DEVELOPING KNOWLEDGE MANAGEMENT SYSTEM USING ACTION CASE METHODOLOGY

RUDIMAN

UMS
UNIVERSITI MALAYSIA SABAH

FACULTY OF COMPUTING AND INFORMATICS
LABUAN INTERNATIONAL CAMPUS
MALAYSIA SABAH UNIVERSITY
2015

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UMS
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THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCES

FACULTY OF COMPUTING AND INFORMATICS
LABUAN INTERNATIONAL CAMPUS
MALAYSIA SABAH UNIVERSITY
2015

UNIVERSITI MALAYSIA SABAH

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Disahkan oleh,

NORAZLYNNE MOHD. JOHAN @ JACKLYNE
PUSTAKAWAN
UNIVERSITI MALAYSIA SABAH
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DR. ZAMHAR ISWANDONO AG ISMAIL
Penyelia

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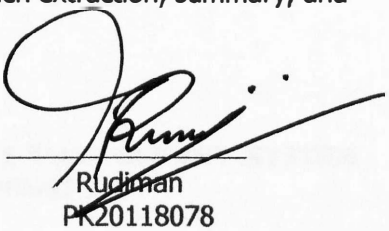

27 March 2015

Rudiman
PK20118078

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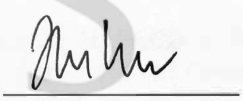
CERTIFICATION

NAME	:	**RUDIMAN**
MATRIC NO	:	**PK20118078**
TITLE	:	**DEVELOPING KNOWLEDGE MANAGEMENT SYSTEM USING ACTION CASE METHODOLOGY**
DEGREE	:	**MASTER OF SCIENCES (COMPUTER SCIENCES)**
VIVA DATE	:	**07 July 2014**

DECLARED BY:

1. **SUPERVISOR**
   Dr. Zamhar Iswandono Ag Ismail — Signature



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2. **CO-SUPERVISOR**
   Jonathan Likoh Juis

ACKNOWLEDGMENTS

I am grateful to the God for the good health and convenience provided that were necessary to complete this thesis.

I wish to express my sincere thanks to my supervisor Dr. Zamhar Iswandono Bin Awang Ismail and co supervisor Mr. Jonathan Likoh Juis, Principal of the Faculty of Computing and Informatics, for providing me with all the necessary facilities for the research.

I place on record, my sincere thank you to Prof. Assoc. Dr. Ag Asri Ag Ibrahim as Dean of the Faculty of Computing and Informatics, for the continuous encouragement and spirit for researcher in finishing this research.

I am also grateful to Muzaffar Hamzah as internal examiners from Labuan International Campus of Malaysia Sabah University, Prof. Assoc Dr. Lin Tongkaw as external examiners from Thailand of Songkhla Rajabat University, Dr. Laura Penny Jack, Dr. Norbayah Mohd Suki, Dr. Tamrin Amboala, Nona Masnie Mohd Nistah, Dr. Carolyn Salimun @ Jackson, Mr. Soffri Yussof, as lecturer, in the Department of Multimedia and E-Commerce of FKI-UMSKAL. As well as official staff of FCI namely Mas Adi Alimin and Faridah Adam who always helped the researcher during the research study. I am extremely thankful and indebted to him for sharing expertise, sincere, valuable guidance, and encouragement me. I take this opportunity to express gratitude to all of the Department faculty members for their help and support.

I also thank to my father are Made.S and my mother Hj.Pessa is for the unceasing encouragement, support to me and attention from Samarinda at Kalimantan of Indonesia, and I am also grateful to who supported me through this venture of research who have to support and motivate each other with the author of early registration as a new student at Universiti Malaysia Sabah on 24 September 2011 to 2015, among others, Mr. Hendra Yuni Irawan, Haviluddin, Irman Irawan, Awang Harsa Krida Laksana, Emilia Rabiah, Eny Listiani, Dewi Herviani, Suci Yuniarti, Ika Fristiawati, Ariyanti and Raden Ilyas Fatahillah.

I also place on record, my sense of gratitude to all people who directly or indirectly have lent their hand in the venture of this research study.

Rudiman
27 March 2015

ABSTRACT

Many software applications in the world have been created and developed to help users in their work, but only few of software applications that have been built to fulfil the desires and requirements of user. The research is to find a problem in system development, it concerns for the user requirements in the portal site of FCI. The aim of this research study is to design and develop a knowledge-based academic portal within the content management system (CMS). The CMS was developed based on the user requirements analysis through the combination of the analysis of quantitative methodology for requirement of the system. The spiral method of the SDLC model within life cycles of action research methodology was used to analysis the system requirements for developing the knowledge management system. The cycles of action research is an approach of life cycles for system implementation and problem diagnosing on the website of FCI based on the user requirements by analysis the non-functional and functional requirements through disseminating of the questionnaire. The results of data collection and quantitative analysis were processed through SPSS's application and continued to make the prototype system through the Spiral Model of SDLC. It showed that the results of requirements analysis for knowledge Management system development in the user account for academic portal was the abstract and publication article lists in the academic portal by using a FREE RARS MODEL (*Framework Requirement Engineering, Rudiman Action Research and Spiral Model*).

Keyword: The Free Rars Model, the abstract and publication article lists in the academic portal.

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ABSTRAK

MEMBANGUNKAN SISTEM PENGURUSAN PENGETAHUAN MENGGUNAKAN TINDAKAN KES METODOLOGI

Pelbagai aplikasi perisian telah dihasilkan di dunia yang dibangunkan untuk membantu pengguna dalam memudahkan kerja, namun hanya beberapa aplikasi perisian sahaja yang telah dibina dapat memenuhi kehendak dan keperluan pengguna. Kajian ini dijalankan untuk mencari masalah dalam pembangunan sistem bersesuaian dengan keperluan pengguna di dalam laman portal FCI. Tujuan kajian ini untuk mereka bentuk dan membangunkan sebuah portal akademik berasaskan pengetahuan dalam sistem pengurusan kandungan (CMS). CMS telah dibangunkan berdasarkan analisis keperluan pengguna melalui gabungan analisis metodologi kuantitatif mengikut keperluan sistem. Kaedah lingkaran model SDLC dalam pendekatan kitaran hidup kajian tindakan telah digunakan untuk menganalisis keperluan sistem dalam usaha membangunkan sistem pengurusan pengetahuan. Kitaran kajian tindakan adalah satu pendekatan kitaran hayat bagi pelaksanaan sistem dan masalah diagnosis di laman web FCI berdasarkan keperluan pengguna dengan analisis keperluan bukan fungsi dan fungsi melalui penyebaran soal selidik. Hasil pengumpulan data dan analisis kuantitatif diproses menggunakan aplikasi SPSS dan seterusnya membentuk sistem prototaip melalui Model Spiral daripada SDLC. Hasil kajian menunjukkan penggunaan MODEL PERCUMA RARS (Kerangka Kerja Keperluan Kejuruteraan, Kajian Tindakan Rudiman dan Model Spiral) telah memudahkan capaian pengguna terhadap senarai artikel abstrak dan penerbitan dalam portal akademik.

Kata kunci: *The Rars Model Percuma, senarai artikel abstrak dan penerbitan dalam portal akademik.*

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LIST OF ABBREVATION

AR	-	Action Research
NFR'S	-	Non-Functional and Functional Requirements
FREE RARS MODEL	-	Framework Requirement Engineering Rudiman Action Research and Spiral Model
CAR	-	Canonical Action Research
KP	-	Knowledge Portal
KMS	-	Knowledge Management System
CMS	-	Content Management System
KCMS	-	Knowledge Content Management Systems
CLO	-	Chief Learning Officer
SNS	-	Social Network System
UMS	-	*Universiti Malaysia Sabah*
FKI-UMSKAL	-	*Faculti of Komputeran and Informatik – Universiti Malaysia Sabah Kampus Antarbangsa Labuan*
FCI's	-	Faculty of Computer and Informatics
UKM	-	*Universiti Kebangsaan Malaysia*
SSS		School of Social Science
SDLC	-	System Development Life Cycles
MVC	-	Model Views Controller
SNS	-	Social Network Sites
DFD	-	Data Flow Diagram
ERD	-	Entity Relationship Diagram
UML	-	Unified Modelling Language
ERD	-	Entity Relationship Model
FOD	-	Flow of Document Context

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CHAPTER 1

INTRODUCTION

1.1 Foreground

Right now the internet is used to find solutions and share information from websites such as Academic Portal, Blogger of personal websites, and Social Network. By accessing the internet a person is able to share a lot of information without being limited by space and time, making some people highly dependent on the internet to complete their tasks and work. Today with the expansion of internet capabilities through Web 2.0 sites, a person can communicate by offering benefits and contribute to express their ideas through the combination of new portal site with the collaboration by Social Network tools like a Facebook, Twitter, Google plus, YouTube, and Blog site.

The phenomenon of Web 2.0 through the social media sites is so dominant in their life, for example, within the scope of higher education both outside and inside the campus. Academic practitioners often use the social media or personal blogs to convey the information through the internet, for example, each person (student and lecturer) makes a personal Web Blogs for promoting articles, tutorials, publications, profile pictures, background of the study, and creating an knowledge articles and displaying them by online based on their experiences.

1.2 Research Background

The approach a used social network in campus environment as learning process the is one of inspiration sources among the research papers from the Songkhla Rajabhat University, Thailand and Sabah Malaysia University is one of the researchers of the paper (Tongkaw, Ismail, & Tongkaw, 2009), where students are using a social media within big numbers in a campus environment with social media utilization in the learning process and one of the inspirations of the social process of e-learning of knowledge as a library resource where this matter is one of the Social Media utilization in a campus environment.

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Based on the background of the issues, ideas, and previous research, the researcher intends to continue this research with the creation and developing a website within a knowledge management system. It is applied in official campus website of FKI-UMSKAL.

The utilization of academic websites suggested to the high authority to create a website based on the purposes by sharing our publication in the campus environment through the website. Through these ideas, the researcher starts the study literature from the paper publication in order to research the development of a prototype website for the future by online which is incorporated knowledge management system with social media site. The main goal is for the requirements of academician in order to use this facility at work and maximize their capabilities and skills to explore or upload their ideas for a useful research in the academic progress of Computing and Informatics Faculty.

In addition to academicians and practitioners have role in the website and each student allows involving, participating, and sharing the ideas and desires that it hopes related to research that they make in Campus of Science Informatics. This matter is as a learning process on a website or portal site grounded in knowledge management systems. This research hopefully can support the vision and mission of the academic of Computing and Informatics Faculty where the idea can work better as a website pilot project for other faculties in Malaysia Sabah University and other Universities in Malaysia.

In this research, the researcher starts to develop an online website which is incorporated with the content knowledge and social media on the portal site. There are four (4) sub-sections that provide the justification for applying the KMS (Knowledge Management System) as research for content management system on the website construction, namely (i) create and develop a prototype website, (ii) the abstract of the journal as a paper published in the content management system, (iii) non-functional and functional requirements for respondent analysis data, and (iv) the combination of the methodologies between an action research and spiral model.

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1.3 Research Motivation

A written article by Neil Chang (2012) in the newspaper of the Daily Express, it is a newspaper based in Sabah, it wrote about the visit of Professor Shamsul Amri, a prominent Professor in Social Studies in "Universiti Kebangsaan Malaysia (UKM)" to the School of Social Science (SSS) at Universiti Malaysia Sabah (UMS) in January 2012. Professor Shamsul Amri suggested that his visit to the school to suggest the best idea. Each Faculty in University of Malaysia Sabah created a website as a portal site based on the knowledge (Chan, 2012).

Inspired by Professor Shamsul Amri, the researcher intuitively starts this research to develop an online website in which will incorporate knowledge content and social media. The main goal of the researcher is for the academic practitioners where they can use these facilities at work and maximize the capabilities and skills to find or upload the ideas for a useful research on the academic progress at the Faculty of Computing and Informatics.

Based on the previous research was conducted by academics in the Songkhla Rajabhat University in Thailand. According to Sasalak (2009) *"the high usage of social media among academics in higher institutions of learning within the South East Asian region's environment"* it convinced the researcher to continue and implement this research with the social media utilization in the official academic Website of Computing and Informatics Faculty in the Malaysia Sabah University".

In addition, one of the purposes of the researcher is to help and increase the achievement of the vision and mission of Computing and Informatics Faculty by utilizing the knowledge of the lecturers into a knowledge management system. The commitment to excellence concerns in the field of technology, scientific, and information to achieve an international recognition through the learning, research, publications, and community service and a development in the specialization of knowledge and quality is based on current needs and aspirations in the context of the knowledge publication and research. Therefore, it is hoped this research can reach the main purposes of the college for mutuality of knowledge shared between lecturer to postgraduate student, lecturer to lecturer, postgraduate student to lecturer, and postgraduate students to postgraduate student.

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