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International Conference on Engineering and Technology Development

3rd ICETD 2014

28, 29 October 2014, Bandar Lampung, Indonesia

Hosted By :
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
3rd ICETD Chairman

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Prototype Model Classification System Level Internal Audit Findings Based on Case-Based Reasoning in Education Quality Management

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Abstract— **This research aims to assure and improve the quality of education in educational institutions in the process of implementing the internal audit continuity with the classification based on audit findings CBR (Case Base Reasoning). Because there are times when the auditor is less precise in determining the appropriate classification level in giving findings on the findings resulting from the audit process itself. Levels of these findings consists of Major and Minor deficiency findings deficiency findings. Major deficiency findings that internal control weaknesses in the company which resulted in barriers to an organization on a unit within the organization to achieve the goals set. While Minor deficiency findings of internal control weaknesses in the company, which, although not to obstruct the achievement of the objectives of an organizational unit but need to be reported to management because if not corrected could hurt the company. In classifying the audit findings, the auditor should be given a long experience (case) in order to solve or make predictions about what might happen in a new situation or a problem with comparing the old and adjusting to the situation to see where the new situation is most suitable, it requires Case-Based reasoning means reasoning based on remembering previous experiences, a new problem is solved by considering the solution of old problems and then adapt the solutionto find the requirement softoday's problems.**

Keywords: Prototype, Case-Based Reasoning, Internal Audit.

I. INTRODUCTION

The quality of education is the ability of institutions and educational systems in empowering educational resources to improve the quality of the line with expectations or goals of education through effective education. In order to improve the quality of education that a lot of efforts made by educational institutions in particular that has been certified ISO 9001: 2008, by way of an internal audit of the education system. The quality of the education process is understood as the degree of fulfillment of the needs of customers or other interested parties, or also the level of fulfillment of the criteria **(Michalska, 2009)**

Auditing is a systematic process, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are met.

Internal audits, sometimes called first-party audits, carried out by, or on behalf of the organization itself for management review and other internal purposes, and may be the basis for a "Declaration of Conformity Self Organisation" Audit is needed in reviewing the quality management education in order to achieve the educational quality on an ongoing basis, by improving the findings generated in the audit process. Implementation of internal audit should also be improved to contribute to the achievement of corporate and strategic goals of the company. **(Milena, 2010)**.

Audit findings are the result of the evaluation of the collected audit evidence against audit criteria. Audit findings can indicate either conformity or nonconformity with audit criteria or opportunities for improvement. Levels of these findings consists of Major and Minor deficiency findings deficiency findings. Major deficiency findings that internal control weaknesses in the company which resulted in barriers to an organization on a unit within the organization to achieve the goals set. While Minor deficiency findings of internal control weaknesses in the company, which, although not to obstruct the achievement of the objectives of an organizational unit but need to be reported to management because if not corrected could hurt the company.

Bu sometim the auditor is less precise in determining the appropriate classification level in giving findings on the findings resulting from the audit process itself. And the auditor must remember classify long experience (case) in order to solve or make predictions about what might happen in a matter or new situations by comparing and adjusting to the old situation to see where the new situation is most suitable, it requires the Case-Based reasoning means reasoning based on remembering previous experiences, a new problem solved by considering the solution of old problems and then adapt the

solution to meet the needs of today's problems. Of the existing problems is idea to make Prototyping Model classification system based audit findings Case-Base Reasoning on quality management education.

II. PROCEDURE

The process of making a prototype is an interactive process and repetitive steps that combine the traditional development cycle. The prototype was evaluated several times before the stated end-user prototype was received. The figure below illustrates the process of building prototypes:.

Fig.2. Prototyping steps

III. ANALYSIS TECHNIQUES

Analysis and research using the method of comparative measurements / comparisons that can be used to test for differences in the suitability of an experiment on the output of a process. If it has an impact on the experimental results (experimental purposes), we will see a significant difference.

IV. RESULT

Based on the analysis and incorporation of models of CBR and ISO audit on the management of ISO 9001: 2008, *Case-based reasoning* (CBR) is a technique to solve the problem based on past experience that can be described as a circular process consists of four stages, (Aamolt, 1994) then obtained a prototype model of such audit in Figure 2

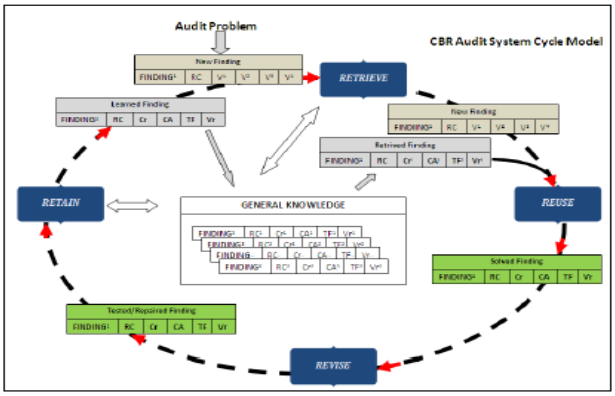

Fig 2. Audit Prototype Cycle

By using classification algorithm k-Nearest Neighbour with formula:

$$D(X,Y) = \sqrt{\sum_{i=1}^{n} (x_i - y_i)^2}$$

Which can be illustrated in Figure 3:

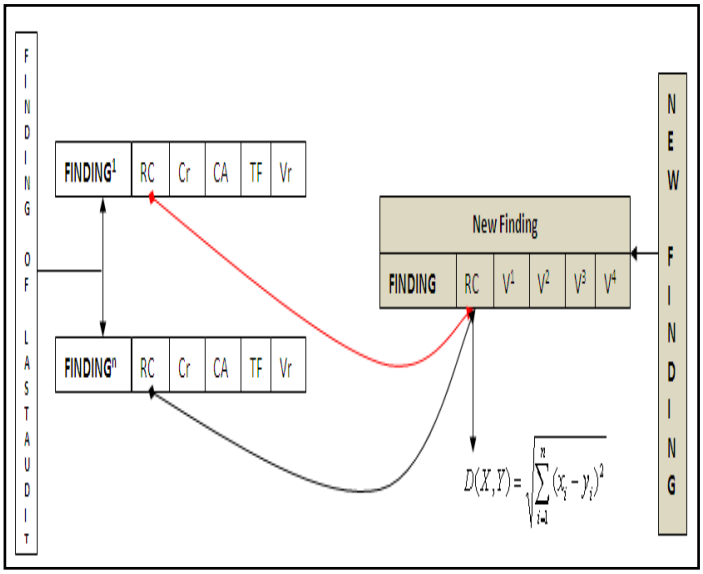

Fig.3 Retrieval Data Clasification

To test the results of the prototype model, the testing will be performed on the data calculation results achieving accreditation. Furthermore, the internal audit team will conduct pengklsifikasi findings to the level of Major, Minor and Improvement. Through several stages:

a) Completion of General Knowledg

TABLE I
COMPLETION OF GENERAL KNOWLEDGE

No	Butir	Pencapaian	Bobot	Hasil	Tingkat Temuan
1	7.1.1	2	**3.75**	7.5	Minor
2	7.1.2	0	**1.88**	0	Major
3	7.1.3	1	**3.75**	3.75	Major
4	7.1.4	0	**1.88**	0	Major
5	7.2.1	3	**1.88**	5.64	Improvement
6	7.2.2	3	**1.88**	5.64	Improvement
7	7.3.1	4	**1.88**	7.52	Improvement
8	7.3.2	4	**1.88**	7.52	Improvement

b) Data Retrieval of Knowlegde and Case

TABLE II
COMPLETION OF GENERAL KNOWLEDGE

N0	Butir	Nilai	Bobot	Hasil
1	7.1.1	2	**3.75**	7.5
2	7.1.2	4	**1.88**	7.52
3	7.1.3	1.5	**3.75**	5.625
4	7.1.4	4	**1.88**	7.52
5	7.2.1	4	**1.88**	7.52
6	7.2.2	4	**1.88**	7.52
7	7.3.1	4	**1.88**	7.52
8	7.3.2	4	**1.88**	7.52

CASE NO	DATA-1	DATA-2	DATA-3	DATA-4	DATA-5	DATA-6	DATA-7	DATA-8
1	0	2.73	1.940	2.73	2.73	2.73	2.73	2.73
2	7.984	8.517	6.114	8.517	8.517	8.517	8.517	8.517
3	3.881	5.168	1.940	5.168	5.168	5.168	5.168	5.168
4	7.984	8.517	6.114	8.517	8.517	8.517	8.517	8.517
5	2.820	2.129	2.397	2.129	2.129	2.129	2.129	2.129
6	2.820	2.129	2.397	2.129	2.129	2.129	2.129	2.129
7	2.73	0	3.652	0	0	0	0	0
8	2.73	0	3.652	0	0	0	0	0
Min Encludians	0	0	1.940522	0	0	0	0	0

c) Perform testing of knowledge with the closest distance the new audit data

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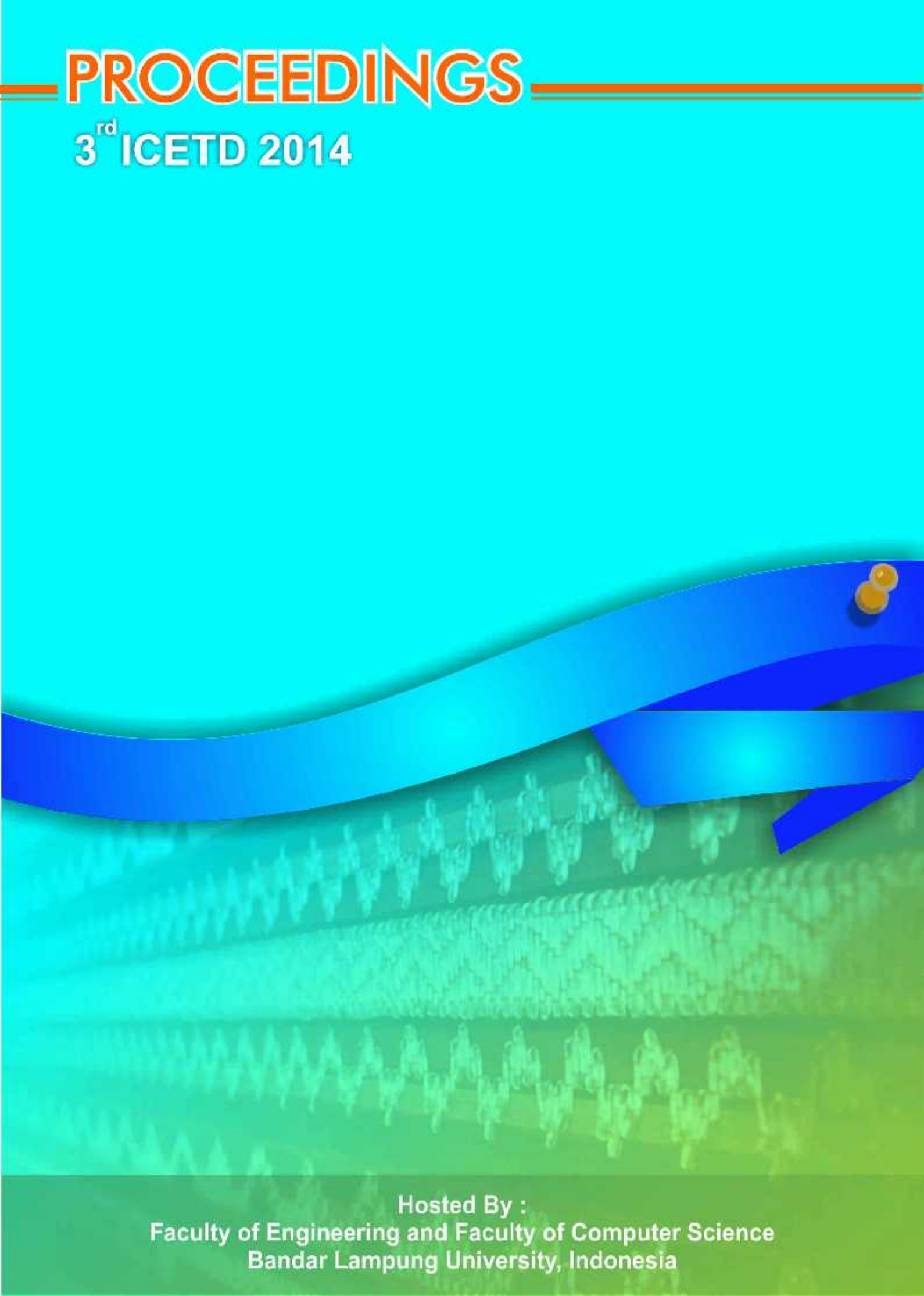

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