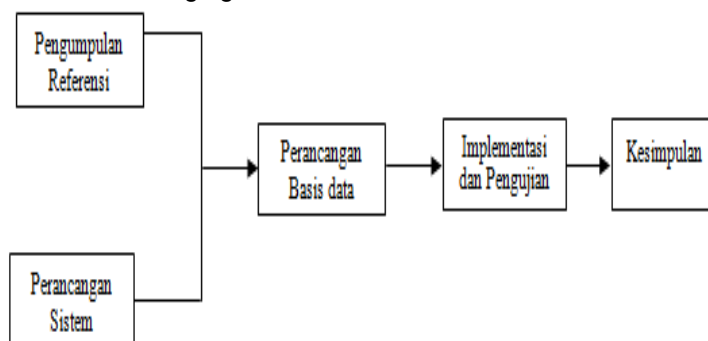


Figure 3. Research design

Entity Relationship Diagram

Entity Relationship Diagram (ERD) is a conceptual model that describes the relationship between the ERD storage used for modeling structure and the connection among data.

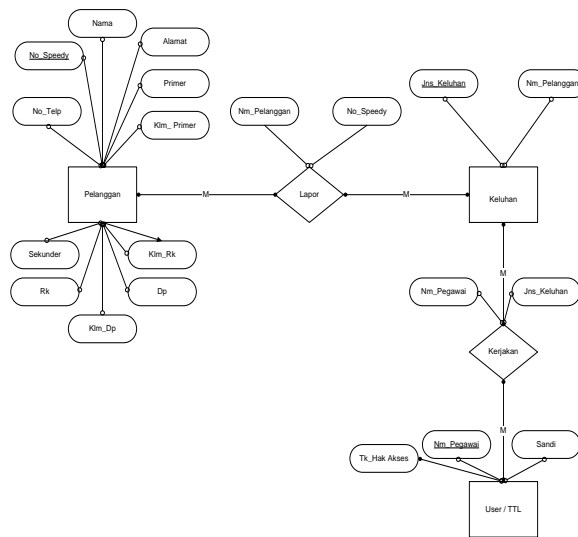


Figure 4. Entity Relationship Diagram

Flowchart

Flowchart system is a general explanation of how a system works. The flowchart of this research is as below:

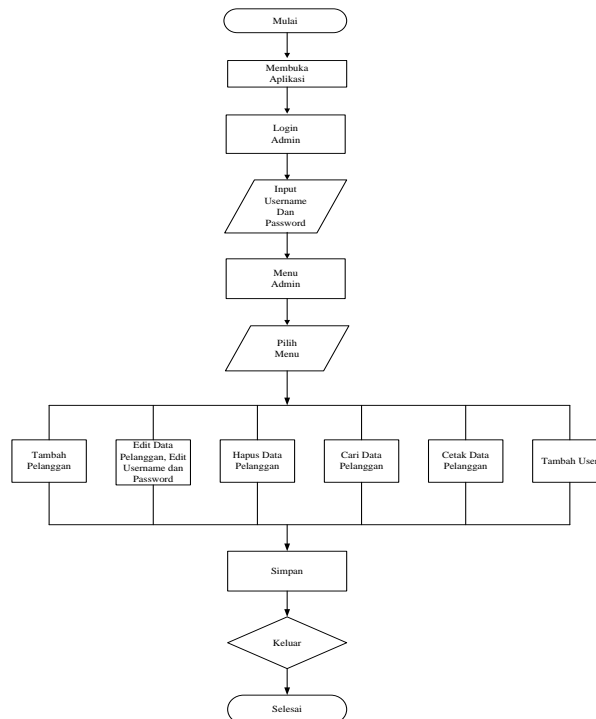


Figure 5. Research flowchart

Data Flow Diagram

Data Flow Diagram (DFD) is a logical view which is usually used to make an information system model in the form of a series of process that connected to each other. The processes among others are as below:

- *Add user data process*
Input new user data, password and their level of access which is execute by admin
- *Observe costumer's data process*
Observe all costumers' data (in this study Speedy costumers' data in Sabang).
- *Add costumer process*
Input new costumer's data in the registration form.
- *Edit costumer process*
Modify previous costumer's data to a newer updated data.
- *Delete costumer process*
This process is to delete costumer's data one by one.
- *Search costumer process*
This is to search costumers data by input their Speedy servicer number, phone number, name, sales name, activation date and activation status.
- *Print costumer data process*
This is to make a print-out of a costumer's data as a report of each costumer update.

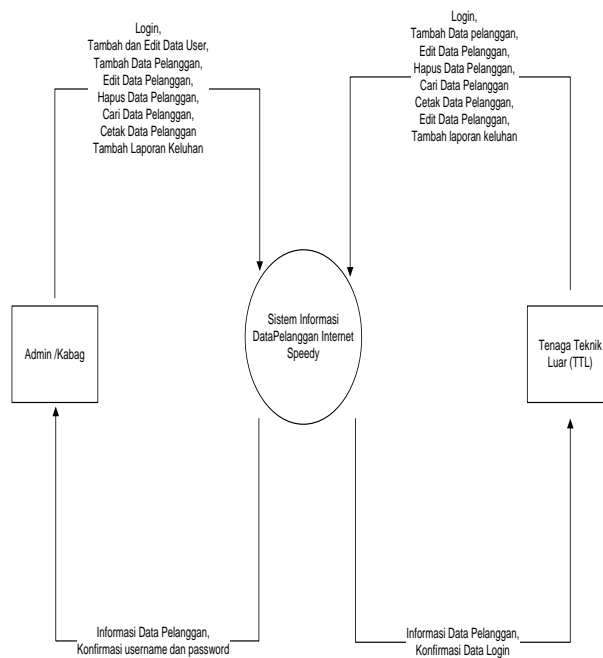


Figure 6. DFD level 0

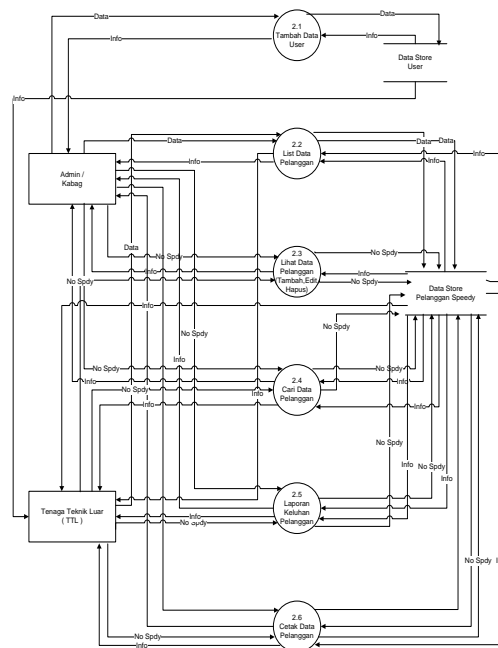


Figure 7. DFD level 2

The above figures show that DFD level 2 is much more complicated than DFD level 0.

The advantages of using DFD is making new computer users easier in understanding system that they wish to developed.

Design of System

This application is developed by using waterfall model that firstly emerged in 1970 thus consider outdated. However, this is the most popular model and used to be applied in Engineering Software. It is using a systematic approach that ranging from system requirements level to analysis, design, coding, testing phase/verification and maintenance phases.

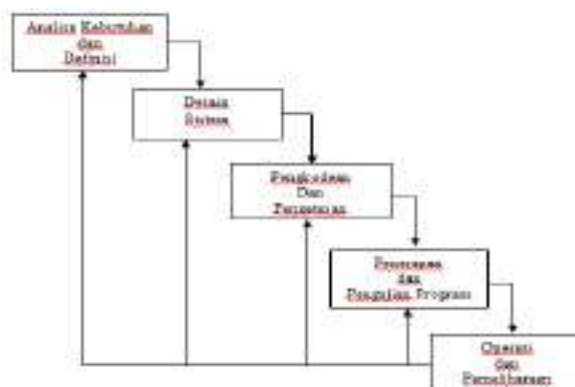


Figure 8. A waterfall model

f. DATA ANALYSIS AND DISCUSSION

a. System Analysis

This system will be used by operators to input Speedy costumers' data in Sabang area. This system is expected to help the officers in carrying out their tasks and responsibilities, especially in the Teknik Oman section.

Therefore, this system will be functioned as a performance booster of all officers and is hoped to minimize problems in the field.

According to system users, there are two category of user as describe below:

- Admin (Head of Teknik Oman Section)
An admin has roles to add and edit user data, add costumer data, processing the data like edit, delete and print them as well as search it.
- User (Officer)
User can add, edit, search and print the costumer data.

b. System Specification

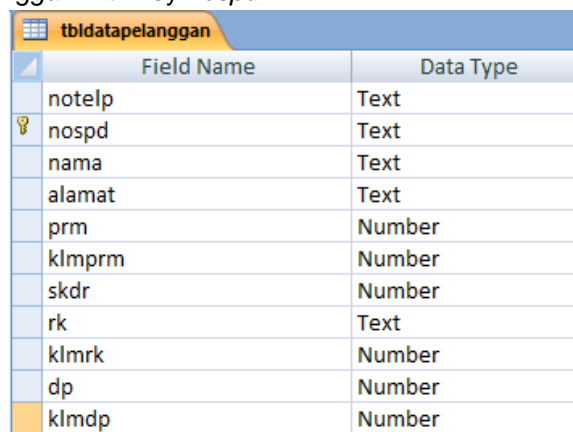
This system is a desktop-based application with offline recording system and using database as the storage place thus the security of the data is assured. The design of its interface and its programming language is made with Microsoft Visual Studio 2008 while its database using Microsoft Access 2007.

We used a set of hardware with specification: Processor Intel Core i3, RAM 2GB, Monitor 14" Diagonal High-Definition LED HP Brightview Widescreen Display (1366 x 768), Keyboard and Mouse. The operating system is Windows XP (32-bit) or Windows 7 (32-bit).

c. Database design and table

Database is a storage place and its table has a specific type and need of data. This designed database has three different tables, i.e.: costumer data table, interruption table, and user table.

Costumer data table consists of internet Speedy costumer data which covers Plasa Telkom Sabang area. The name of the table is *tblddatapelanggan* with key *nospd*.



Field Name	Data Type
notelp	Text
nospd	Text
nama	Text
alamat	Text
prm	Number
klmpm	Number
skdr	Number
rk	Text
klmrk	Number
dp	Number
klmdp	Number

Figure 9. Costumer data table

Interruption table consists of complaints received from costumer. The name of the table is *tblgangguan* with key *nomor*.

tblgangguan		
	Field Name	Data Type
🔑	nomor	AutoNumber
	nospd	Text
	jenis	Memo

Figure 10. Interruption table

User table consists of admin and user data including personal data, username and password which is used while logging in to the system. The name of the table is *tbluser* with key *username*.

tbluser		
	Field Name	Data Type
🔑	username	Text
	pass	Text
	tingkat	Text

Figure 11. User table

d. User database implementation

Login is part of system security which is made for limiting the accessibility of each user to the system.

Login form only identifies admin and user. An admin has a full access to the system, while an operator has a limited access. The view of the login form can be seen in the figure below:



Figure 12. Login form

The Main Menu will displays some sorts of choice menus, like List of Costumer Data, Look Costumer Data, Search Costumer Data, Complaint Report, Add User and Logout.



Figure 13. The display of Main Menu

g. CONCLUSIONS

According to the examination process that had been conducted to the information system of internet Speedy costumer data on Teknik Oman section, Plasa Telkom Sabang, we conclude that:

- The implemented information system is a desktop-based application which facilitates in adding, editing, deleting, searching and printing the costumer data;
- The system uses automatically relational data method which makes easier in adding, editing, searching, deleting and printing data.
- This application can be implemented effectively either on the middle network or large and complicated network.

Moreover, we also propose some suggestions as below:

- Discerning a rapid development of technology nowadays, it is expected that this information system will be further online in order to make the officer in the Teknik Oman section easier in reporting various complaints from costumer directly to the central office;
- This system still needs to developed especially on its database in order to accommodate much more costumer data;
- It needs to install a better secure system for avoiding it from misusing costumer data by other irresponsible parties.

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DIGITAL MAP APPLICATION FOR SUPERMARKET

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ABSTRACT

Digital map is consisted of a number of files that used to be applied as the basis elements, like dots, lines and space, in making a map. Each of those elements has been marked according to its administrative code area stored in a computer. The objective of this paper is to design an application for goods placement in supermarkets based on website, thus make the costumers easier in finding location of goods they wish to buy. This research used direct interview and observation method in a supermarket and its employees. With the facility given to the admin and user, it enables them to use this system properly according to their needs. This system is designed by marking the coordinates of all available racks in the supermarket which are have their own specific information. This application is run well with additional features like searching goods and searching goods based on its type.

Keywords: *Digital map, supermarket.*

1. INTRODUCTION

The technology advancement is continues to increase nowadays. One of its examples is the utilizing of computers in any sectors to support their information system.

The need of information regarding map is also increase by various parties in order to improve their business and/or organization performance, especially in this current globalization era, where the celerity in obtaining required information become an important key for their success.

Currently, the goods location map in supermarket only displays the goods image which is not really assist people in finding the goods and its description they want. Therefore, we attempted to make this application of Goods Location Placement for Supermarket in order to help both supermarket parties and people in finding the goods they want efficiently.

This application is developed using fictive data and PHP and MySQL software. The password only to secure the process of goods data input to the system. This map does not using tracking menu to find out the nearer goods and the admin also has to write the url manually to login to the main page.

2. LITERATURE REVIEW

a. Supermarket

Supermarket is a self-service store which is divided into some departments offers a variety of goods', from food to household appliances. Supermarket is larger, more complete, fully equipped than wholesaler store.

b. Digital map

Digital map is consist of a number of files that used to be applied as the basis elements, like dots, lines and space, in making a map. Each of those elements has been marked according to its administrative code area stored in computer. The data obtained are in digital form and can be stored in a media like disks and other storage media. The data also can be displayed on the computer layer.

c. Designing the application

PHP is the abbreviation of Hypertext Preprocessor. It is a web language program working on server side scripting which can directly connect to a database, a certain matter that unable to carry out using common HTML syntaxes. Most parts of the syntaxes are similar to C, Java and Perl language, except some specific functions of PHP.

Apache is a web server that responsible to the HTTP request-response and a detail logging information. Besides, Apache is also interprets as a unified, modular, following HTTP protocol standards and the most popular web server.

MySQL is one of the most popular database servers ever. It uses SQL as a language base to access its database system. It is counted as one of RDBMS (Relation Database Management System) types, therefore the terminology of table, row and column are also used in this application. Substantively, MySQL is the integral part of the early concept of database, i.e. SQL (Structured Query Language).

Database is a collection of data consisting information of one or more objects. The data in the database usually stored in the inter-connected tables.

JavaScript is a scripting language which is used to design a web application. It is a client-side in nature thus it can be directly processed in the browser without connected to the server. Though it uses "Java" words, this JavaScript has no relationship with Java Programming Language, however they have similar syntaxes which imitates C Language.

Autosuggest is a system that offers recommendations choices of the data input by user. When user input data in a form, the written character can directly completed by other suggested entries, for example "search" that provided by Google.

3. RESEARCH METHODOLOGY

This research is conducted in Pante Pirak Supermarket located in Jl. T. Nyak Arief, Jeulingke Banda Aceh.

The focus of this research is to design a digital map application for supermarket using web-based language programming.

Data Collection Method

This research requires a number of secondary data obtained from a relevant method of data collection. The methods used to obtain the data in this research are as follow:

- *Field research*, conducted by collecting the required data directly to the supermarket through direct interviews and observations with its employees to obtain accurate data.
- *Library study*, conducted by collecting data and references from books and other sources that related to this topic. We took those references to support the discussion in this paper. The purpose of this system is to find an optimal form of the application to be build by considering the problems and requirement factors on the system.

System Requirements

In building this application, we need hardware and software as explain below:

- **Hardware.** We used laptop to access the localhost. The need of hardware specification minimal meets the requirements for developing the system and according to application developed.

- Software. We used OS Windows 7, web server XAMPP version 1.7.4, Dreamweaver Portable version 1.0.0.1 Visio, and Internet browser Google Chrome and Mozilla Firefox.

System Design

A database design is the most important step in building an information system. In this design we develop a database with five tables, i.e. *kodebarang*, *namabarang*, *kode_rak*, *jenis_barang*, and *tingkat*. The details can be seen in the figure below:

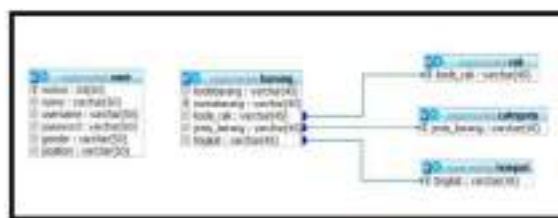


Figure 1. The database system design

Next step is design the process which consists of making an input, activity, working channel, and determine the method to be used in transforming input to output. The details of this process can be seen in the Fig. 2 below. It shows that free users have to input the name of goods they want to search. The data will then be sent to the database for checking its location by the system, and at last the data will be processed and displays its location map, table of goods as well as its placement location.

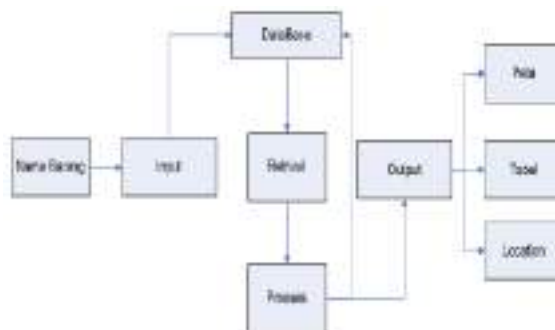


Figure 2. Design of system process

The following figure is the flowchart of this main menu:

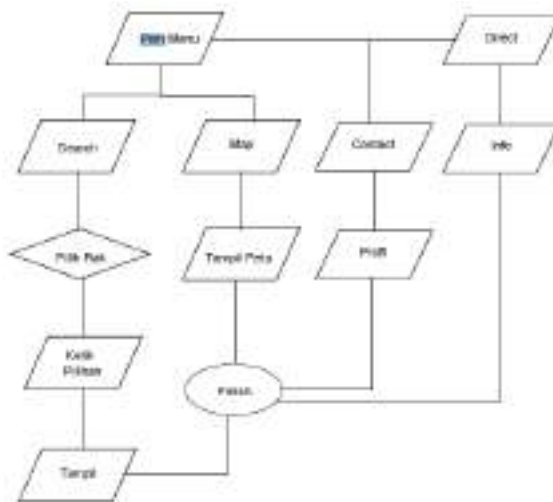


Figure 3. The flowchart of this main menu

Finally, we added an image map formatted in JPG which displays racks in the supermarket.

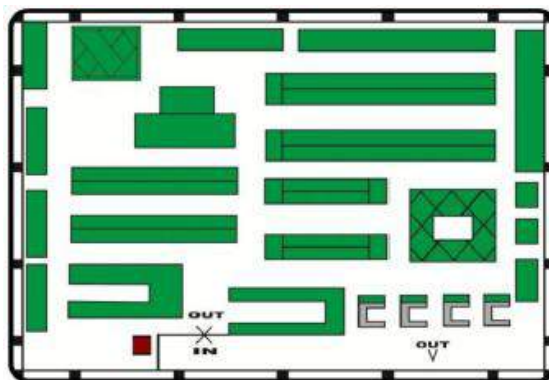


Figure 4. Design of system interface

4. DATA ANALYSIS AND DISCUSSION

This system testing is conducted to know whether the developed application is running well and meet the required requirements.

The system is expected to be able to handle and process the goods' data thus the supermarket can facilitate their consumers and make them easier in finding the goods they want quickly, efficiently and accurately.

The procedures of the system testing are described as follow:

- Free user

To test the goods placement location, we have to type the URL <http://localhost/supermarket> trough web browser. Once it accessed, it will displays the supermarket map as follow:

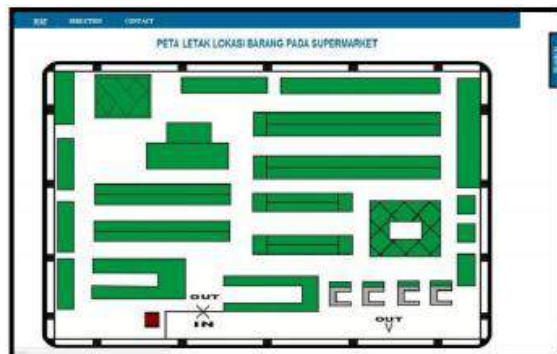


Figure 5. The supermarket map

On the window, there are three main menus, i.e. (1) Map that display the supermarket map without doing a search; (2) Direction that direct the user to the application manual; and (3) Contact that display information about supermarket.

When cursors is pointed to a rack, then it will displays information of that rack code using coordinate pointing script, as shown in the following figure:

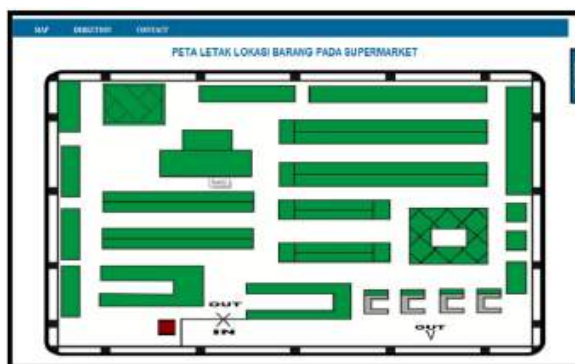


Figure 6. The pointing of rack code

Below is the script which used for coordinate pointing at the map.

```
<map name="Map" id="Map">
  <area shape="rect" coords="483,213,520,346" title="..." href="..." />
```

Figure 7. The pointing of rack code

Figure 8. The pointing of rack code

The above form is used for searching the name of goods by consumers, thus they do not have to look for goods they want on each rack in the supermarket. This form uses several parameters, i.e. searching based on the name of the goods and searching based on the categorized of the goods by the supermarket itself.

```
var url= "input/searchbar.php?sel="+sel+"&deval="+val;
if(window.XMLHttpRequest)
    req = new XMLHttpRequest();
    else if (window.ActiveXObject)
    req = new ActiveXObject(Microsoft.XMLHTTP);
req.onreadystatechange = function(){
    if(req.readyState == 4){
        if(req.status == 200){
            document.getElementById("result-cat").innerHTML=
            req.responseText;
        }
    }
}
alert(req.status);
req.open("GET", url, true);
req.setRequestHeader("Content-Type", "application/x-www-form-
urlencoded");
req.send(null); }
```

Figure 9. Script for searching menu

This searching menu made using JavaScript (as shown in the below figure) which is aimed to issues the list content of goods database.

When the list of the goods' name is clicked for searching, that name will be available in the search column. Then further double click will displays the location on of goods placement in the supermarket, marked with red color.



Figure 10. The display of searching results



Figure 11. The display of the goods' location

Then, for looking the location of the goods, make a click on a rack marked with red color to display the popup information that consists of code, name, type and level (as shown in the above figure).

The script of the above popup is also made using Javascript and its population consists of database information.

```
<script type="text/javascript">
function fobj()
{
document.getElementById("right").style.display="none";
document.getElementById("left").style.display="none";
}

function changeMenu(menu)
{
document.getElementById("menu").src="pageMenu"+menu;
}
</script>
```

Figure 12. Script for the information popup

To examine this application, we, firstly, call the URL <http://localhost/login.php> manually without link via web browser. The script for this examination step is as below:

```
$query = "SELECT * FROM user WHERE username = '$username'";
$result = mysql_query($query);
$result = mysql_fetch_array($result);
// cek username password
if ($password == $result['password'])
{
    // menyimpan username dan level ke dalam session
    $_SESSION['position'] = $result['position'];
    $_SESSION['username'] = $result['username'];
    $_SESSION['name'] = $result['name'];
    if ($_SESSION['position'] == "admin")
```

Figure 13. Script for examining the application

This logout menu functioned as a way to logging out from admin access.



Figure 13. Access page

After that, it will be directed to admin menu where we can add goods' data and directly see the data saved in the database, as it shown in the figure below:



Figure 14. Admin data access page

In this menu, admin is allowed to add more data as shown above. The scripts for the menu and for viewing the content of the database are as follow:

[illegible]

Figure 15. Script for admin menu

[illegible]

Figure 15. Script for viewing the content

In view database menu, there is a database link update which is made using the following script:

```

$kodebar = $_GET['kodebar'];
$kodebar = $_POST['kodebarang'];
$nama = $_POST['nama_barang'];
$stok = $_POST['stok_rak'];
$jenis = $_POST['jenis_rak'];
$jumlah = $_POST['jumlah_barang'];
$query = "UPDATE barang SET kodebarang = '$kodebar',
nama_barang = '$nama', stok_rak = '$stok_rak', jenis =
'$jenis', jumlah_barang = '$jumlah' WHERE kodebarang =
'$kodebar'";
$stmt = mysqli_query($koneksi,$query);
if($stmt){
    echo "Berhasil";
} else {
    echo "Gagal";
}

```

Figure 16. Script for database link update

To have it updated, we just click on the save button which will be redirected to the main menu if it is successful. After all are finished, admin can logout using the following script:

```

<?php
session_start();
session_destroy();
include("redirecting.php");
<META HTTP-EQUIV="Refresh" CONTENT="1"; URL="login.php">
<?php
?>

```

Figure 16. Script for logging out

To have it updated, we just click on the

Results of Examination

- This application of goods placement in supermarket is able to running the available features. This is indicated by the successful of all features in the application;
- The test is conducted according to the designed measures. All features had been tested through application equipment examination;
- The result showed that the application is run well and is in accordance with the initial design and the scope of problems that have been discussed.

5. CONCLUSIONS

There are several conclusions that can be drawn from the design and testing of the application, i.e.:

- This goods placement application for supermarket is built by marking coordinates of each rack, in which each rack contains their own information;
- This application is run well using the available features, like searching for goods and searching for goods by its type;
- This application can be developed further using Flash, because it can creates faster and neater processes;
- The additional feature *tracking* facilitates the consumer to see things closer. This application can also developed by adding menu for user to edit the map.

-

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Table 1 Summary of physical parameters.

No	Name	IQ	Age (Years)
1	Mr. A	130	20
2	Mr. B	124	21
3	Ms. C	114	23
4	Mr. D	129	19
5	Ms. E	134	20

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C_d	=	drag coefficient
f_e	=	linearization coefficient
K	=	modification factor
\square	=	wave number
\square	=	Complex wave number

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