

## Design and Development Website of Research Institute, Case Study: Universitas Negeri Makassar

### Research Notes

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### ABSTRACT

The aim of this paper was to develop a website of the research institute at Universitas Negeri Makassar, that can be accessed by many people to check information about research anytime and anywhere without the limitations of time and location so that the disclosure of information research can be done. The method used in this research is the Software Development Life Cycle method with the three stages namely Initiation Phase, Development/Acquisition Phase, and Implementation Phase. The development of this information system using PHP and CodeIgniter as its framework. This system development using PHP programming language and CodeIgniter Framework with MySQL database.

**Keywords:** CodeIgniter, Information Systems, Website, Research Institute, Universitas Negeri Makassar

### ABSTRAK

*Tujuan dari tulisan ini adalah dikembangkannya suatu Website Lembaga Penelitian di Universitas Negeri Makassar yang dapat diakses oleh berbagai pihak yang terkait dengan penelitian kapan saja dan dimana saja tanpa adanya batasan waktu dan lokasi sehingga keterbukaan informasi penelitian dapat terlaksana. Metode yang digunakan pada tulisan ini yaitu Metode Software Development Life Cycle dengan tiga tahapan yaitu fase awal, fase pengembangan, dan fase implementasi. Pengembangan sistem informasi ini menggunakan bahasa pemrograman PHP berbasis pada Framework CodeIgniter dengan basis data MySQL.*

**Kata Kunci:** CodeIgniter, Sistem Informasi, Website, Lembaga Penelitian, Universitas Negeri Makassar

## INTRODUCTION

The technology is applied properly will reduce the pathways work process step procedure, which was performed manually will be replaced by the system. Beneficiaries of such technology are the basis for applied of management information system (MIS).

In this management information system, which was originally based reporting hardcopy replaced with softcopy based reporting. Hardcopy-based reporting is intended to prevent and detect any plagiarism regarding their reporting and archiving based softcopy. The collection that is both soft copies will be very useful for users who would come, so it is necessary that softcopy gathered it can be documented. The development and progress also open great opportunities for the management and utilization of information quickly and accurately. These developments change the way people view information. Initially, the public obtained initial information from the news through printed newspapers (*hardcopy*), then turned into a new media in the form of softcopy that could be in the form of online media that they consider more practical, easy, and anytime can be accessed. With the development of this new media, the plagiarism problems that often occur in Indonesia such as Education sector and Entertainment sector (*music*) can be detected. Based on Biaggi (2005: 89), the entertainment industry (*music*) is the most vulnerable sector of piracy which resulted in many industrial relationships that suffered huge losses due to the impact of the development of Internet technology. The technology is applied properly will reduce the pathways work process step procedure, which was performed manually will be replaced by the system (Ahmar, Rusli, Rahman, 2016).

Research Institute is an organisation or business unit that functions to manage research data lecturers as efforts to career development as well as improving the

quality of the lecturers. At this time, the management of research data lecturers still utilize Microsoft Excel. Management of research data such as this can also lead to errors both intentional and unintentional. And not only that, the integrity and data security could not be guaranteed. Research Institute is necessary to plan an information system that is useful for documenting internal research at each campus. The information system in question is a research management information system based websites. Nowduri (2011) said that Information systems can be categorised into three types: transactional processing systems (TPS), management information systems (MIS) and expert systems.

In addition document process of research, information management systems can also be used as a decision-maker for the leadership in an organization. MIS-based computer can provide information (*as an ingredient in decision making*) have a standard, valuable and qualified, i.e. information that is relevant to the company/organization, accurate and absolutely the information that is timely or not stale or expired. The MIS based on archive storage computers or documents made by the manager to computerized more effectively and efficiently than ever before using the storage manually. The MS based on computer computerized storage can be processed quickly and in the quest does not require a long time, but it can be treated as a digital document (Anggadani, 2013).

One of the strategic plans of Universitas Negeri Makassar on the field of development of Tridharma PT (especially for research) is to improve research administration services through ICT based on system administration services. The plan is described into main indicators of work; the percentage of lecturers use ICT is aimed to be 70% in 2017 and in 2018 by 80%. The implementation of e-administration in each unit is targeted to reach 85% in 2017 and 90% in the year

2019. One of the strategic plans of Research Institute of Universitas Negeri Makassar on the topic of technology, information, and communication is institutional administration based on ICT. Base on this strategy, to be achieved with the maximum so must be to a study about the development Website of Research Institute at Universitas Negeri Makassar, that can improve the quality, monitoring and evaluation about the management of research at Universitas Negeri Makassar and can improve user satisfaction. It is similar to the opinion of Ajoye (2014) that the systems implementations, services and information can significantly improve the quality of user satisfaction.

The model used in this study is Research and Development (R&D). According to Sugiyono (2013), the research methods of R&D is the research methods used to obtain a specific product and that the product can be used properly to test the effectiveness of the product. Software Development Life Cycle (SDLC) is a method that using in this research. SDLC have three phases which are; initiation phase, development-acquisition phase, and implementation phase. The flow of the SDLC as shown in figure 1. Implementation of this system using PHP: Hypertext Preprocessor (PHP) programming language with CodeIgniter framework employ a MySQL database and Apache web server (Ahmar, 2012; Ahmar 2013). The research was conducted at the Research Institute of Universitas Negeri Makassar, AP Pettarani Street, Makassar, Indonesia.

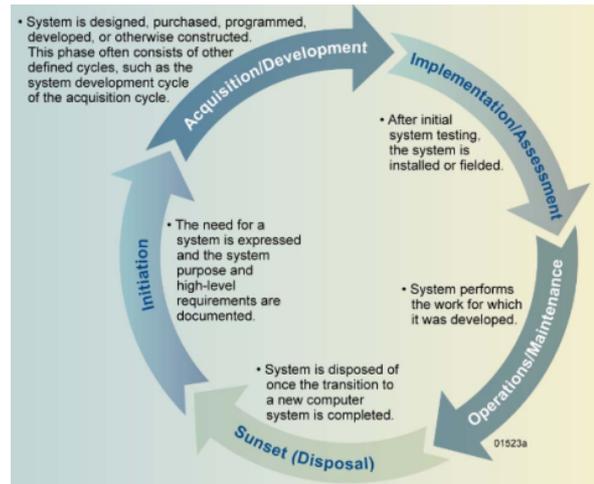


Figure 1 The System Development Life Cycle (Radack, 2009)

## DISCUSSION

From the observations, the aim of this Website of Research Institute is to assist the process of delivering information both locally and nationally. In addition, this website provides information on research data at Universitas Negeri Makassar.

### *Design*

#### *1) Database*

In accordance with the analysis that has been done, then the implementation of its database is asfollowing:

##### a. Table of setting

This table contains the setting up websites that contain the main data.

pengaturan	
nama_unit	varchar(255)
alamat	varchar(255)
kelurahan	varchar(100)
kecamatan	varchar(100)
kabupaten	varchar(100)
propinsi	varchar(100)
website	varchar(100)
email	varchar(100)
telp	varchar(20)
nip	varchar(100)
sambutan_unit	text
logo	varchar(100)
activation_key	varchar(100)
header_image	varchar(100)
facebook	varchar(150)
twitter	varchar(150)
youtube	varchar(150)
google_plus	varchar(150)
yahoo	varchar(150)
word_filter	text
set_menu_label	text
cache_file	enum(y,n)

b. Table of login *pustu* and staf *pustu*

login *pustu* table is a table that manages login of Studies Center of Research Institute of Universitas Negeri Makassar include data of the chairman, secretary and members of study center is located in the table staf *pustu*.

login_pustu	
id	int(10)
username	varchar(10)
password2	varchar(100)
nama	varchar(100)

staf_pustu	
id	int(10)
id_pustu	varchar(100)
nama	varchar(100)
nip	varchar(25)
status	enum(kepala,pengawas,pegawai)
foto	varchar(200)

c. Table of users

This table is a table that manages the login manager of the website of Research Institute of Universitas Negeri Makassar.

users	
username	varchar(100)
password	varchar(150)
password2	varchar(100)
level	enum(administrator,operator,uptd)
last_logged_in	datetime
ip_address	varchar(20)
display_name	varchar(100)
email	varchar(150)
activation_key	varchar(150)

d. Table of posts and category

This posts table is a table that manages the input information that includes news, page, announcements, breaking news, and welcome the head of the institution.

posts	
post_id	bigint(20)
post_title	varchar(255)
post_date	date
post_type	enum(post,page,pengumuman,sekilas_info,sambutan_unit)
post_content	text
username	varchar(100)
post_parent	bigint(20)
category_id	smallint(6)
post_image	varchar(100)
order_pages	smallint(6)
slug	varchar(255)

This category table is a table that contains news categories.

category	
category_id	smallint(6)
category	varchar(255)

e. Table of file and file\_category

This file table is a table that contains the files that can be downloaded by visitors.

file	
id	int(11)
category_id	smallint(6)
title	varchar(255)
description	varchar(255)
type	varchar(50)
size	int(11)
file	varchar(100)
counter	int(11)
access	enum(public,private)

The file\_category table is a table which is a category of files that have been set in the file table.

file_category	
category_id	smallint(6)
category	varchar(255)
parent	smallint(6)

f. Table of photo and album

This photo table is a table that contains the photographs on this website.

photo	
photo_id	int(11)
photo_title	text
photo_thumb	varchar(255)
photo_original	varchar(255)
album_id	smallint(6)
type	enum(photo,video)

The table is a table that consists of photos that are on the table photo.

album	
album_id	smallint(6)
album	varchar(255)

g. Table of Polling, question and answer

The polling table is a table used to input the poll that will be applied. In this polling table will contain the questions that on the table the question and the results of this polling will be collected in the table answers.

polling	
id	int(11)
jawaban_id	int(11)
ip_address	varchar(20)
tanggal	date

pertanyaan	
pertanyaan_id	int(11)
pertanyaan	varchar(255)
tanggal	date
status	enum(y,n)

jawaban	
jawaban_id	int(11)
pertanyaan_id	int(11)
jawaban	varchar(255)

h. Table of *kata\_motivasi*

Table motivation is a table containing the words motivation for website visitors.

kata_motivasi	
id	smallint(6)
content	varchar(255)
author	varchar(255)

i. Table of attachment

The link table is a table that is used to input the links from other websites such as the Institution Website,

Ministry of Higher Educationstekdikti, etc.

tautan	
id	smallint(6)
url	varchar(255)
keterangan	varchar(255)

j. Table of *tahunakad*

This table is a table that is used contains the year of implementation research data.

tahunakad	
id	smallint(6)
tahun	varchar(5)
nama	varchar(20)

k. Table of agenda

This table is a table that contains data about the agenda of Research Institute.

agenda	
id	bigint(20)
kegiatan	varchar(255)
mulai	date
selesai	date
keterangan	text

l. Table of *data\_peneliti* and *data\_penelitian*

The *data\_penelitian* table is a table contains the existing researches at Universitas Negeri Makassar and related researchers data on *data\_peneliti*.

data_penelitian	
id	int(100)
jenis	int(2)
ketua	int(4)
anggota1	int(4)
anggota2	int(4)
anggota3	int(4)
unit	int(2)
judul	varchar(500)
biaya	varchar(20)
luaran	varchar(100)
tahun	int(3)

data_peneliti	
id	int(10)
nip	varchar(25)
nama	varchar(100)
idunit	int(2)

m. Table of banner

The banner table is a table that contains the banner of this website.

banner	
id	smallint(6)
url	varchar(100)
keterangan	varchar(255)
gambar	varchar(100)

2) User Interface

After the design of the database, the next step is design of user interface. Interface design is an important to design an information system based on the computer (Sridevi, 2014). Bakar & Long (2013) said that the design of the interface is user appeal. The interface design of this system can be seen below.

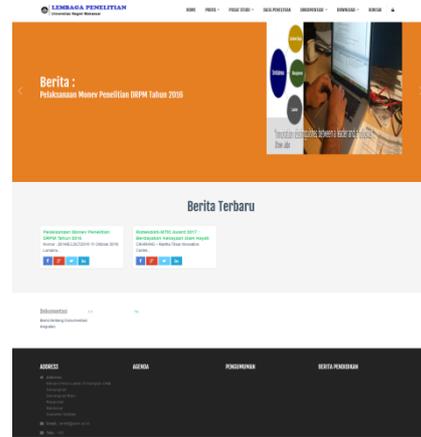


Figure 2. Main Page

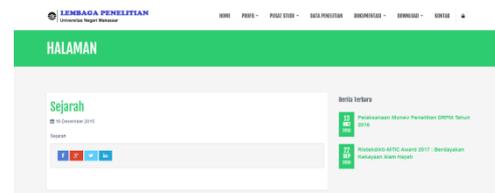


Figure 3. Profile Page

a. Main Page

This section contains the information that existed at the Research Institute of the Universitas Negeri Makassar. This section includes four latest news, documentation, agenda, and announcements (figure 1).

b. Profile

This section contains the profile of the Research Institute of the Universitas Negeri Makassar, which includes history, leadership, and other profiles (figure 2).

c. Studies Center

This section contains the profile of the Studies Center of Research Institute of Universitas Negeri Makassar. In this section are presented on the personnel of the Studies Center (figure 3).

d. Data Research

This section contains the research data based skim Makassar State University research.

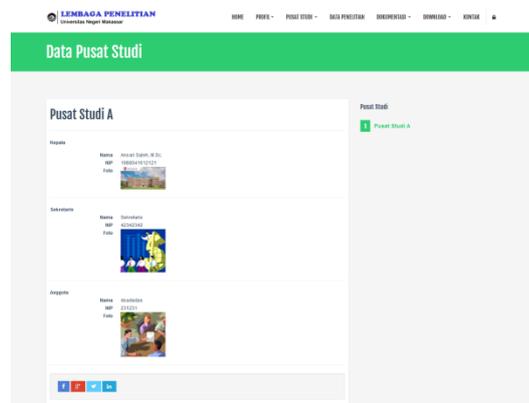


Figure 4. Profile of Study Center

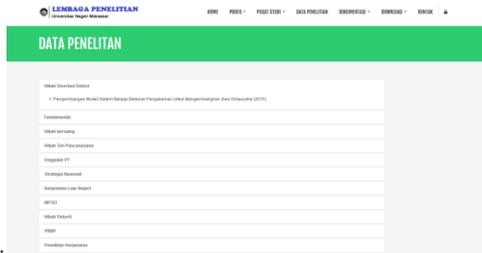


Figure 5. Home of Data Research

e. Documentation

This section includes the documentation of existing activities at the Research Institute of Universitas Negeri Makassar. This section consists of a photo album and its contents.



Figure 6. Documentation

f. Download

This section contains information on the documents that can be downloaded by visitors. These documents are managed by the Research Institute of Universitas Negeri Makassar. This

section will contain guidelines on research and examples of study formats.



Figure 7. Download

g. Login page

In the *Login* page, in addition to filling the *username* and *password*, a user must also select group *login*, whether as an Administrator of Website or Manager of Study Center page.

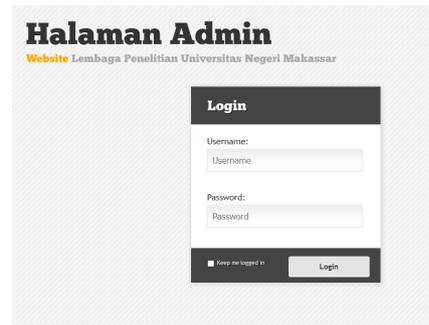


Figure 8. Login Page

*Examination Function*

Here are the results of testing to determine the function of the system has been running as planned.

Table 1. Result of Testing

No.	Function	Yes	No
1	<b>Login</b>		
	Log in accordance with the Username, Password, and status (admin or operator)	v	
2	<b>News</b>		
	Adding news categories	v	
	Edit and delete categories news	v	
	Adding a news	v	
3	<b>Download</b>		
	Making a category of file download	v	
	Add a file download	v	
	Delete file download	v	
4	<b>Photos and Albums</b>		
	Making a photo album	v	
	Addition of photos to photo album	v	
5	<b>Agenda</b>		
	Addition an agenda	v	
6	<b>Polling</b>		
	Addition polling	v	
	Edit and delete polling	v	
7	<b>Motivation Quotes</b>		
	Addition quotes	v	
8	<b>Announcement</b>		
	Addition an announcement	v	
	Edit and delete announcement	v	
9	<b>FlashNews</b>		
	Addition a flash news	v	
10	<b>Research Data</b>		
	Addition a research data	v	
	Edit and delete research data	v	
11	<b>Data of StudyCenter</b>		
	Addition a study center	v	
	Edit and delete study center	v	
	Addition a data for studycenter	v	

All of the graphics shown above illustrate that the design and development

website of Research Institute of Universitas Negeri Makassar has been done in the previous stage. So that, the remain stage of needs analysis and design phases of the data results can be quite good for testing the functions of the features of the website. From this point it has been done and everything works fine.

## CONCLUSION

Overall, the works of web design are very handful to fetch the data and to mediated communication. The analysis of research data, the conclusion from this paper is that the development website of Research Institute of Universitas Negeri Makassar to communicate information to visitors and researchers through this website more easily.

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