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3rd ICETD 2014

28, 29 October 2014, Bandar Lampung, Indonesia

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Faculty of Engineering and Faculty of Computer Science
Bandar Lampung University, Indonesia

In coorporation with :

THE UNIVERSITY OF KITAKYUSHU

3rd ICETD 2014

The Third International Conference On Engineering And Technology Development

28 -29 October2014
Bandar Lampung University (UBL)
Lampung, Indonesia

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Organized by:

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PREFACE

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development (3rd ICETD 2014) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participans. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, IEEE – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – lampung, University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – lampung,

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also gratefull to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 22 October 2014

Mustofa Usman, Ph.D
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IMPLEMENTATION OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM) TO AUTOMATE LOGGING TRACK RECORD STUDENTS AND ALUMNI

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Abstract—
Biro Pembinaan Kemahasiswaan dan Hubungan Alumni (BPKHA) Bandar Lampung University has one of the tasks for the alumnus record, but the way that used by BPKHA UBL still manually so that the alumnus data that are collected, it has not been gathered maximally. Therefore, the researchers examined the problem by tracking the footsteps of alumni studies or surveys of graduates have been made one of college accreditation requirements by using Customer Relationship Management (CRM), because such methods focus on how to attract the alumnus so that they always fill up the alumnus form and register themselves in detail . Tracer Study becomes increasingly important role as it can provide important information for the development of higher education . Additionally tracer study acts as a tool to evaluate the relevance between higher education and the world of work, it can provide useful input for lecturer and administrator to improved performance, as well as give feedback to parents in monitoring their children's education (Schomburg, 2006). From the analysis and the design that have been successfully fabricated, The Software of Information System of Students and Alumnus Record Traces Based Customer Relationship Management (CRM) for Automation. Data Collection, with the stages of planning , analysis, design, implementation and testing. The system is constructed to provide information to the University and alumnus as well as students either acquire phase, enhance, and retain with different features are tailored to the results of the analysis.
The study consisted of :
120 Pages, 61 Figures, 38 Tables, 1 Table of Contents, and Fifth Chapters

Keywords—***Customer Relationship Management (CRM),* Information Systems, and *web site*.**

I. INTRODUCTION

Students and Alumni are a very important part of existence in a University, for students and Alumni is an asset for advancement of a University and the alumni is a means of effective marketing and efficient to provide information about the campus to many people. It will run good when logging students and alumni can be done directly with the use of information technology and automation of transaction logging.

The tracking study survey of graduates or the alumni of the imprint was made as one of the College's accreditation requirements. Tracer study became increasingly important role because it can provide a variety of informations to the development of the College. In addition to tracer study serves as a tool to evaluate the relevance of higher education to the world of work, can provide a useful input for the professors and administrators for performance improvement, as well as input for the parents in their children's education monitor (Schomburg, 2006).

Nowadays, information systems at Bandar Lampung University has been applying information and communication technologies related to the process of improving the quality of service, but the process is still not integrated with the tracking information system tracks alumni, which now becomes an important information for a University for the benefit of the accreditation. Logging of these alumni are still done manually. Whereas, the information desired by stakeholders can generate greater value to information, transparency and accountability are assured.

CRM is a business philosophy which describes a strategy of placing the client as the central process, activities

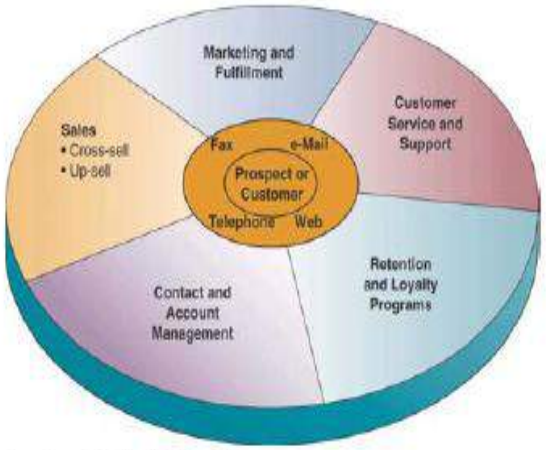
and culture. This concept is well known and widely applied to improve services in the company as well as in educational institutions. The CRM concept here is not intended as a form of commercialization of education, but rather to increase the service's efforts to build a close relationship between educational establishments with the students and Alumni. Educational institutions may treat students and Alumni and tie it in a friendship. This strategy recommends that educational institutions open up channels of communication as easy as possible with a high response level, so that students and Alumni feel a closeness with the educational institutions. Communication that can grow smoothly, no doubt, students and Alumni. The relationship between educational establishments with students and Alumni are intertwined very closely will make students and Alumni feel co-owns establishments of education. That way, his loyalties to the company bit by bit will increasingly grow and develop. so, the education agencies will benefit from the CRM application, namely have the customers (students and Alumni) are loyal. (Budi Sutedjo Dharma Oetomo, John Philio Simandjuntak, & Drs. Andreas Ari Sukoco, 2003)

II. THEORY

2.2.1 The Theory of Customer Relationship Management (CRM)

CRM originated in the 1990s as a logical step after the Enterprise Resource Planning (ERP). One more factor that gave birth to CRM is a marketing study by PIMS which concluded that "customers were grumbling not satisfied will be confided to approximately 7-10 people their friends while satisfied customers would recommend the company to friends them 3-4". (Danardatu, 2003 : hal.3)

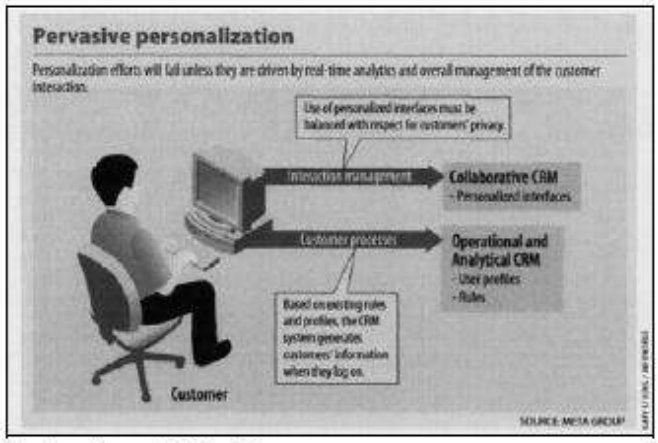
"CRM uses information technology to create a cross-functional enterprise system that integrates and automates many of the customer serving processes in sales, marketing, and product services that interact with a company's customers. CRM systems also create an IT framework that integrates all of these processes with the rest of a company's business operations. CRM systems consist of a family of software modules that perform the business activities involved in such front office processes. CRM software provides the tools that enable a business and its employees to provide fast, convenient, dependable, and consistent service to its customers." This quote means that CRM uses information technology to create cross-functional enterprise system that integrates and automates the process of customer service in the areas of sales, marketing, and services products/services related to the company. CRM system also creates an IT framework that connects all the processes with the business operations of the company. Additionally CRM system also includes a set of software modules that help the company business activities, such as the Office of the future. CRM Software is a tool that allows the company to provide prompt service, prima as well as consistent on its customers and can be described as follows: (O'Brien, 2002 : p.130)



Sumber: O'Brien (2002,p.130)

Image 2.1 CRM System in Business Processing

CRM is an IT industry term for methodologies, strategies, software (software) and other web-based applications or who are able to help a company (enterprise, if large in size) to manage its relationship with its customers. CRM is also a company effort to concentrate to keep customers by collecting all forms of customer interaction be it by phone, email, feedback on the site or the results of the talks with the sales and marketing staff. CRM is often referred to as a comprehensive business strategy of an enterprise that allows the company to effectively manage relationships with its customers (Danardatu, 2003:p.2). CRM in its application programs can be seen like the picture below



Sumber: Jones (2001,p.30)

Image 2.2 System Based IT

The automation of functions such as marketing campaign design and management, email marketing, lead assignment and management, companies can improve the efficiency and effectiveness of marketing. This automation can target potential customers, key resources and geographic information that helps your sales cycle. The management can understand the programs created to increase revenues to the maximum. Thus, management can determine which marketing programs are most effective and which ones need to be

enhanced to aim marketing more successful investment by way of identifying new markets and opportunities, simplify the process of marketing, quantify the ROI of marketing costs, and increase productivity by reducing marketing acquisition costs. <*http://www.aspective.com/Solutions/SiebelCRM/Index.aspx*>

CRM can be explained by the image bellow :

Sumber: <http://www.aspective.com/Solutions/SiebelCRM/ Index. aspx>

Image 2.3 Business Activity Syclus by *Database* CRM

Tyler also confirmed the same thing that by using CRM database in the business of supporting companies to know will flow throughout the activity. With the centralization of all communication that occurs with customers at one place would improve efficiency. When there is a consistency there will form the ability to measure and manage human resources and all the processes that are going on. (Tyler, 2005 : p.50)

2.2.9.1 The purpose of CRM

The purpose of CRM in order to set up the interaction with the client continuously. It is useful for establishing the value of satisfaction, as well as the benefits of the relationship with the customer (Berson, Smith and Thearling,2002 : p.479).

2.2.9.2 The Stages of *CRM*

There are three stages that occur in the CRM, those are expressed by (Kalakota and Robinson, 2001 : p. 174) as follows:

a. Increase the number of new *client* (acquire).
Enhance the appeal and call to attract new clients. Promote excellence and values belonging to the company.

b. Provide added value for the customer who has owned the company (enhanced).
The goal at this stage is to provide excellent service to its one stop service to the client.Provide added value to the service provided.

c. Maintain the potential customer (retain).
The third stage of the above are interconnected, so that its application would be maximized if done together. But in fact, there aren't many companies that can implement the third stage of the above. To that end, the company had to choose and focus his efforts at one stage only.

2.2.9.3 The Applicatins of *CRM*

There are three types of CRM applications such as expressed by (Berson, Smith and Thearling, 2000: p. 45), namely :

a. CRM *Operational*

Is a process of integrated automation of the overall business processes that run within the company, both sales and marketing. In this process include a Customer Touch-Point and the Front Office to the Back Office.

b. *Analytical* CRM

It is the process of analysis of the data generated through the process of Operational CRM includes data mining.

c. *Collaborative* CRM
Is the process of collaborative applications include email services, e-communities, discussion forums and the like that provide interaction between companies with its client.

III. DESIGN and IMPLEMENTING

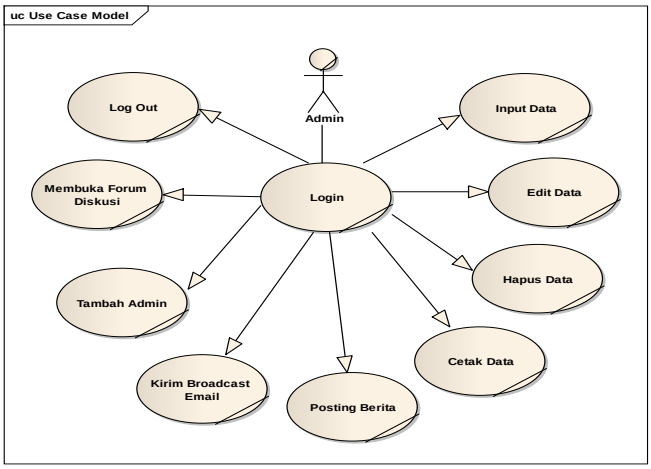
3.3.1.1 UML Diagram

This information system modeling using UML. UML diagram type that will be used in the development of these information systems is the use case (user interacting with a system), activity diagrams (procedural and parallel behaviour). Diagrams are created as follows:

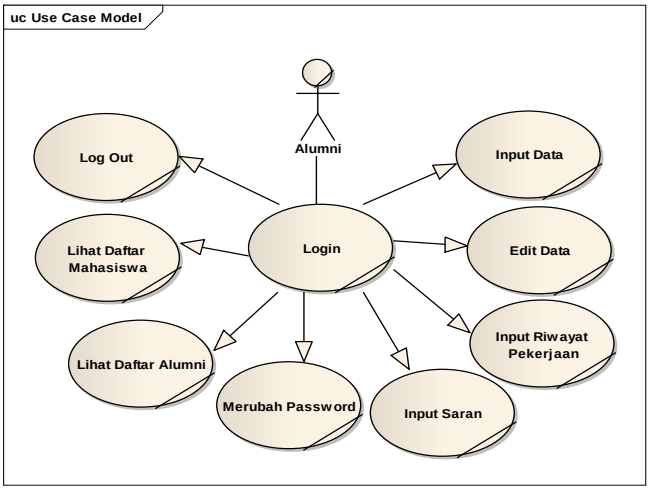
a. Use Case Diagram.

Use case diagrams are static, this diagram shows a set of use case and actors (a special type of class), which is very important to organise and model the behavior of a system is needed as well as the expected user (Adi Nugroho, 2005: p. 19). Use case is the description of the functions of a system from the perspective of the user (Munawar, 2005: p. 63). use case diagram describe the ability of a

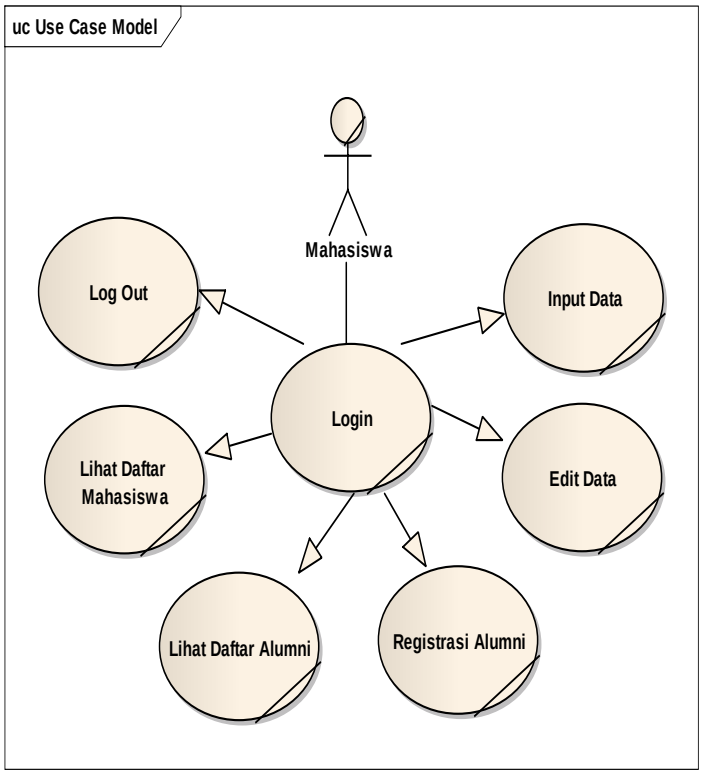
system that would be run by the actor, or in other words activities (job) that will be performed by actors who are capable of is facilitated by the system and is represented in the form of a diagram. Use case is formed as a first step the design of information systems. Use case is used as a basis for forming diagram activity. The actor is available is Admin, Alumni and students. The following depiction of the use case:



Gambar 3.3 *Use Case* Admin



Gambar 3.4 The Alumni *Use Case*



Gambar 3.5 The Students *Use Case*

a. Diagram Class

Diagram Class helps us in visualizing the structure of the classes of the system and is a type of diagram which is most widely used. Class diagram showing the relationships between classes and detail explanation of each class in the model design of a system.

Diagram Class There are 3 pieces of Class those are : Admin, students and Alumni. For example, in class Admin, have the attributes *username*, *password* and have the operation give user permissions. So the core of the attribute table is exampled by of contents of table from the database and the core of the operation was "a class can be anything". Like the picture below:

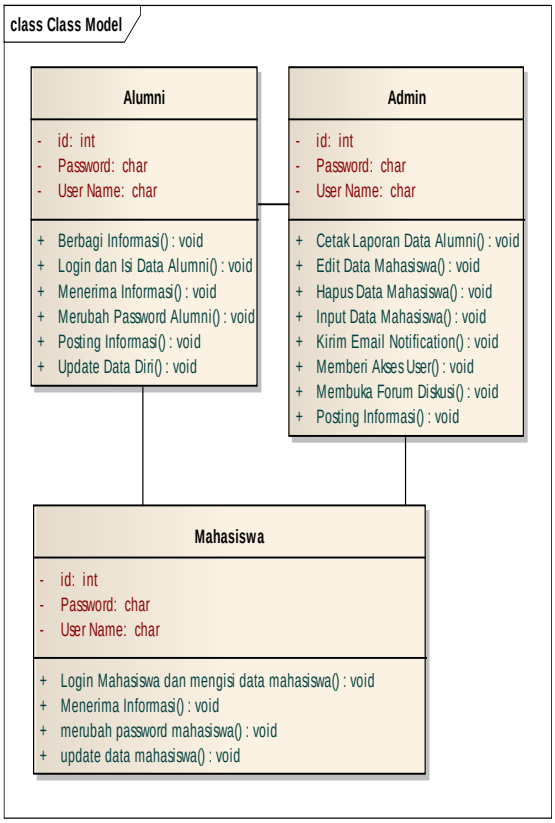


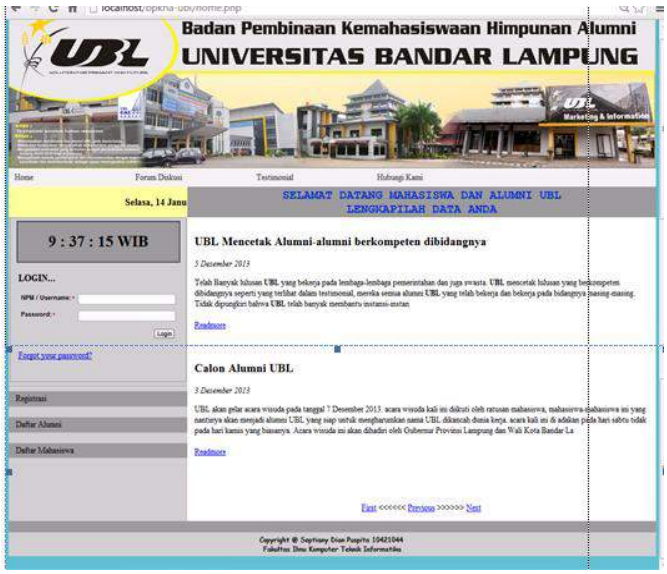
Image 3.10 Diagram Class

IV. DESIGN and WEB INTERFACE

4.1 User Interface

Graphical User Interface (GUI) The user interface is a graphical based programs, i.e. not typed commands via the key board, here are some of the views between the users to interact with the system.

Picture 4.1 Home Screen



Picture 4.2 Discussion forums page

Picture 4.3 Registration page

Picture 4.2 Alumni list page

Picture 4.4 Alumni Home Page

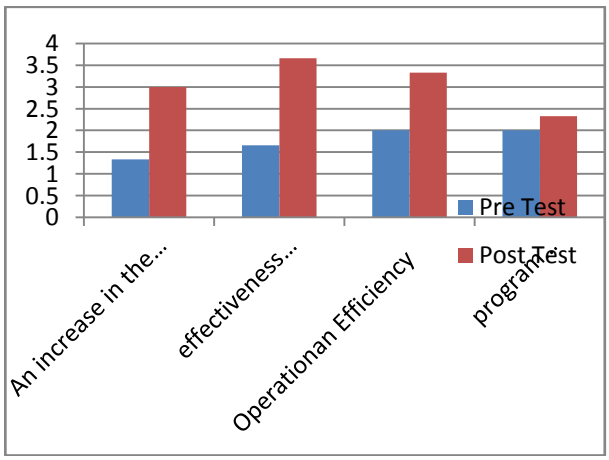
4.2 4.Result

Tabel 4.37 The percentage of Accumulated Results Pre and Post Test

No.	A Benchmark Strategy	*Pre Test*	*Post Test*	Percentage Increase In
1.	An increasing number of customers	**1.33**	**3**	**55.6 %**
2.	Effectiveness of marketing strategies	**1.66**	**3.66**	**54.6 %**
3.	Operational Efficiency	**2**	**3.33**	**39.9 %**
4.	Program development activities with the Customer event	**2**	**2.33**	**14.16 %**

4.3 The result of Comparison of *Pre and Post Test*

Based on the results of testing that has been done with testing Blackbox and Whitebox then can produce a performance comparison between the old system and the new system that judged from the level of influence of information systems track record of students and Alumni-based Customer Relationship Management (CRM) against the logging done by a user (user) in the BPKHA – i.e. UBL can be seen in the graph below:



Gambar 4.42 Comparison Graphic of *Pre and Post Test*

V. CONCLUSION

Based on the results of research and discussion, which is carried out starting from the stage of design to testing of information systems, the conclusion that can be drawn from this study are as follows:

a. From the results of the analysis and the design has been successfully created software information systems track record of students and Alumni-based *Customer Relationship Management (CRM)* for Logging, with the stages of Automation planning, analysis, design, implementation and testing. The system offers excellent information for needing the accreditation t o the University in terms of number of students and alumni from the results of the logging process conducted by students and alumni through this track record information system, and also provides information for both students and alumni on phase acquire, enhance, and retain with
varying features tailored to the results of the analysis.

b. Software information systems track record of students and Alumni-based *Customer Relationship Management (CRM)* to Automate Logging has can be used to perform logging alumni. Because of the results done resulting in the speed, accuracy, and flexibility through \\a process of measuring the whitebox and blackbox says that when the application is run, it looks that the node has executed one time. Based on these provisions in terms of the feasibility of software, these systems are qualified so it is able to reduce the errors that often occur. This information system is able to manage Student data and Alumni data i.e., add, modify, delete data and student and Alumni and also data print of alumni and students in the specification.

c. From the results of the comparison of Pre and Post Test that compares the degree of influence between UBL BPKHA manual systems and information systems track record of students and Alumni of the CRM-based as measured from the point of use to the user that is to the head BPKHA: Mrs. Yulfriwini, M.T. ; UBL BPKHA Staff: Mr. Projo and Mrs. Maslena it states that information systems track record of students and Alumni with more effective CRM-based percentage of 54.6% effectiveness and more efficient by providing a percentage of 39.9% of the manual BPKHA system on the use of UBL.

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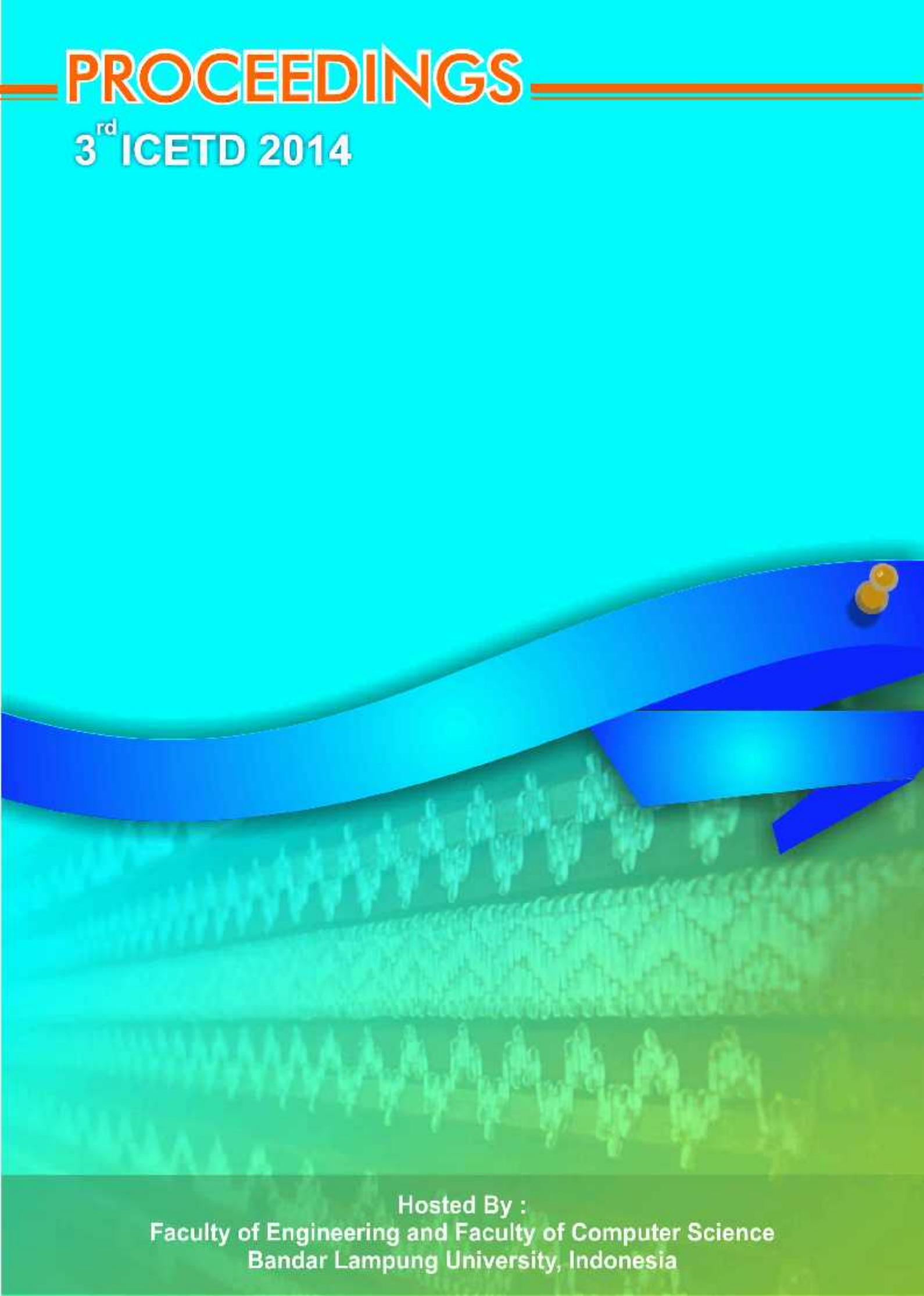

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