DEVELOPMENT OF AN ONLINE RESEARCH ACCESS PORTAL FOR THE BULACAN STATE UNIVERSITY

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Abstract— **The major concern of the research paper is the development of a web-based access of researches intended for the Research and Development Office of the Bulacan State University. The major function of the system is toorganize the records of all researches of the different colleges in the university including faculty and student researches through online access. The system is capable of uploading and viewing research outputs. In order to develop a quality web-based application, Waterfall Model was used. The system was developed using software such as AJAX, JQUERIES, JavaScript, and PHP as the development tools and XAMPP for the website's backend application. The study was evaluated based on the following software evaluation criteria; functionality, reliability, usability, maintainability and security. The study was interpreted as "Very Acceptable" which shows that the developed system is highly suitable for implementation.**

Keywords: online, research; portal; bulacan university.

I. INTRODUCTION

Everyone is aware that Information Technology (IT) has played a very significant role in taking businesses and educational institutions to new heights. Before the advent of computers and relevant technology, business and information management were totally done using manual resources. As a result, the time taken to complete a task was more, quality of work was not up to the mark, and the procedures also tended to be more complicated (Rampur,2010).

However, as computers started to be used in business establishments, the processing of work got more stabilized. These technologies are used in almost all sectors such as accounts and payroll management, inventory management and control, shipping functions, data and database management, financial analysis, software development, security control and many other essential fields. The end result of modern computing is increased productivity and quality.

Organizing and administering the activities that normally occur in any day-to-day business office environment, a repetitive manual task can be lessened significantly through the application of technology. Management system is made up of people interacting with other people and machines that, together, set the goals and objectives, outline the strategies and tactics, and develop the plans, schedules and necessary controls to run an organization (Genviere, 2009).

Research Information System is a database storing data on current research by organization and people, usually through some kind of project activity. There is an increasing awareness of the need for quality research management (information) system: for researchers: easy access to relevant information and associated software, processor power, storage systems and – where any necessary – detectors to collect more data to overcome incomplete or inconsistent information for research and administrator: easy measurement and analysis of research activity and easy access to comparative information, for research councils: optimization of funding process, for entrepreneurs and technology transfer organizing: easy of retrieval of novel ideas and technology in a knowledge-assisted environment, easy access to information, software and computer power to allow easily-assimilated presentation of research results in appropriate context.

II. BACKGROUND OF THE STUDY

The researchers studied the problems encountered by the Research and Development Office concerning managing records of researches in the university. It is much difficult for them to organize and find a specific study or research every now and then. The researchers will find a solution for this problem by creating a wed based application that will suite for the clients need and for the benefits of the faculty and students conducting researches.

A. Research Objectives

The study aims to develop an Online Research Access Portal intended for the Research and Development Office of the Bulacan State University

Specifically, the study sought to

• Design an online research access portal to manage researches

• Create the online research access portal as designed

• Test and evaluate the acceptability of the online research access portal.

B. Scope and Delimitation

The study is a development of an online research access portal for the Bulacan State University's Research and Development Office. The researchers considered several system functionalities which were incorporated into the developed web-based portal as follows; user account for the Research Director and Coordinators for every college, manage researches both for students and faculty, uploading of thesis, journals and publications through the online information system, filtering of records and report generation. The membership is controlled by the administrator and only the research coordinators of every college are given accounts and access to the internal components of the portal while the viewing of the website can be access by the public users. The system was evaluated by selected students, RDO staff, selected research coordinators and IT experts.

III. METHODOLOGY

The study is an applied research wherein a prototype of the system was developed, tested and evaluated. The development was based on the assumption that the member colleges are equipped with the necessary hardware for online communication.

A. Project Design and Development

The system is designed wherein the research coordinators from different colleges can connect to the admin as shown in the conceptual model in Figure 1.
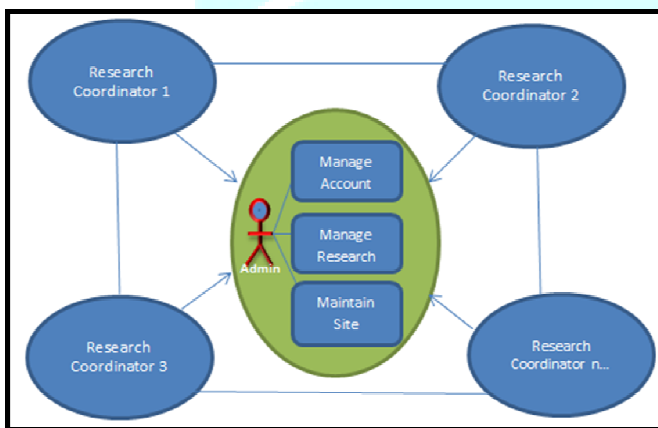

FIG 1: Conceptual Model of the Online Research Access Portal

The figure shows that different colleges connected to the system wherein they can submit necessary research outputs such as student and faculty researches / journals while an administrator manages the site. In this design the system is available to all colleges of the university.

The system was analyzed and designed by employing the USE Case as shown in Figure 2. This is the design of the web portal for each member college. This design is based on the function of the research department in Bulacan State University

including satellite campuses. The Research and Development Office is under the office of a Vice President for Research and Extension, and supervised by the Research Director. The university is composed of different colleges; each college is represented by a Research Coordinator. The Research Coordinator is responsible for submitting all the completed student and faculty researches including title and the abstract.

The figure shows the different actors in the system, the research director, the research coordinator and public user. As Research Director, his/her access to the system are:

1. Browse accomplished researches

2. Manage the Research coordinators information and account

3. Post events and announcements regarding research activities in their college or university

4. Send private messages to researcher coordinators in the group

5. Maintain college or university researches / journals

6. Manage accomplishment reports

7. Generate Research reports

The Research Coordinator access to the system includes:

1. Submit completed faculty and student Research/Journal

2. Submit Accomplishment Reports

3. Browse accomplished researches

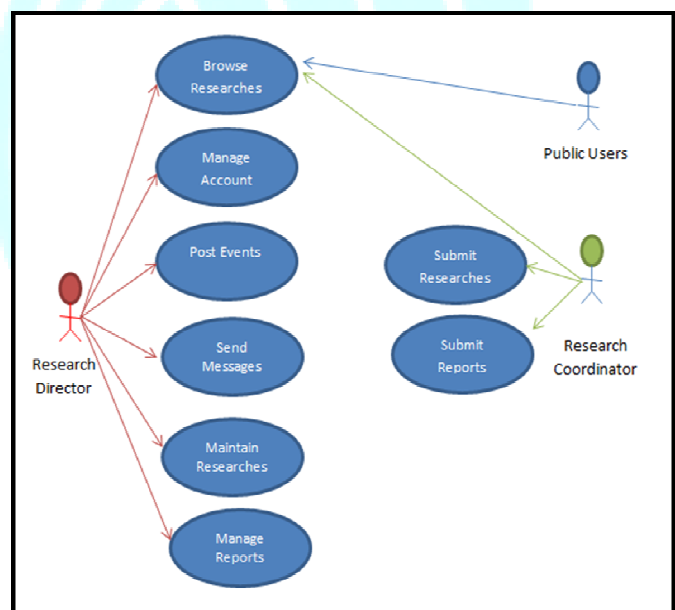The Public User's access to the system is:

1. Browse accomplished researches

FIG 2: USE Case Design Analysis of the System

After the functional design of the system, it was created using network programming using the available resources.

B.   Testing and Evaluation Procedures

After the system was created, it was tested for functionality and reliability in a span of one semester. Selected colleges and satellite campus in Bulacan State University participated in the interaction and communication of the online research access portal. The system was tested for its functionality, usability, reliability, performance and security by technical people while the users, research directors and research coordinators, evaluated the acceptability of the system.

IV.   RESULTS AND DISCUSSION

The online research access portal was created with an interface designed for Bulacan State University. Functional links are included in the home page such as news, colleges, campuses and socials are shown. Figure 3 shows the home page of the system which can be viewed by public users such as students and faculty.
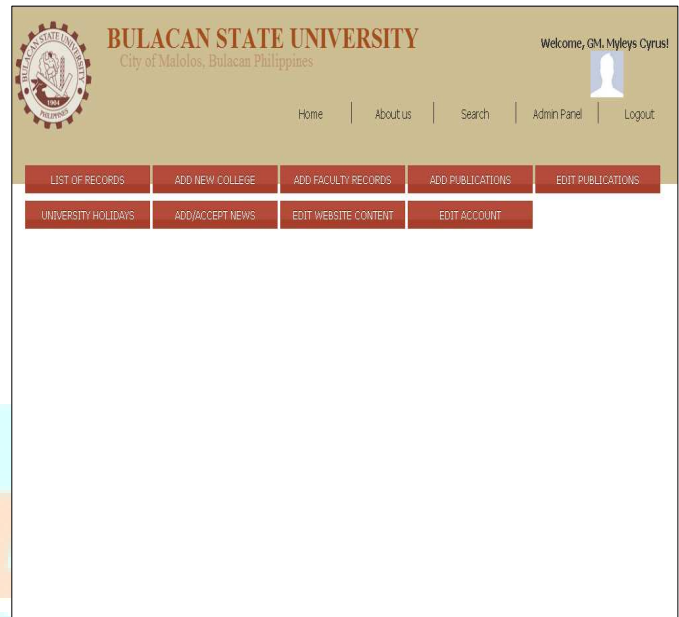
FIG 4: Research Directors Panel Page

The Research Directors Panel Page includes links for adding colleges, research coordinators account, view records, editing publications and website content. The research director will create a college profile in case of a new college in the university then register the research coordinator of the member college. Figure 5 shows the add college page while Figure 6 shows the add research coordinator page which is being controlled by the research director.
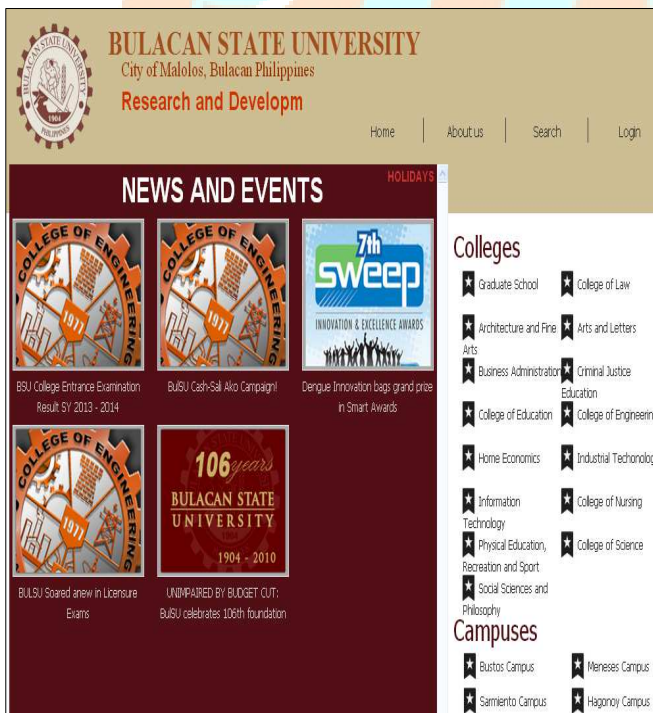
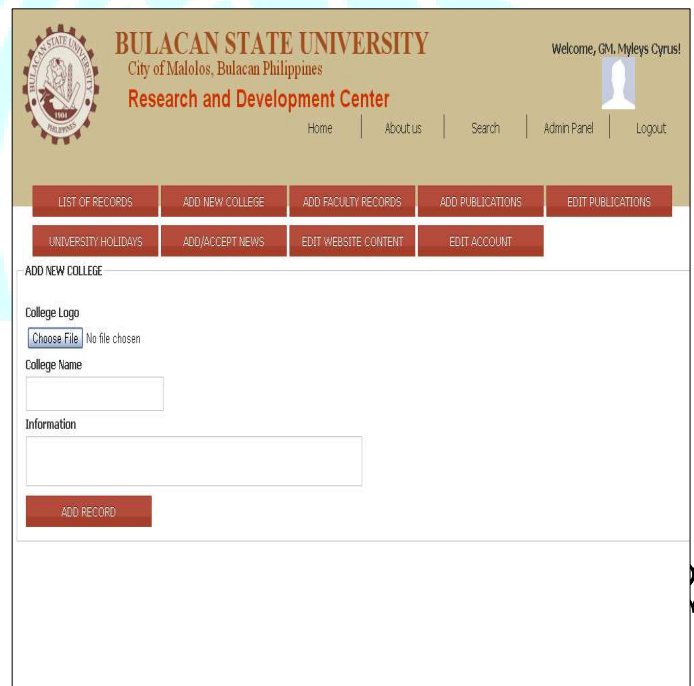**FIG 3: Home Page of the Online Research Access Portal**

FIG 5: Add New College Page
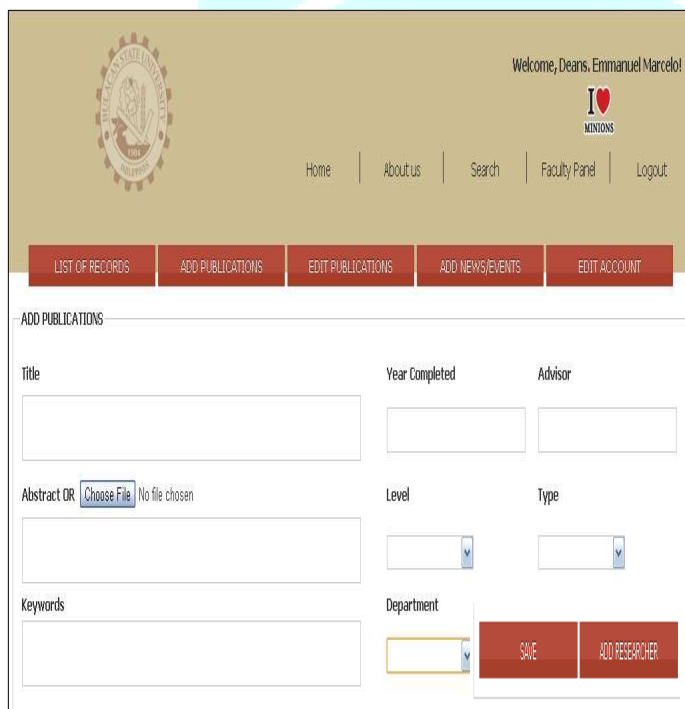
FIG 6: Add Research Coordinator

FIG 7: Add Publication/ Research Output

The research coordinators can upload the completed research of the student and faculty, the page is as shown in Figure 7. The title as well as the abstract of the completed research will be uploaded individually. Then it will be saved in the research database of the system.

The system testing was done for a duration of one semester (5 months) to ensure a very satisfactory outcome on its functionality and reliability. In the state university where initial evaluation was done, they rated the system "very acceptable." The system had an overall rate of "Very satisfactory" on its functionality and "Very Acceptable" on its acceptability.

V. CONCLUSION AND RECOMMENDATIONS

Based on the results of the tests and evaluation, it can be concluded that:

1. An online research access portal for the Research and Development Office of the Bulacan State University was designed and created with the following features:

a. Interactive interface with exclusive membership

b. Well organized management of research outputs

c. Easy monitoring activities of research outcomes in all member colleges

2. The system was tested to be "Very Satisfactory" and "Very Acceptable."

Based on the results and conclusions, the following are recommended:

1. The system be fully implemented in the state university were the research is conducted

2. Adapt the same way of research output management in other state university in the Philippines.

3. Draw a policy plan for the full implementation of the system.

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