

Development of an Enterprise Resource Planning System for Information Coordination in Higher Institutions

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ABSTRACT

This paper presents a development of an enterprise resource planning system for information coordination amongst staff members in higher institutions. Presently, the mode of information dissemination in most institutions is manual which makes information slow, time consuming and unsecured. This in turn causes late action being taken on information. Cascade style sheet (CSS), Adobe Dreamweaver Cascading Style 4 Editor, HTML and the Java Script were used for the web page design, and the Adobe framework for graphics. PHP was used for the web development to produce dynamic pages. The database was designed using MySQL and Navicat. The result of the evaluation returned the following values: 3.83, 4.05, and 3.41 for the SDR, SRI and SEU respectively on a Likert-type rating scale of 1 to 5. This system focused on dissemination of information by electronic means in Higher Institutions.

1. Introduction

Higher institutions need more flexibility to adapt to the volatile, constantly changing needs and requirements inherent in today's educational environment. But access to timely, complete, and accurate information has been made nearly impossible and a resource-intensive because of the complex, dispersed environments and cultures at most institutions of higher education. Information technology has become a necessary component in any organisation with increasing strategic significance. The modern Information Technology service needs to be both proactive and reactive and its emphasis changes from being merely an enabler of services to also being a driver of change. Also, the demand for various approaches to learning and teaching, improved access for staff and student computing and internationalization requires a technical and network infrastructures, which allow the University to be an attractive and competitive place to work and study. (Dieter, K., 2008)

Enterprise Resource Planning is a strategic activity for planning and monitoring all of the resources of a manufacturing company, including that of manufacturing, marketing, finance, and engineering functions (Rao, S.S., 2000). The framework of an Enterprise Resource Planning System developed based on the project life cycle approach, in which the ERP implementation project goes through different phases before it goes live.

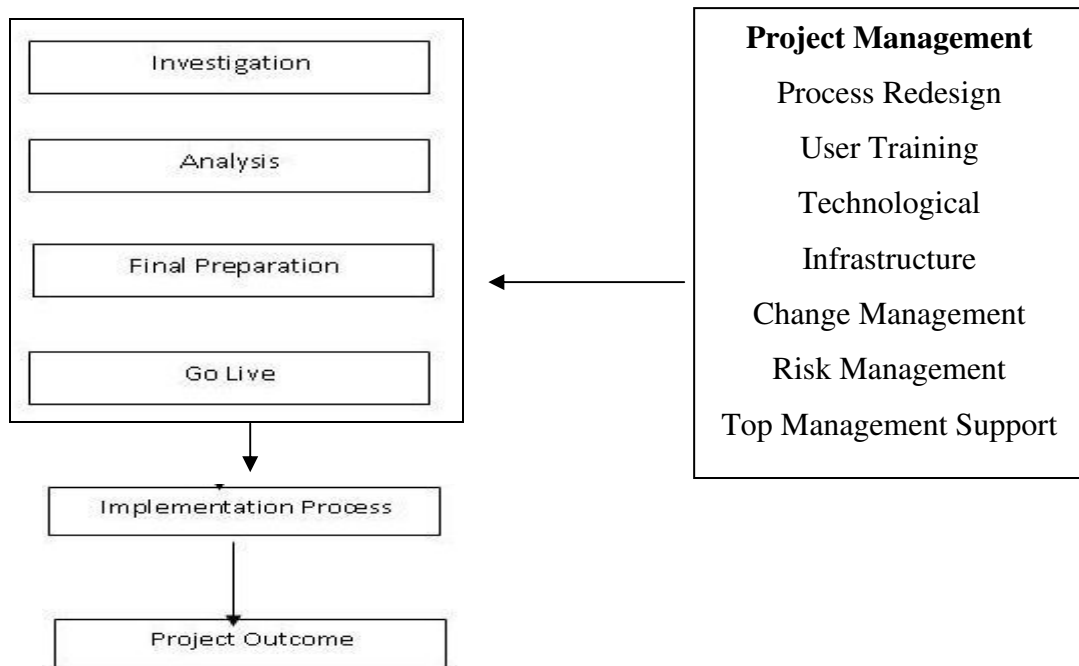


Figure 1: Enterprise Resource Planning System implementation framework.

ERP system can be used to accomplish every task by integrating the information system, seamless flow of information across every department. It is helpful to make automation of every business process and as management information system (MIS). ERP treats the organisation as single entity and caters to the information needs of the whole organisation because information is the key resource of every organisation to win the competition. ERP system provides accurate, relevant and timeliness information to all department on one software system. The ERP software is to provide information update and on realtime basis.



Figure 2: Function of ERP (<http://www.svtuition.org>)

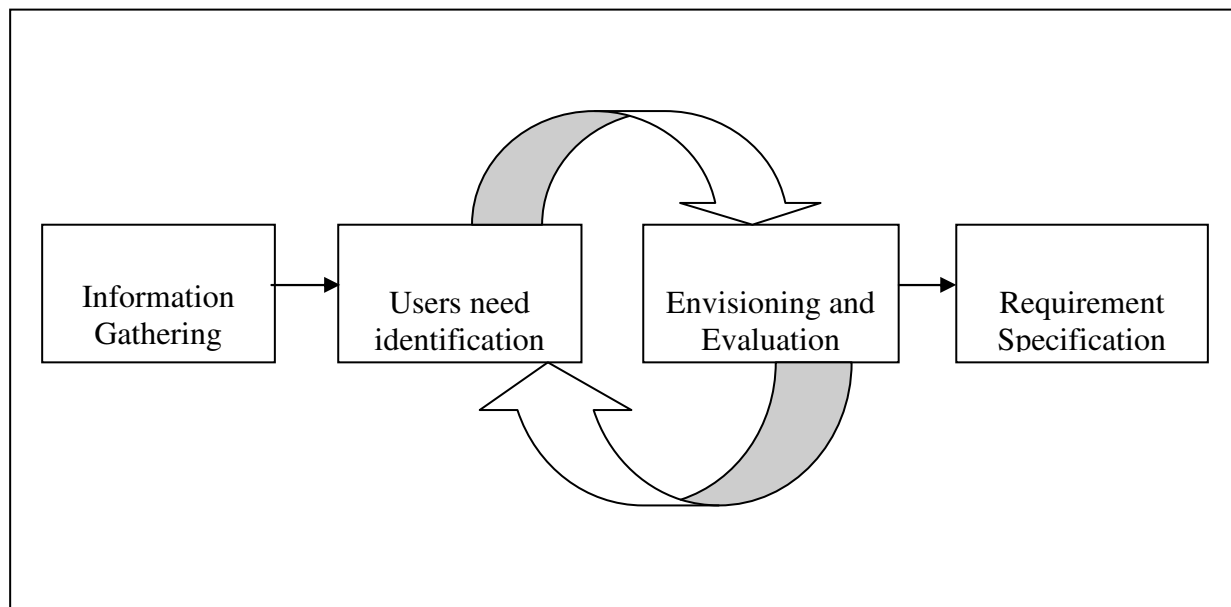
2. MATERIALS AND METHODS

This section concentrates on formulating the system designing requirements analysis, and software requirements analysis

2.1 System requirements analysis

“Requirements are a predefined set of system functions, attributes and development stages as a specification of what should be accomplished during the development process.” These requirements describe the system behavior and implementation phase of a system (Sommerville, I. and Sawyer, P., 1997). Requirements also illustrate what kind of features and functions are needed for a specific research. Therefore, it is necessary to define and analyze the system requirements at the beginning of the designing system.

The functional requirements rely on user requirements. Therefore it is important to design a system in order to be able to achieve what the users actually want it to be. Clear understanding of the user requirements is a part of the resulting system designed and is critical to the success of an interactive system. The method for analyzing user requirements includes the following four elements as illustrated in Figure 2 which include information gathering, user needs identification, envisioning and evaluation of the user needs, and final requirements specification decision.



2.2 Architecture of the Enterprise Resource Planning System for Information Coordination

The overall of the ERP Information Coordination System for Higher Institution consists of the following basic components as shown in Figure 3:

- i. Web Server (Apache)
- ii. Server side
- iii. Client Side
- iv. Relational Database

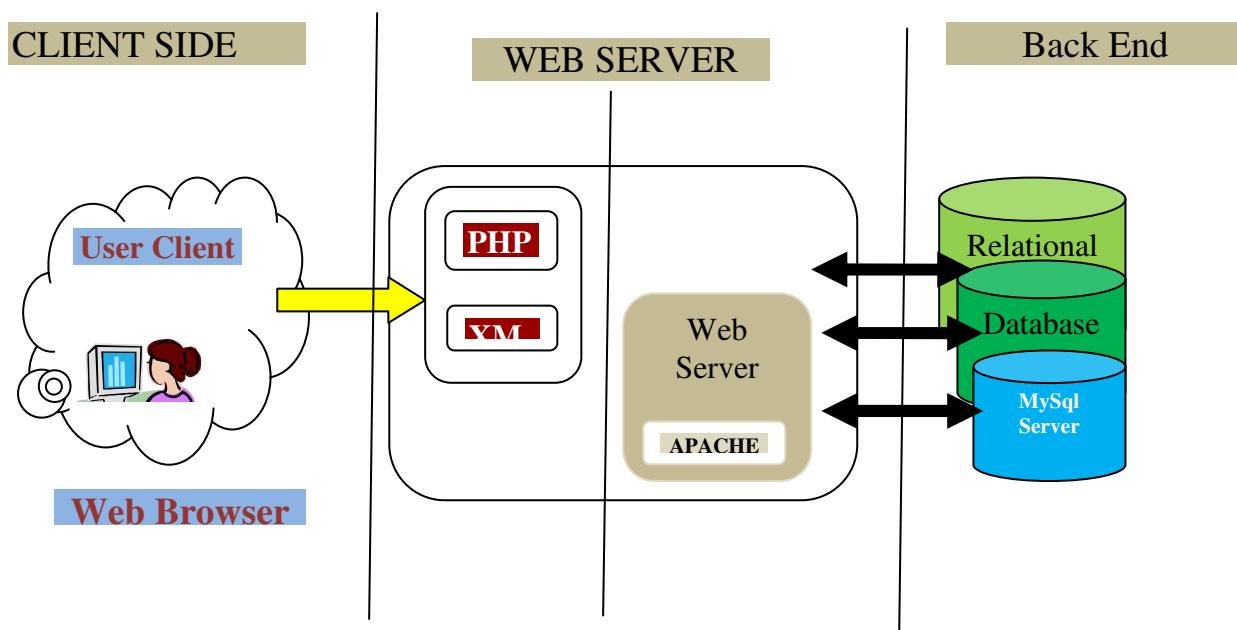


Figure 3: The three-tier architecture of the ERP Information Coordination System

Client side: The page viewed by the user of the system where operations like drop down menus, moving fonts are located.

Web server: A computer that holds a web page and makes it available on the internet. Therefore when a webpage is requested through an internet browser the web server responds accordingly

A relational database: A relational database uses relations, or two-dimensional tables, to store the information needed to support a business. A relational database is a collection of data items organized as a set of formally-described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables.

3. Results and Discussion

This following software was used for developing the ERP server application.

- Java Script,
- CSS
- XSL.
- Apache /2.2.4 (win 32) (web server) 5.2.1
- My SQL 5.0.27Tools used
- PHP my admin 2.9.2
- SQL Lite manager 1.2

3.1 The Developed System

An Enterprise Resource Planning Information Coordination System has been developed with the aim of enhancing the information flow amongst members of staff in the institution.

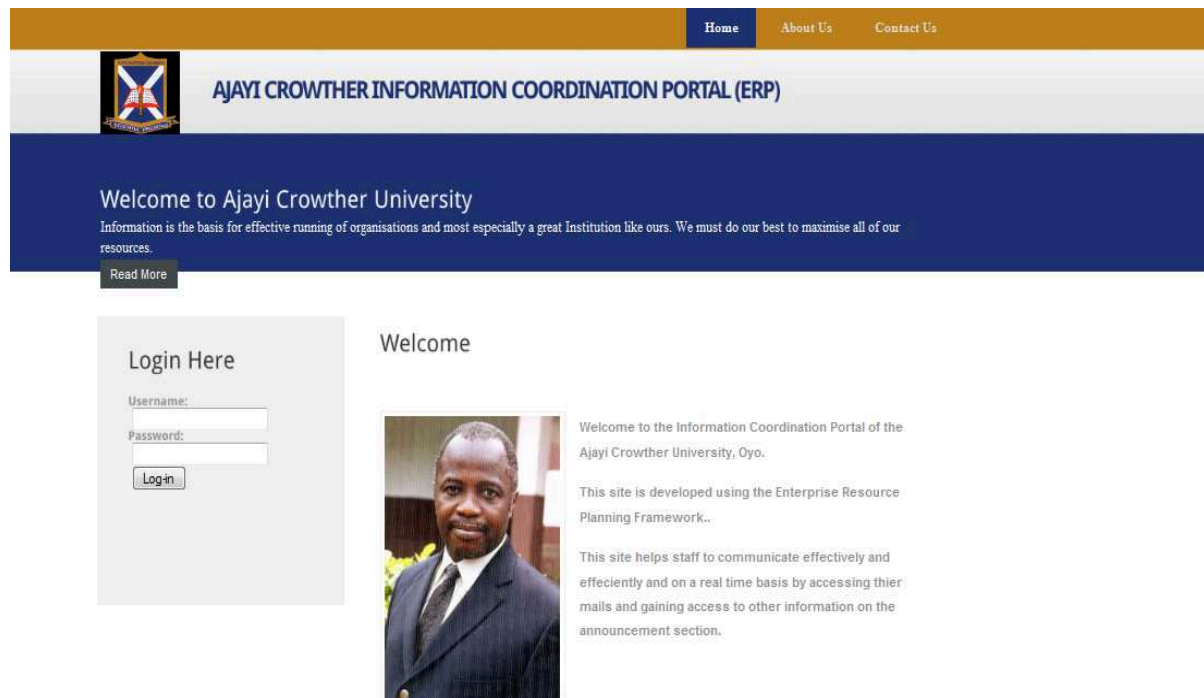


Figure 4: Login page of the Information Coordination Portal

The system has been tested using various systems at different locations in a higher institution and is found to work accurately i.e. information being communicated amongst staff from different location in the institution. Figures 5 and 6 depict the working interface of the system.

3.2 Login page

This interface presents the Login page of the Information Coordination System. Here the user is able to login in with his User name and Password which would have been assigned by the administrator. A user can login on any system that is on the network of the ERP Information Coordination Portal anywhere on campus.

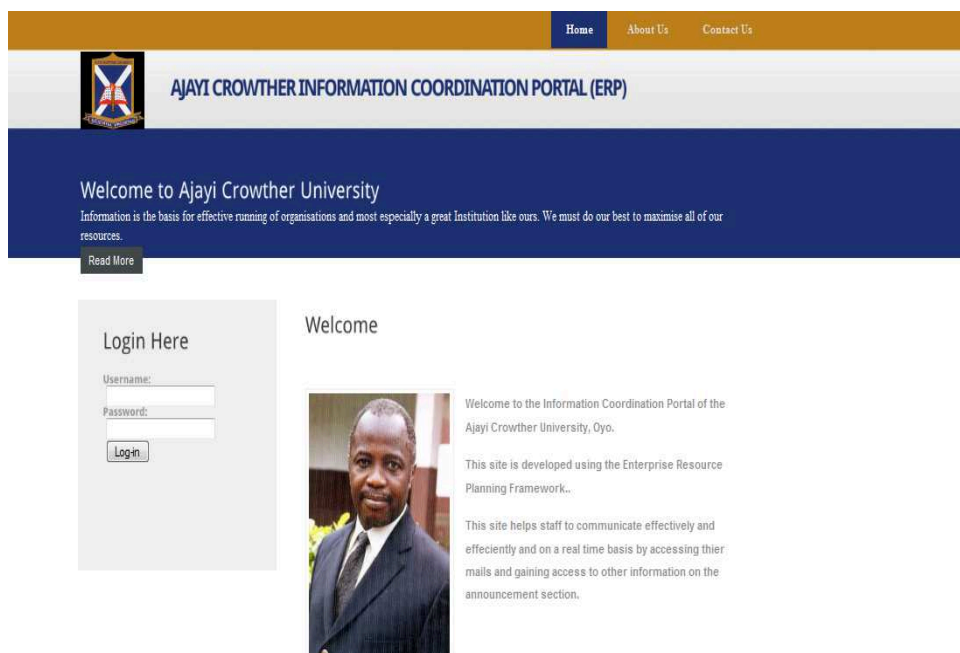


Figure 5: Login page of the Information Coordination Portal

3.3 Home page

This interface is the *Home page* of the user which has a list of the modules that a user has access to and a list of announcements that is posted for all members of the institution to view. It also has a link to all the received messages which includes memo, reports, and announcements.

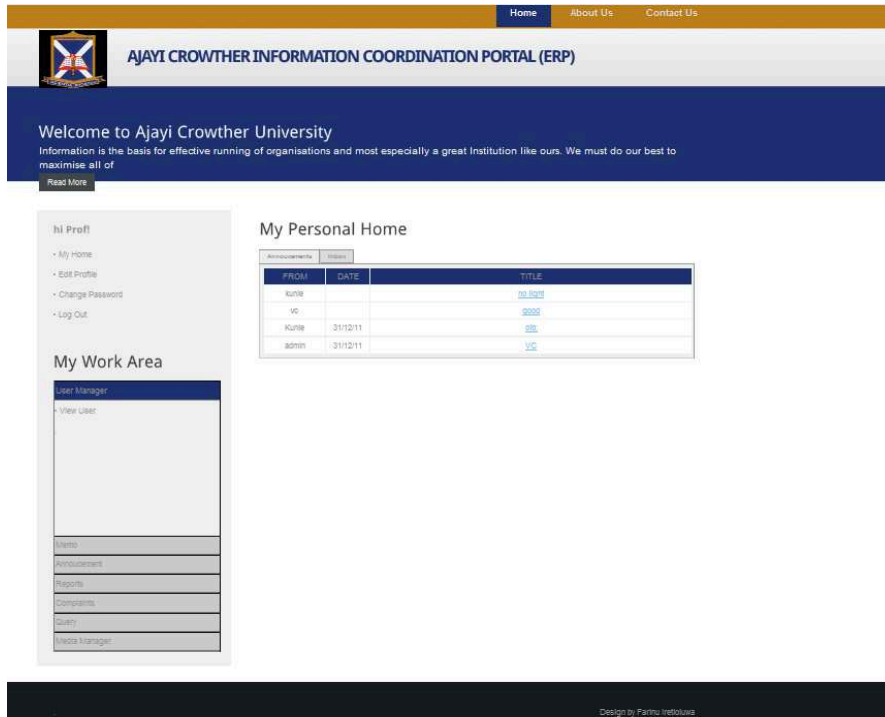


Figure 6: Home page of the Information Coordination Portal

3.4 Compose Memo page

This interface is the page, where a user can send memo to recipients with the sender's name is fixed depending on who logged in to the system and the recipient can be selected based on either the faculty or department or to an individual's name as the case may be.

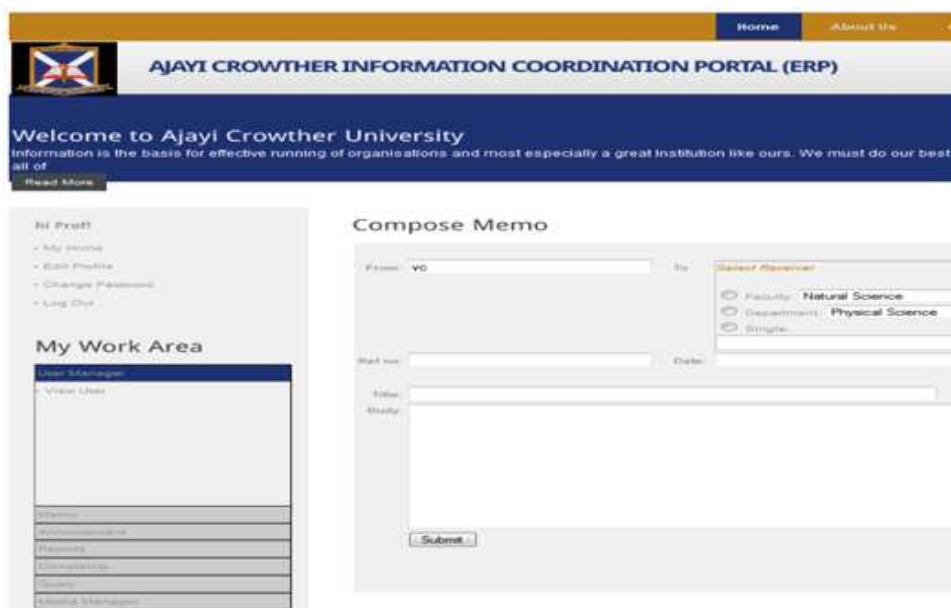


Figure 7: Compose Memo page

4 Conclusion

An Enterprise Resource planning System for Information Coordination was successfully developed to allow for smooth and faster means of information sharing in higher institutions. The modeled system has several modules, which can send various types of information like: memo, complaint, report as the case may be. It can be accessed by any member of staff who has a username and password which is assigned

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