WEB DESIGN USING JOOMLA CONTENT MANAGEMENT SYSTEM

CASE STUDY

ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT

AKPULU FRANCIS

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A PROJECT SUBMITTED TO THE DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA.
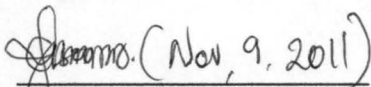
NOVEMBER, 2011.

DECLARATION

I, Akpulu Francis declare that this work was done by me and has never been presented elsewhere for the award of a degree. I also hereby relinquish the copyright to the Federal University of Technology, Minna.
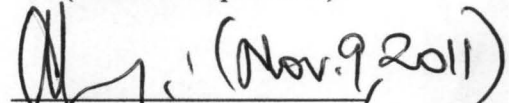
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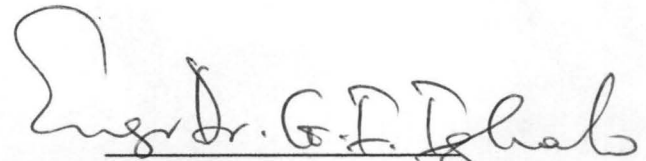*(Nov, 9, 2011)*

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ENGR. A.G. RAJI
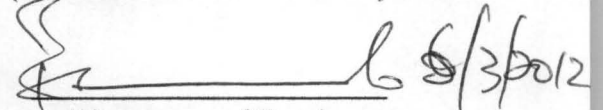
(Name of supervisor)

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(March 15, 2012)

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(Name of External Examiner)

8/3/2012

(Signature and Date)

DEDICATION

This project is dedicated to God Almighty, my all in all. In whom I am favoured and find fulfillment in life. Also, to my family for their love and support all through my life

ACKNOWLEDGEMENT

I wish to acknowledge my dad, late Mr. Alexander Akpulu for teaching me good morals, the ways of life and the importance of education. To my mum, Mrs. Helen Akpulu for her love, guidance, prayers and support. You are an inspiration to me always. Mrs. Charity Ogoh my big sister, your love, undying support and sacrifice brought me to this point in my life. Thank you always. To the rest of my family, Late Miss Esther Akpulu, Miss Emiene Akpulu, Mr. and Mrs. Jeremiah Haruna, Peter Akpulu, Martins Akpulu and not forgetting my cousins. All your love, support and prayers will never be forgotten or go unrewarded by the Almighty. Thanks for all your confidence in me and words of encouragement, God bless you all.

I also want to recognize and express my profound gratitude to the H.O.D Engr. A.G. Raji, who is also my Supervisor and Engr. Umar Abubakar. Their intellectual advice, comments, suggestions, constructive criticism, corrections, tireless effort and supervisory guidance led to the completion of this work. Also not forgetting my lecturers, level advisers, the entire staff and Students of the department. I appreciate you all.

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ABSTRACT

This project is aimed at designing a befitting website for the department of Electrical and Computer Engineering of the Federal University of Technology, Minna in Niger State that can be accessed with ease by students and modified easily by the site's administrator. It gives an introduction to the Joomla content management system in the design and management of modern day websites. Also, the use and importance of a xampp local host server will be explained containing Mysql, Phpmyadmin, PHP and Apache to accommodate contents and database of the site as it is developed before making it live on the World Wide Web.A combination of the joomla content management system and the xamp local host following carefully laid down steps and procedures of download and installation will help in the development and eventual realization of the proposed website. The department's website will be developed to help students in getting relevant information about the department on the web.

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CHAPTER ONE

1.0 INTRODUCTION

In today's dynamic and steadily changing world, only those who drift along with the tides of time can successfully navigate through life's challenges and much more with ease. Technology has brought so much convenience to our door steps today and its benefits are daily exploited by those who care. As engineers it is only requisite that we take advantage of this present trend of events. One of the areas of technological advancement that is ripe for exploitation is the information segment, giving rise to an entirely new course of study called Information Technology.

1.1 THE INTERNET

The internet is an electronic network that makes it possible for people to interact, access, and exchange information from their computers. It is a global system of interconnected computer networks that use the standard internet protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. The internet carries a vast range of information resources and services, such as the interlinked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail.

Most traditional communications media including telephone, music, film, and television are reshaped or redefined by the internet, giving birth to new services such as Voice over Internet Protocol (VoIP) and IPTV. Newspaper, book and print publishing are adapting to Web site

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technology, or are reshaped into blogging and web feeds. The internet has enabled or accelerated new forms of human interactions through instant messaging, internet forums, and social networking. Online shopping has boomed both for major retail outlets and small artisans and traders. Business-to-business and financial services on the internet affect supply chains across entire industries.

1.2 THE WORLD WIDE WEB (WWW)

The World Wide Web, abbreviated as WWW or W3 and commonly known as the web is a system of interlinked hypertext documents accessed via the internet. With a web browser, one can view web pages that may contain text, images, videos, and other multimedia and navigate between them via hyperlinks.

The World Wide Web was developed to be a pool of human knowledge, and human culture, which would allow collaborators in remote sites to share their ideas and all aspects of a common project.

1.3 THE WEB SITE

A website is a collection of related web pages containing images, videos or other digital assets. A website is hosted on at least a web server, accessible via a network such as the internet or a private local area network through an internet address also called URL.

A web page is a document,, typically written in plain text interspersed with formatting instructions of hypertext markup Language (HTTP, XHTML). A webpage may incorporate elements from other websites with suitable markup anchors.

Web pages are accessed and transported with the Hypertext transfer protocol (HTTP), which may optionally employ encryption (HTTP Secure, HTTPS) to provide security and privacy for the user of the web page content. The user's application, often a web browser, renders the page content according to its HTML markup instructions onto a display terminal.

The pages of a website can usually be accessed from a simple Uniform Resource Locator (URL) called the homepage. The URLs of the pages organize them into a hierarchy, although hyperlinking between them conveys the reader's perceived site structure and guides the reader's navigation of the site.

Some websites require a subscription to access some or all of their content. Examples of subscription websites include many business sites, parts of news websites, academic journal websites, gaming websites, file-sharing websites, message boards, web-based e-mail, social networking websites, websites providing real-time stock market data, and websites providing various other services (e.g. websites offering storing and/or sharing of images, files and so forth).

1.4 TYPES OF WEBSITES

1.4.1 STATIC WEBSITES: Simplest form of websites. Site contents are delivered without the use of server side processing. They are used for brochure sites and can include complex graphics, animation and Java script driven features.

1.4.2 DYNAMIC WEBSITES: These websites rely on server side scripting to provide advanced interactivity and use a data base to deliver the content for individual pages. E.g. catalogues, photo albums and complex series of data. Allows users to sort and search records and to restrict access using log-in procedures. Generating web pages using data base to store and deliver content is an efficient way to manage large sites.

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1.4.3 CONTENT MANAGED WEBSITES: This type of site will be the focus of this project. The refinement of database driven dynamic site provides a password protected interface through which users can add, edit and remove content from the site with ease.

1.4.4 e-COMMERCE WEBSITES: A dynamic website which has the functionality to process financial transactions. Built to mimic a bricks and mortar store and use a secure online payment system, it includes a content management system so that product details can be added or updated.

1.4.5 FLASH WEBSITES: Flash is proprietary software developed by Macromedia which is used to generate complex animations. It provides different levels of user interactivity. It is almost impossible to carry out any meaningful form of search engine optimization on a flash site and so it is avoided.

1.5 AIMS AND OBJECTIVES

These days, everybody, company and institution want to be on the web but not everybody goes there for the right reasons. The objectives of this project are stated below;

i. To enhance access to detailed and vast information about the department on the World Wide Web.

ii. To grant students of the department easy access to relevant information and records.

iii. To provide a faster and better means of running administrative affairs in the department.

iv. To project the image of the department locally in Nigeria and globally.

v. To showcase the technical capabilities of the department to the university community and the world at large.

1.6 METHODOLOGY

The proposed website is to be created using a combination of web-editing software both of HTML and Java scripting and a local host server.

The software used is the Joomla Content Management System which supports contents, images, graphics, videos, audio sounds and documents of various formats on the website. The site will be hosted locally using a Local host Server for storing database. The codes and scripts are used to provide security in order to prevent unauthorized access into the site. Changes to web pages and content editing should be done with the knowledge and consent of the Administrator who manages the site.
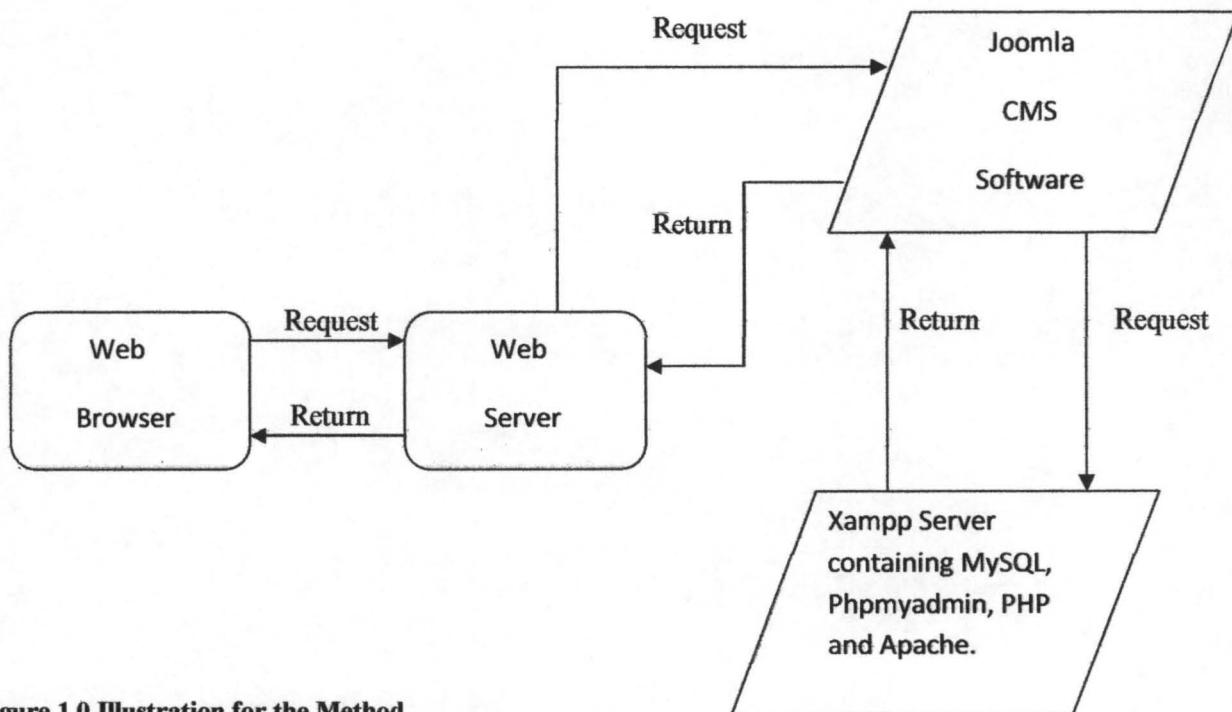
Request → Joomla CMS Software

Return

Request Web Browser ← Return → Web Server

Return Request

Xampp Server containing MySQL, Phpmyadmin, PHP and Apache.

Figure 1.0 Illustration for the Method.

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1.7 RELEVANT TERMS

1.7.1 Web browser: A computer program that enables a computer to locate, download and display documents containing text, graphics, sound, videos and animations located on computer networks. E.g. Internet explorer, Opera, Mosaic, Mac web etc. the act of viewing and moving between documents is called browsing

1.7.2 URL: Uniform Resource locator. Describes the precise locations of the internet resources such as web servers or web pages residing on web servers. URL identifies the internet protocol used to provide a particular piece of information, name of the server, and name of the location of the file.

1.7.3 HTML: Hypertext Markup Language. This is a standard program language for creating a set of directions telling the browser how to display information on the website.

1.7.4 Hyperlinks: They are pieces of clickable text or pictures that display a different multimedia document (web page) or website. They allow for navigation within a document or connect to another document.

1.7.5 Web server: Software that participates in an interaction with another piece of software and takes the role of providing the required service. It is a remote application that provides information to a connected user.

1.7.6 FTP: File Transfer Protocol. A protocol is a set of rules that ensures a file is transmitted properly to the receiving computer. In computer communications the FTP is used to transfer files from one computer to another via the internet and other networks.

CHAPTER TWO

LITERATURE REVIEW

2.1 STATE OF INTERNET CONNECTIVITY AND ACADEMIC COMMUNITIES

Issues relating to internet connectivity (which necessitates the need for an internet website) in Nigeria's academic communities need adequate attention. In the last few years, there has been a measurable growth in the information technology industry. It is important that developing countries actively participate in information technology in order to remain relevant.

The internet is a catalyst for national development; it provides a medium for exchange of technical and scientific ideas. This function is very relevant for academic communities. By the use of internet facilities development in one academic community can be of use in another. The important thing required of the recipient communities to do is to discover similar projects and relevant information that could be of use to them.

Basically, both knowledge and exchange of ideas drive the world technology and economy. Internet offers a medium through which ideas and information can be easily cross-pollinated to enhance the technological advancement of man. The facilities provided by it can be used to motivate the developmental challenges of any academic community and developing nation.

The internet represents one of the most successful advantages and benefits of sustained investment and commitment on research and development of infrastructure. Beginning with the early research in the packet switching, the government, industry and academia have been partners in evolving and developing this exciting new technology. In recent times, terms like browsing, e-mail, and website have become regular jargons used by even the common man on the streets.

The growth of internet literacy in academic communities in Nigeria has been very slow and the coverage is very small. The cause is traceable to lack of technical know-how, telecommunication infrastructure, awareness, finance and competitive regulatory policies. The technological break-through of a nation depends on the level of education and orientation of the citizenry; the rewards of education therefore include knowledge, greater employment opportunities, higher income and better future prospects. Improvement of one's environment depends on the knowledge of that environment and this is a function of education. The development of the World Wide Web (www) is fuelling the rapid introduction of new business tools and learning aids in the academia. The potentials of the web-based knowledge sharing are immense and therefore, it makes it an ideal medium for technological advancement especially in developing countries.

2.2 HISTORICAL BACKGROUND

The internet began towards the end of the 1960's when the United States Department of Defense decided to help scientists and researchers from different areas work together by funding the development of data network that would allow networked computers communicate efficiently. The idea was to share scarce and expensive computers and their files.

The internet today is a wide spread infrastructure, the initial prototype of what was called the National Information Infrastructure. Its history is complex and involves many aspects – technological, organizational and community. It's influence reaches not only the technical fields of computer communications but throughout society as we move forward increasing the use of online tools to accomplish electronic commerce, information acquisition and community

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operations. Listed below are some of the people who have contributed immensely to the growth of the internet.

Lick Leder (1960) envisioned that the online system application using a tool called web could change the whole concept of communication and create interconnection communities. Lick was among the first to perceive the spirit of community created among the users of the first time – sharing systems. Lick made it easy to think about interconnecting communities, the interconnection of interactive, online communities of people.

Taylor (1968) emphasized an application of online communication as a creative process which differed from purely sending and receiving information. In an article, he said "we believe that communication have to do something non-trivial with the information we send and receive". And we believe that we are entering a technological age in which we will be able to interact with the richness of living information, not merely in the passive way that we have become accustomed to using books and libraries, but as active participants in an ongoing process, bringing something with us through our interaction with it. When minds interact new "ideas emerge".

Kalm (1970) adopted TCP/IP developed at the U.S governments Defense Advance Research Project Agency (DARPA). TCP/IP is a standard "suite" of internetworking protocols that allows all applications and computers on any network to link with one another. This development enhances the web's hypertext transfer protocol (http).

Astrakhan, et al (1976) designed and built a prototype system to demonstrate relational ideas. Dubbed system R, this prototype was intended to provide a high level, non-navigational data – independent interface to many users simultaneously with high integrity and robustness.

Tim Berners-Lee (1990) a CERN engineer created the World Wide Web and published what is considered to be the first website. He combined the internet communication (which had been carrying email and the Usenet) with hypertext (which was limited to browsing information stored on a single computer). He emphasized that the www or w3 is actually another information retrieval tool similar to gophers, Archie and WAIS. However, the web requires social attention in this text because it has had enormous impact on the commercial use of the net. The web is attractive, easy to use and tends itself to publishing or providing information to anyone interested. It was originally developed to allow collaborations at remote sites to share their ideas on all aspects and later relationships were found between the projects, information could flow smoothly between the projects without making major changes.

Hunter (1992) described the use of networking technology at Wake Forest University as consisting primarily of a number of Macintosh labs wherein Apple Talk was used to interconnect to the computers within the state. In turn, each lab was connected to the computer center via phone lines and phone net connectors. Within the computing center a software router had been running on file servers to route network traffic between the centers.

After additional centers were connected to the Wake Forest System, the computing center end was replaced with Ethernet network which allowed connections to a minicomputer where people could store their files. Hunter stated that this type of system was a logical solution for states wishing to provide basic network services to a large number of users at a reasonable cost.

Anderson (1993) led a team to invent the browser which is software used to explore the internet. The browser has many user interfaces that allow users to see, send and click on graphics as well as text.

Bieber and Wan (1994) discussed the use of backtracking with a multi-windowed hypertext environment. They introduced the concept of "task" based backtracking in which a user backtracks to compare information from different sources for the same task or to operate two tasks simultaneously. A similar technique in a web environment, would be backtracking to review previously retrieved pages. All of these studies were performed on closed, single-author systems.

Leiner (1994) worked on linking computers together. Four main computers, one each located at the University of California at Los Angeles, The Stanford Research Institute, and the University of California at Santa Barbara ant the University of Utah. Each serving as a network node. Estimate indicates over 31,000 different networks from more than 100 countries were connected by the spring and that it is used around the world in education, science, government and business.

Barondi (1998) described internet applications such as the web based on the concept of client/server architecture. In client/server architecture, some application programs act as information receivers (clients). The client/server architecture is not one-to-one. That is, a single client can access many different servers and a single server can be accessed by a number of different clients. Usually, a user runs a client application, such as web browser, that contacts one server at a time to obtain information because it only needs to access one server at a time. Client software can run on almost any computer, including small hand held devices such as personal organizers and cellular telephones (these devices are sometimes called web appliances).

Aronu (1999) defined the web as the virtual world provided by any network of computers. It is an international tool used for accessing information for organizations such as academics,

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industries, governments, individuals and health institutions (Hospitals) for a purpose of public enlightenment.

Veglis (2000): Since the beginning of 1998, the media information laboratory of the department of Journalism and Mass communication (J and Mc) at the Aristotle University of Thessaloniki (AUTH) started to develop and publish material on the web for its conventional courses. The purpose of this effort has been mainly the support of the media informatics courses and the preparation of a future distance-learning course. Initially a course support environment was developed with the help of commercial application that creates and manages web sites.

Belkin et al took a cognitive view of the issues of information retrieval, in particular focusing on the question of the nature of the knowledge that prompts the users of such system to enter into them. They base their analysis on the cognitive communication system and suggest that in these terms it is appropriate to consider the nature of the user's state of knowledge when designing systems whose goal is the eventual appropriate modification of that of knowledge by the user.

Improvements on Web design and the internet has not stopped as great minds have been coming up and putting ideas together to improve our navigation, effectiveness, efficiency and ease of use of the internet till date.

2.3 WEB CONTENT MANAGEMENT SYSTEM (CMS)

A web content management is Content Management System (CMS) software implemented as a web application used for creating and managing HTML content. It is used to manage and control a large dynamic collection of web material (HTML documents and their associated images).

A CMS facilitates content creation, content control, editing and many essential web maintenance functions. Usually the software provides tools where users with little or no knowledge of programming languages and Markup languages can create and manage content with relative ease of use. Most systems use a database to store contents, and a presentation layer displays the content to regular website visitors based on a set of templates.

2.4 WEB CONTENT MANAGEMENT SYSTEM CAPABILITIES

A web content management system facilitates document control, auditing, editing and timeline management. A CMS also provides the feature required to create and maintain a blog and makes publishing on the internet simple.

A Web CMS provides the following features:

2.4.1 Automated templates: Create standard visual templates that can be automatically applied to new and existing content, create one central place to change that look across a group of contents on a site.

2.4.2 Easily editable content: Once the content is separated from the visual presentation of the site, it usually becomes much easier and quicker to edit and manipulate.

2.4.3 Scalable feature set: Most CMS have plug-ins or modules that can be easily installed to extend an existing site's functionality.

2.4.4 Web Standard Upgrades: Active CMS solutions usually receive regular updates that include new features set and keeps the system up to current web standards.

2.4.5 Document management: CMS solutions may provide a means of managing the life cycle of a document from initial creation time, through revisions and document destruction.

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2.5 What is Joomla?

Joomla is an award-winning content management system (CMS), which enables you to build Web sites and powerful online applications. Many aspects, including its ease-of-use and extensibility, have made Joomla the most popular Web site available. Best of all, Joomla is an open source solution that is freely available to anyone.

2.6 The Joomla CMS

Joomla is a free open source framework and content publishing system designed for quickly creating highly interactive multi-language websites, online communities, media portals, blogs and e-commerce application. The name 'Joomla' was derived from a Swahili word 'Jumla' which means 'all together'.

2.7 Reasons for choosing the Joomla CMS

Joomla is one of the most powerful Open Source Content Management Systems. Mentioned below are some reasons for using this content management system

2.7.1 Ease of use: Joomla is easy to understand, install and use. It can be hosted easily on most web hosting infrastructure. Anyone without prior knowledge of programming can use Joomla CMS with ease.

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2.7.1 Open Source: Joomla is a free open source software. They provide web designers and software developers with complete flexibility to modify and enhance the system to suit specific requirements of work. It does not limit designers and developers in any way.

2.7.2 Training and Resource: Many tutorials and developer documentation are freely available for use online. Web design companies find it easy to train their team in Joomla with the help of such readily available resources. There are many active Forums and Blogs specific to Joomla where technical queries can be posted and a quick response or support is usually available free of charge.

2.7.3 Cost effective: Joomla enables web designers to provide customers with a powerful and cost effective solution which is easily scalable to future enhancements. Joomla can be used effectively for small businesses to develop a powerful and dynamic website in a cost effective manner. Web designers are able to develop dynamic websites that would have otherwise been out of reach for small businesses due to high cost of development.

2.7.4 Competitive advantage: By offering customers websites built with Joomla, a web design company can gain a competitive advantage over its competitors. Joomla provides powerful features which in turn allow businesses to add value to their web presence.

2.7.5 Established community: Joomla has a large established community on the internet. Information and tutorials are easy to find and there are many specialist blogs and forums that cater to the Joomla web design and development community. Resources are easy to find and access on the internet. The wide availability of a large selection of free add-on modules and components for Joomla further offers the opportunity to include many new features.

2.8 The Local Host Server

When designing and developing Websites, a local host Server is needed to accommodate your Website temporarily before the completed work can be transferred to a Host Company to publish it live on the World Wide Web.

There are different types of Local Host Servers. The two (2) common ones are the Wamp Server and Xampp Server.

i. **Wamp Server**: These Local Servers are installed and run on Windows Operating Systems only while

ii. **Xampp Server**: Are Local Host Servers that are universal. They can be installed on different types of Operating Systems.

2.8.1 Components of the Local Host

i. **MySQL**: MySQL is a relational database management system (RDBMS) that runs as a Server, providing multi-user access to a number of databases. MySQL is used for data storage and logging off user data.

ii. **Phpmyadmin**: This is an Open Source Tool written in PHP to handle the administration of MySQL over the World Wide Web. It performs various tasks such as creating, modifying or deleting databases, tables, fields or rows. Executing SQL statements or managing users and permissions.

iii. **PHP**: Hypertext preprocessor is a general-purpose scripting language designed for web development to produce dynamic web pages. It also functions as a graphical application. PHP is available as a processor for most modern web servers and as standalone interpreters on most operating systems and computing platforms.

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iv.   **Apache**: A high quality and widely used open source web server program that powers most of the internet's website. It is often used because of its outstanding performance and strong security feature.

CHAPTER THREE

3.0 DESIGN AND IMPLEMENTATION

3.1 INTRODUCTION

Just as in the traditional modes of communication, writing and drawing, designing web pages (website) requires some amount of planning before you start filling text and graphics around and linking them widely to each other.

3.2 SETTING UP THE COMPUTER

There is a minimum requirement (system configuration) a computer system must obtain before it can be used for web design.

3.2.1 HARDWARE: Minimum of 60 GB Hard Drive, 1 GHz speed and Minimum of 512 RAM of memory.

3.2.2 SOFTWARE: Joomla CMS software and the Xampp Server software.

3.3 WEB DEVELOPMENT WORKFLOW

The standard approach to web development involves the following processes;

  i.   Creating goals for your site

 ii.   Organizing the site structure

iii.   Creating your design look

 iv.   Design the navigation scheme

3.3.1 CREATING GOALS FOR YOUR SITE

Deciding what your site goals are, should be the first step when creating a website. Ask yourself, or your client, about what you hope to accomplish by having a website. Write down your goals so that you remember them as you go through the design process. Goals help you focus and target your website to your particular needs.

A website that provides news about a specific subject should have a different look and navigation from a website that sells products. The complexity of your goals will affect the navigation, the software that you see (Joomla) and even the look and feel of your site. It is advantageous to plan the site carefully in order to make sure everyone will be able to use it successfully.

3.3.2 ORGANIZING THE SITE STRUCTURE

Organizing your site carefully from the start can save one frustration and time. If one begins creating documents without thinking about where in your folder hierarchy they should go, you may end up with a huge, unwieldy folder full of files, or with related files scattered though a half dozen similarly named folders.

The usual way to set up a site is to create a folder on your hard disk that contains all files for your site (referred to as the local site), and to create and edit documents within that folder. These files are copied to a web server when publishing the site for the public to see.

The approach is better than creating and editing files on the live public web site itself because it allows for testing and changes in the local site before making them publicly viewable. The next

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task is to break down the site into categories. Related pages are put in the same folder. This type of organization makes the site easier to maintain and navigate.

It is convenient to place all images for example in one location, so that when inserting an image into a page it can easily be found. Designers sometimes place all the non HTML items to use on a site in a folder called assets. That folder may contain other folders for example, an image folder and a sound folder.

3.3.3 CREATING A DESIGN LOOK

A lot of time is saved later in the process by simply planning the design layout before actual design begins. It can be as simple as creating a mock up drawing of how the site layout should look like on a piece of paper. Another approach would be to create a composite drawing of the site using software Macromedia Freehand of fireworks. The important thing is to have a mockup of the layout and design so it can be followed later as the site is built.

It is important to maintain consistency in the page layout and design. Users should be able to click through the pages in the site without getting confused because all the pages have a different look, or the navigation is on a different place on each page.

3.3.4 DESIGNING THE NAVIGATION SCHEME

Another area where planning pays off is navigation. In the design of the site there is consideration for how the visitors move around. The following points are considered: "You are here" Visitors should easily know where they are in the site and how to return to the top level page.

Searches and indexes make it easy for the visitor to find any information they are looking for.

Feedback provides a way for visitors to contact the webmaster if something is wrong with the site and to contact other relevant people associated with the company or the site.

3.40 SITE DESIGN

3.4.1 INSTALLATION AND CONFIGURATION

The installation and configuration of Joomla must have the foundation of a site up and running. Before you begin an installation, however, examining the organization of a Joomla site will help you recognize the directory structure for later configuration.

A combination of the installation and configuration of the Joomla CMS software and the Xampp Server Software brings the developer to the point where he/she can begin the development of the site.

| Joomla CMS software | + | Xampp Server software | = | Joomla CMS website |
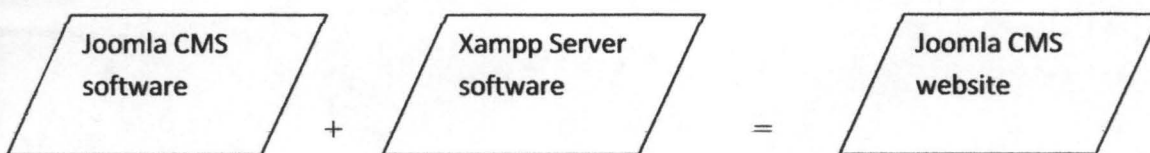
Figure 3.1 Software for installation.

On getting access to the Joomla backend (control panel) configuration, a variety of tools needed to build your website are arranged inside the dashboard to carefully guide and aid the administrator when getting started.

Listed below are tools in the control panel that aided in the gradual development of the website with their appropriate screen shots for a better view and picture of what is explained.

3.4.2 JOOMLA CONTROL PANEL

The control panel is a centralized panel where the administrator can jump to the most common parts of the site. This page is essentially the home page of the administrator interface. At first glance the page may reveal only a number of navigation buttons.
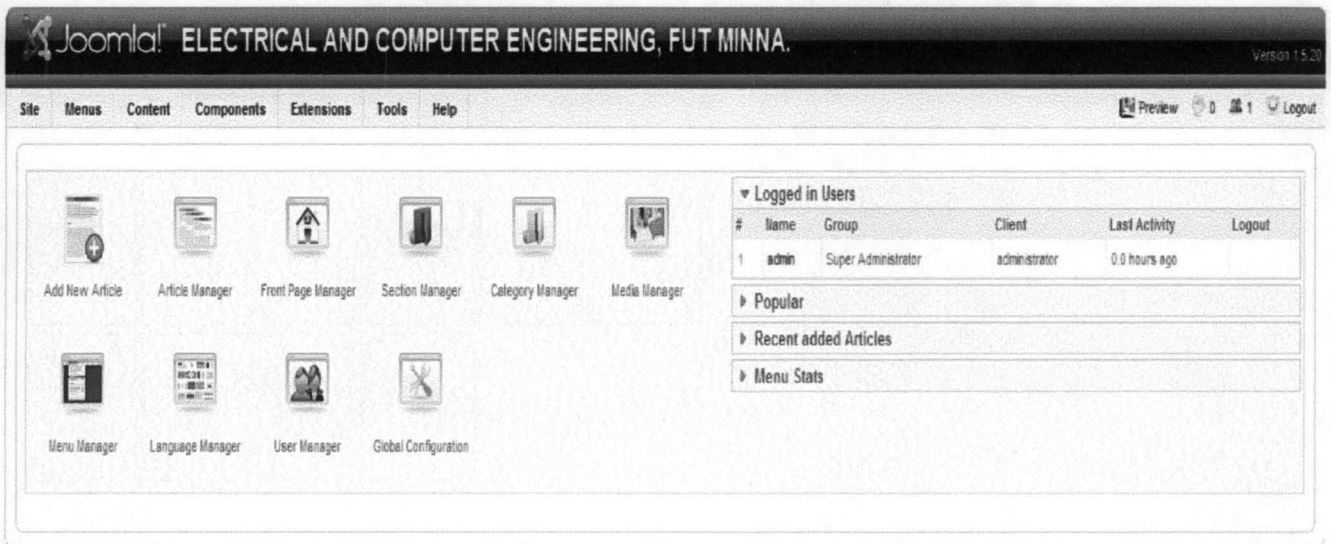
Figure 3.2 Control Panel

3.4.3 ARTICLE MANAGER

The Article manager can be used to create both categorized and uncategorized articles. The only central feature that hasn't been covered is the archive functionality. Any successful Joomla site will run into the problems caused by an abundance of articles. Even with consistent filing of articles within sections and categories. In this case the Joomla administrator will need to prune the content on the site so that neither the visitor nor the administrator becomes lost in the chaos.

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Joomla provides a mechanism to prevent the site from becoming overwhelmed with older content. Pruning is accomplished by the use of the Archive button. When an article is archived, it is no longer generally available on the site, it doesn't take up processing time during a site search, and it won't clutter the query results. If you ever need to return the article to the site, simply view the list of archived items, select the desired item and click the un archived button and the document will be restored to general publication.
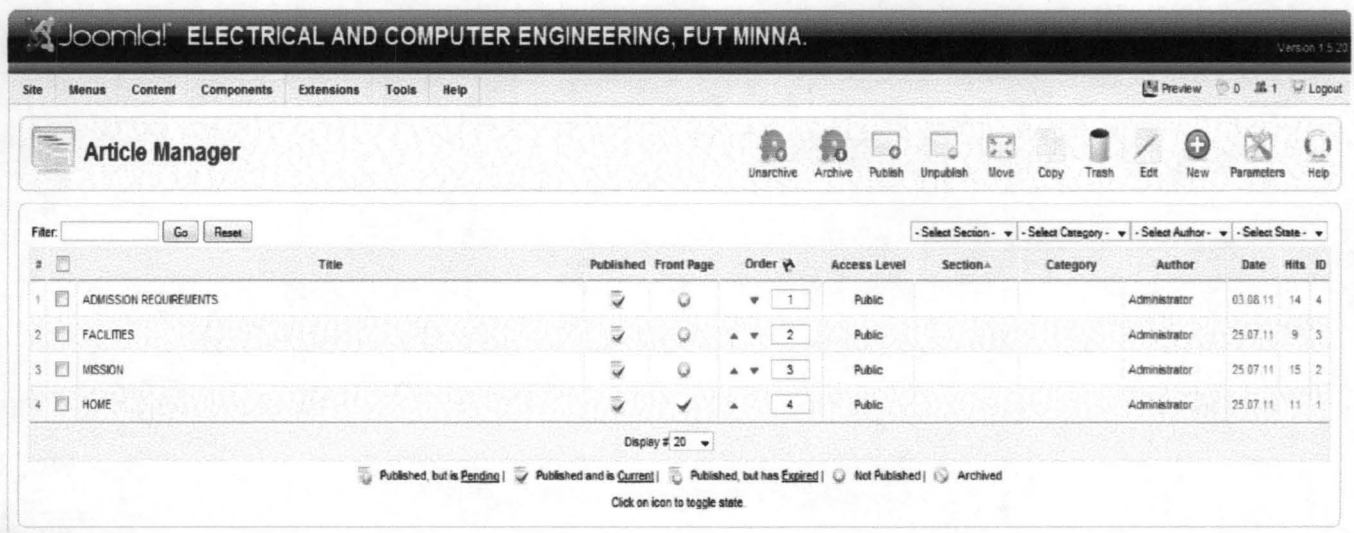
Figure 3.3 Article Manager

3.4.4 CONTACT COMPONENT

Joomla includes a small contact management system within the CMS. Contacts stored in this component can be interlinked with the Joomla accounts of registered users which make usage, content contribution and email transmission all trackable through the Joomla interface. Contact entries are displayed in the Contact Manager. Any accounts linked to a registered Joomla user are shown in the Linked to User column.

23

Figure 3.4 Contact Manager

3.4.5 TEMPLATE MANAGER

The Template manager allows the administrator to select the default template, but also provides editing capabilities for both the main index file of the template and the style sheet file or files. That means that you don't need access to a text editor. One can also create his/her own template.

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Figure 3.5 Template Manager

3.4.6 TRASH MANAGER

Like most desktop operating systems, deleted content is not immediately deleted from the Joomla system. When the delete function on an item is selected, that item is relocated to the trash receptacle. From the trash manager, you can delete all items, select specific items that are to be permanently deleted, or restore individual items to their pre deletion location.

Figure 3.6 Trash Manager

3.4.7 USER MANAGER

The user manager allows the administrator to grant and revoke privileges for individual accounts. Joomla was created with collaboration in mind. For that reason the Joomla user is configured to essentially follow the needs of an online publication. If the Joomla site allows for logins, generally the user will register with the system and be sent a confirmation message. If the account is validated, the user is placed into the registered user group. When a registered user logs into a Joomla site, every user has two options in common; Edit Account details and submit web link. Users with author security level and above can also submit new content.

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Figure 3.7 User Manager

3.4.8 LOGIN SECURITY

Joomla provides anonymous access for everyone and basic login security for registered users. The types of users that will access the joomla site are broken down into three basic groups

i. **REGISTERED FRONT END USERS;** these are readers of your site who log in to gain access to restricted content. A registered user account may be activated after filling in a simple form receiving a confirmation email or being manually confirmed by an administrator. Content on a Joomla site can be restricted to registered users. Registered users may be authorized to contribute content to the site, but adding new content is the limit of their permissions.

ii. **REGISTERED BACK END USERS;** these are contributors, system administrators, or moderators who have the ability to log in and modify core portions of the site itself. Their

ability to make changes to the site is determined by the permissions granted. These users have access to the administrator back end.

iii. **UNREGISTERED USERS;** these users are simply visitors to the website who haven't logged in and may not be registered. Most simple websites don't have a registration system, so all of the users of such a web site would fall into this category. These users are also called public front end users.

3.4.9 EXTENSION MANAGER

The extension manager provides a centralized place where you can install new extensions or examine the extensions that have already been installed on the system. This manager is used to administer components, modules, plugins, languages, and templates. It allows you to uninstall any of these items.

Below is a screen shot of the Extension Manager.

Figure 3.8 Extension Manager

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3.4.10 MODULE MANAGER

The module manager is used to administer not only the modules themselves, but also modules associated with each menu. However a menu doesn't actually display anything the permission is left to a module associated with it. When a new menu is created, a module for menu display is automatically created and linked to the menu. When you open the module manager, you will see a display list of all of the modules activated in the system as shown in the screen shot.
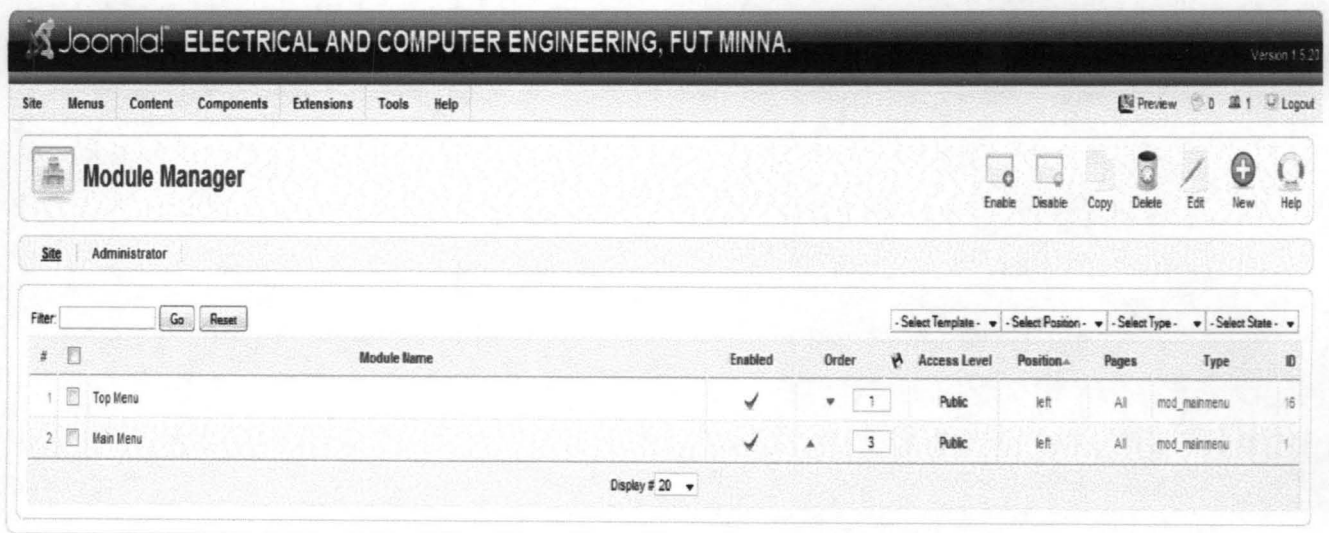
Figure 3.9 Module Manager

3.4.11 MASS MAIL MANAGER

A Joomla administrator may need to send a bulk email to all of the site users for a site related occasion, a maintenance shutdown, a security alert or another event. The mass mail manager lets the administrator send a bulk message to all members of a particular group. These messages are sent through the Joomla mail system, so if no SMTP server is set up, they will only be sent within the site mail system.
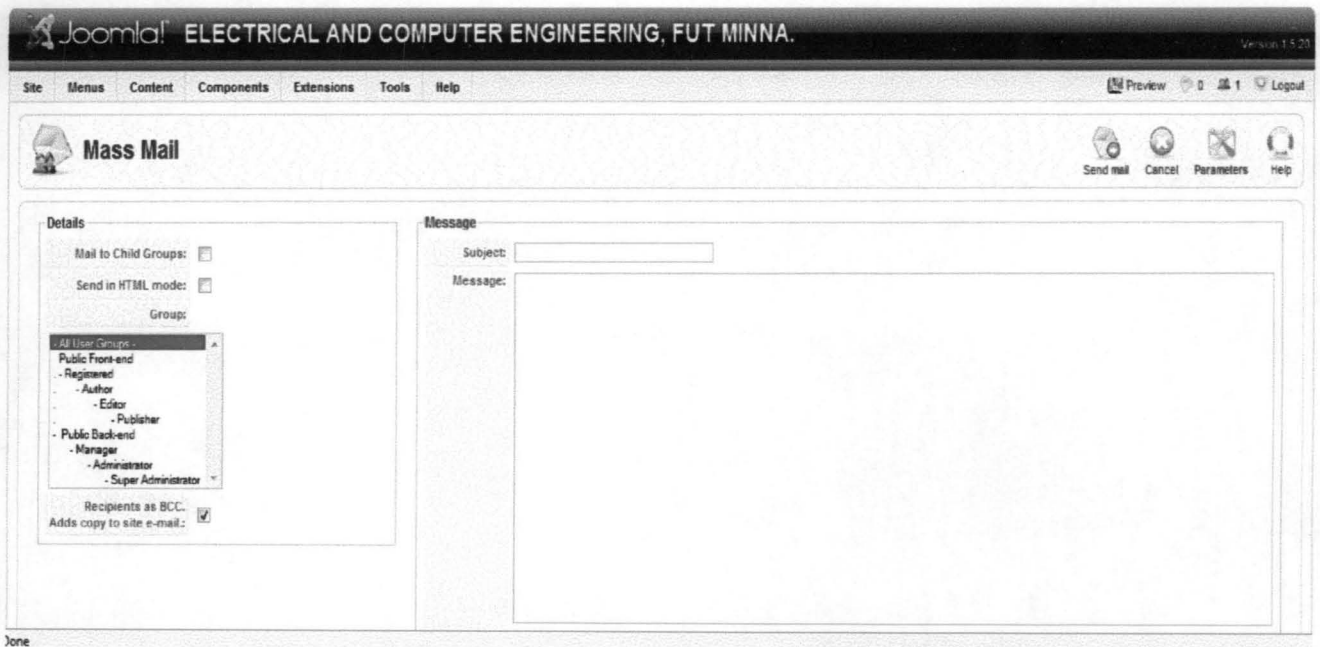
Figure 3.10 Mass Mail Manager

3.4.12 LINK

The web is based on an idea called hypertext- a method of connecting content by moving from one page or file to another via links. Web links usually have a different colour (usually blue) and are underlined. When a link is clicked on, the browser displays the page to which the link points.
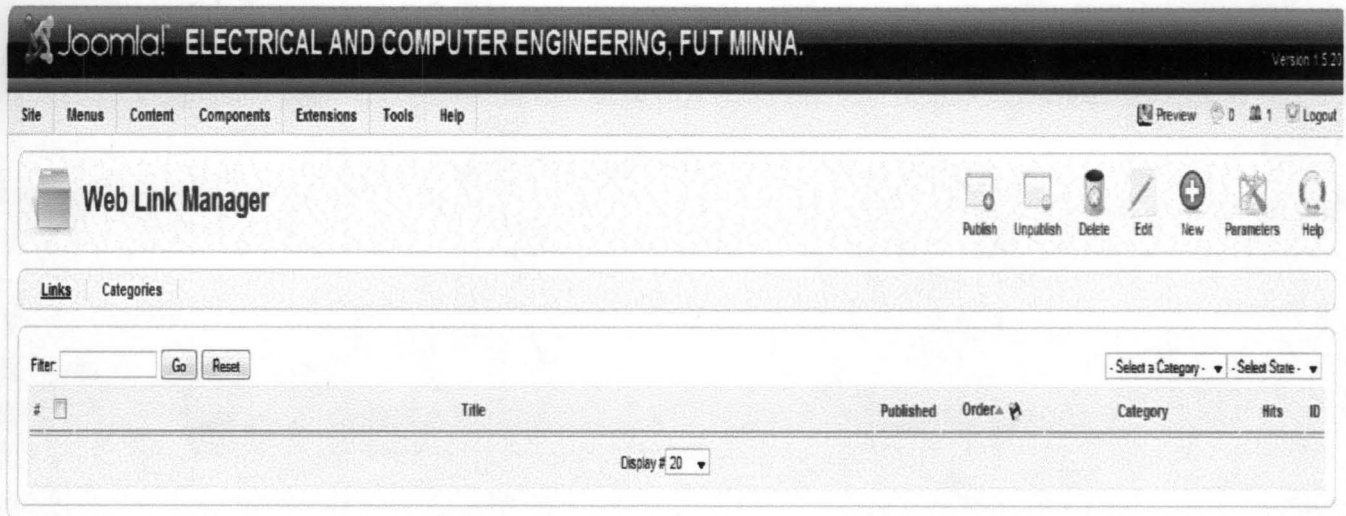
Figure 3.11 Web Link Manager

3.5 THE DATABASE

The Joomla CMS website has dynamic (frequently changing) content or interactive features, like search. A database was provided for this design. Among other things, databases provide a way for the average person to update content on a website. You don't need a web programmer to make frequent changes. Instead, special screens (called admin screens) can be provided so that anyone in your company, with the appropriate security, can make changes to the content of the webpage.

Putting this data into a database and exposing it to the web allows viewers to sort the item by name, values or whatever. It also enables the use of a search tool to narrow or filter the results so a viewer would be able to search for any information on the site.

Someone in the office would need to update this data on a regular basis to keep the data current. Instead of needing someone that knows web programming, anyone in your office can update the data via the web by means of special, secure administration pages that prompt the user for the correct information and add, modifies or deletes the data in the database. By doing so the website is automatically and instantly updated.
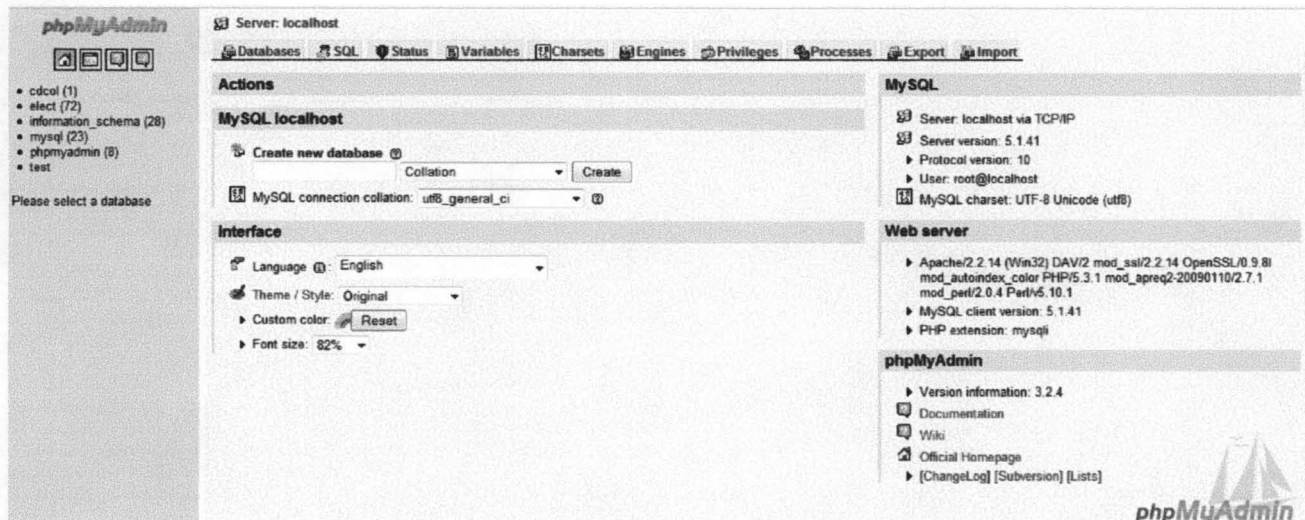

Figure 3.12 Database Interface

3.6 SCREENSHOTS FOR THE COMPLETED SITE WITH THEIR FEATURES

3.6.1 The Top Menu containing the Home, Contact Us, Welcome Note, Job Opportunities and Objectives of the Department.
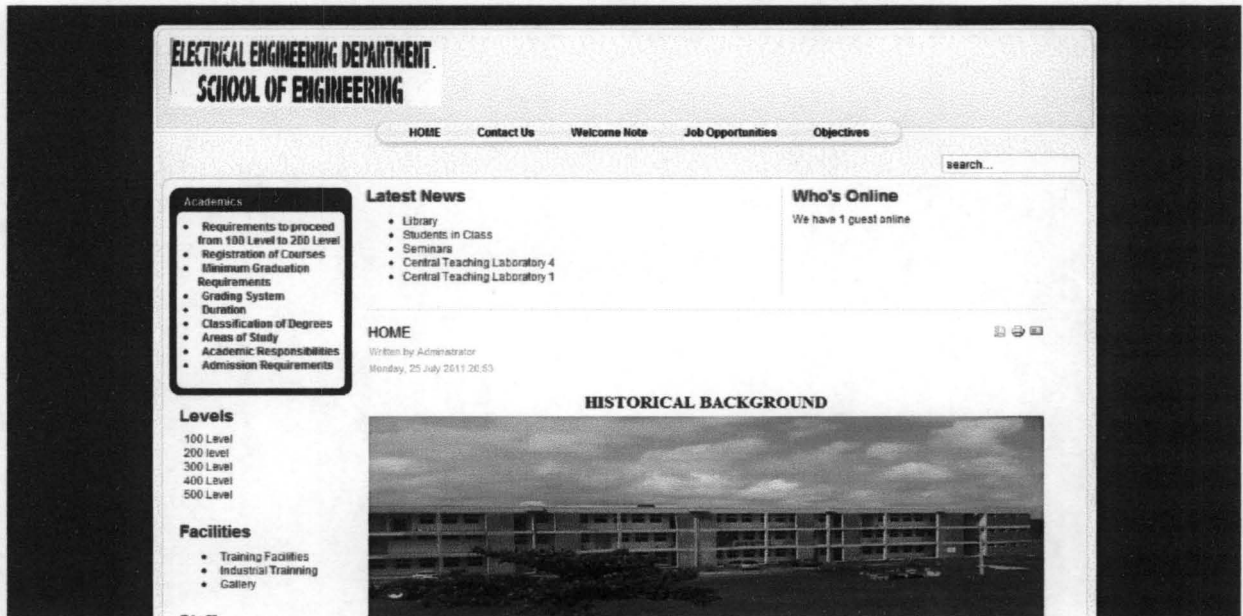
Figure 3.13 Top Menu

3.6.2 The Academics Menu containing information about requirements to proceed from 100 Level to 200 Level, Registration of Courses, Minimum Graduation Rquirements, Grading System, Duration, Classification of Degrees, Areas of Study, Academis Responsibilities and Admission Requirements for the Department.

Figure 3.14 Academics Menu

3.6.3 The Levels Menu with Sections from 100, 200, 300, 400 and 500 Levels containing categories for Course Synopsis for 1st and 2nd Semesters.

Figure 3.15 Levels Menu

3.6.4 The Facilities Menu contains information for the Training Facilities, Industrial Training and picture gallery for the Department.

i.   A List of Gallery in the Site.

Figure 3.16 Gallery List

ii. The Laboratory Gallery

Figure 3.17 Laboratory Gallery

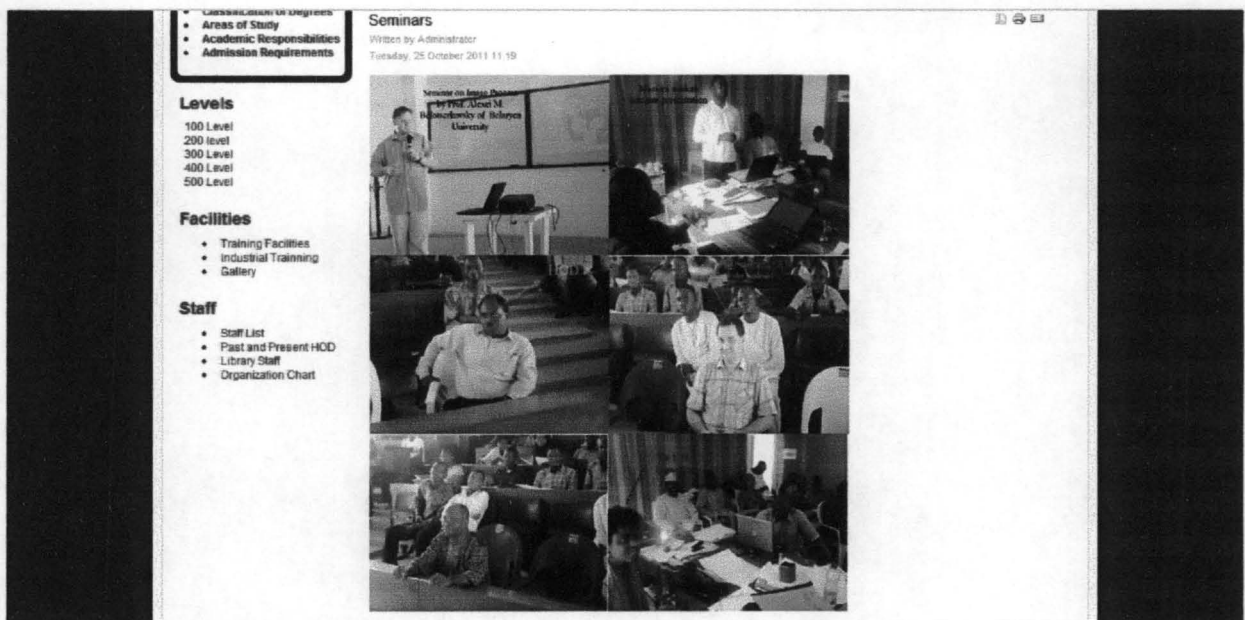## iii. The Seminar Gallery

Figure 3.18 Seminar Gallery
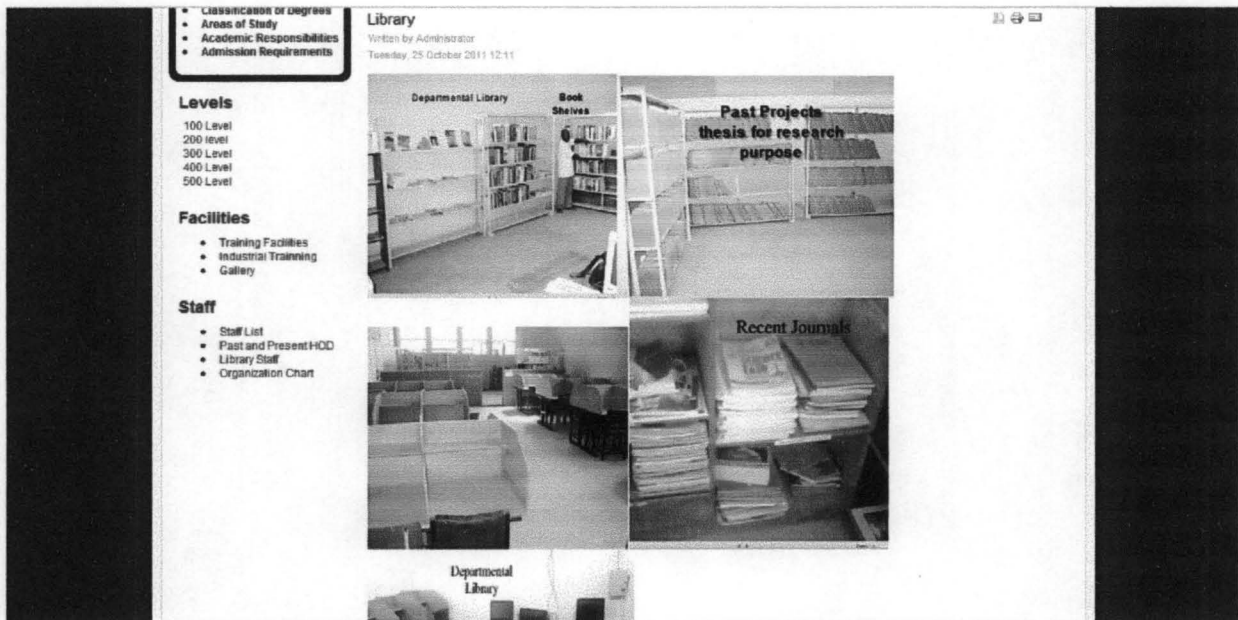
iv.   The Library Gallery

Figure 3.19 Library Gallery

v.   The Central Teaching Laboratory 1 Gallery (CTL1)
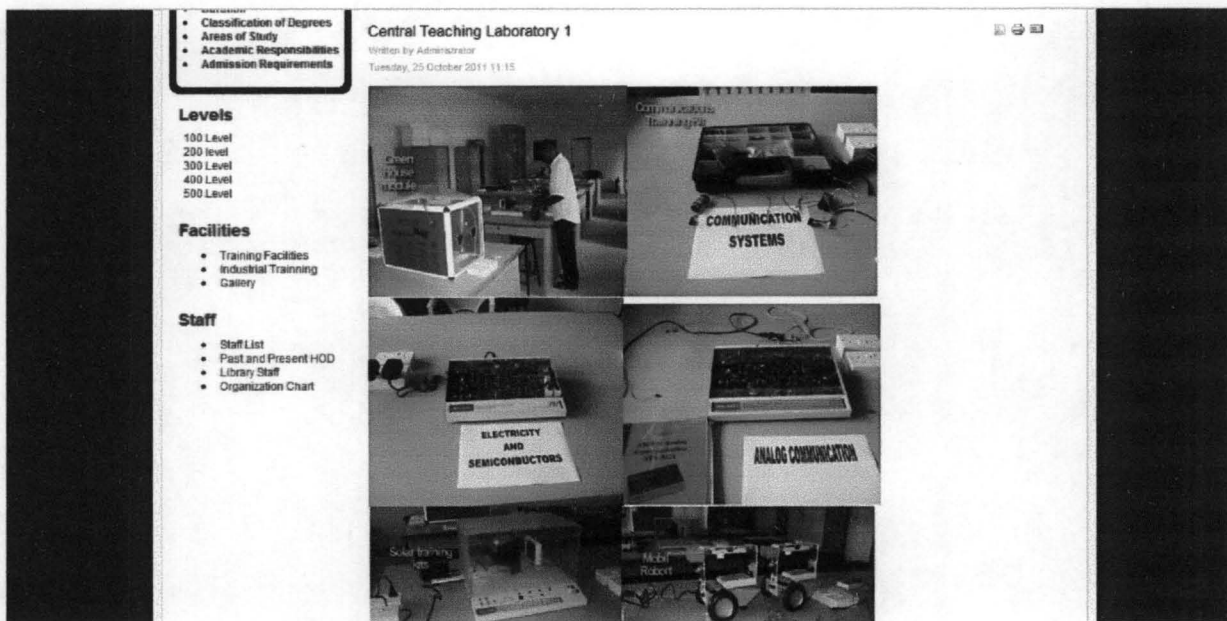

Figure 3.20 CTL 1 Gallery

vi.   The Central Teaching Laboratory 4 Gallery (CTL4)

Figure 3.21 CTL 4 Gallery
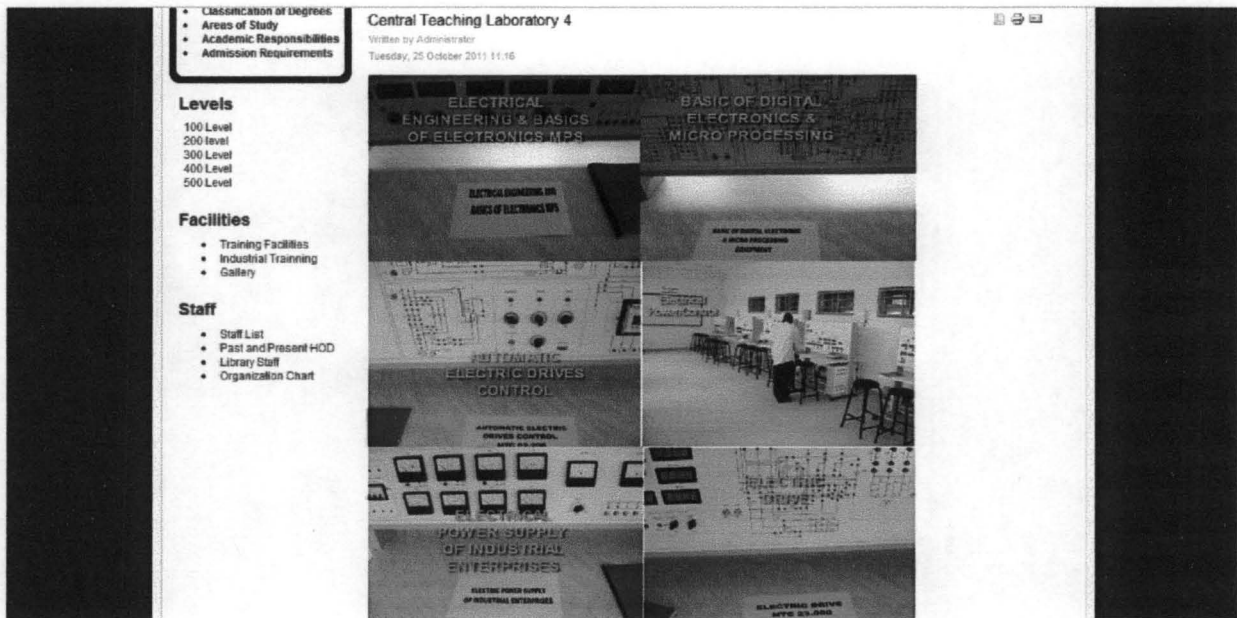
3.6.5 The Staff Menu containing information for Staff list, Past and Present HODs, Library
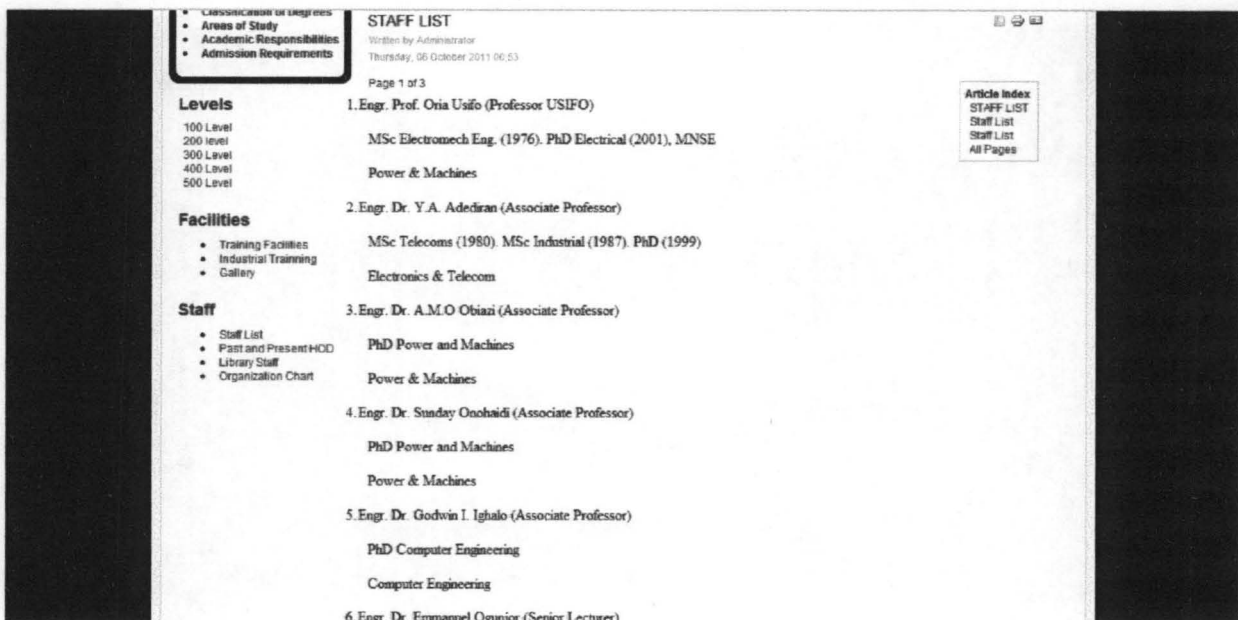
Staff.

Figure 3.22 Staff Menu

3.6.6 A Module for the Latest News and information added to the site, another Module for knowing the number of visitors to the site and another for Searching contents in the site.
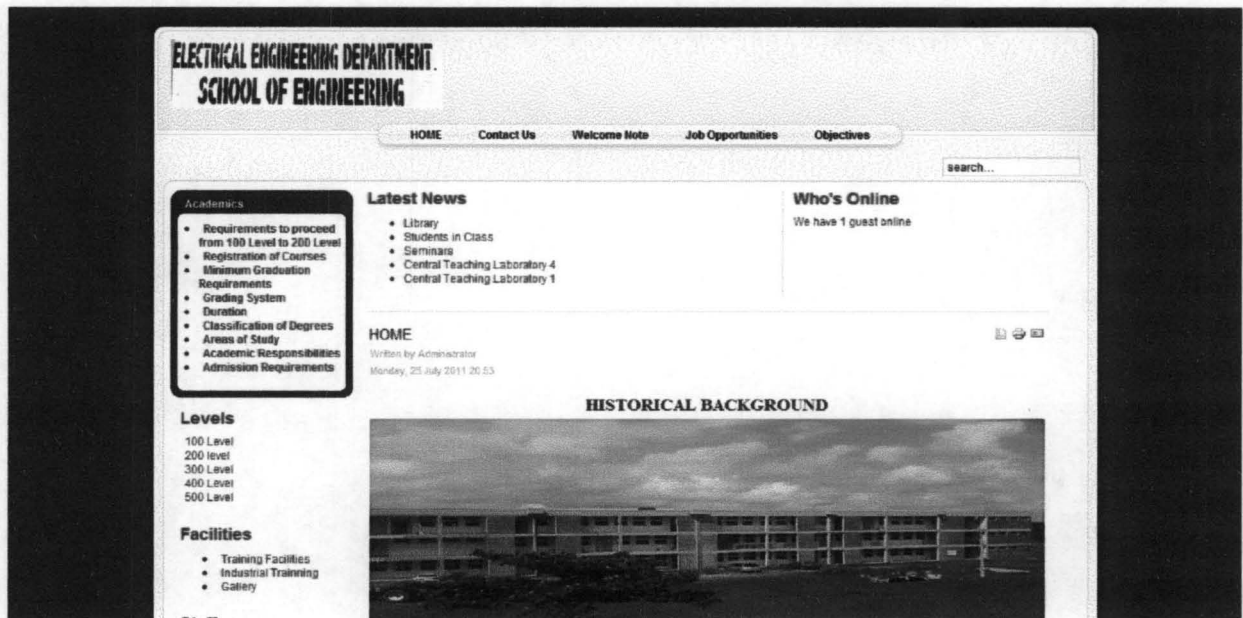

Figure 3.23 Latest News, Who's Online and Search Module.

CHAPTER FOUR

4.1 PROJECT IMPLEMENTATION

After the website has been developed, it is ready for the world, but before it is published on a server, it must be tested. Depending on the size of the project, client specifications and kinds of browsers that visitors will use, there might be need to move the site to a staging server where it can be tested and edited. When corrections have been made, the site is published where the public can access it. Once the site is published, maintenance is established to ensure quality, response to user feedback and updates to the sites information.

4.2 PROOFREADING

Read everything. Read it again. Get someone else to read it. There is always something one will pick up on reading and have to change. See if one can reduce the amount of text by keeping it specific. Break up large text blocks into shorter paragraphs. Add clear headings throughout and use a list so that users can scan easily.

4.3 WEBSITE TESTING

When launching a website, one can often forget a number of things in eagerness to make the site live. Before the site is uploaded to a server and declared ready for viewing, it is to be tested locally. It is essential to have a checklist to test and troubleshoot the site frequently throughout its construction; problems can be detected early and avoided or corrected.

The aim is to make sure the pages look and work as expected in the target browsers, that there are no broken links and that pages don't take too long to download. The entire site can be tested and troubleshooting done by running a site report before publishing the site.

4.40 BROWSER COMPATIBILITY CHECK

It is a good idea to test pages by previewing them in browser often throughout the web design and creation process. By using this strategy, it is easy to catch errors early and correct them. Web pages can be constructed with elements that are supported by all browsers (for example, images and paragraph text), as well as elements that are supported only by newer browsers (for example styles and layers).

4.41 USABILITY TEST: This is to ensure that documents are usable like forms, even after they have been confirmed by technical control.

4.5 REGISTERING A DOMAIN NAME

In order to obtain space in the (www) a domain name has to be acquired for the website. The domain name serves as the website address or so called URL (uniform resource locator). This provides a link into your homepage and therefore access to all the files on your website. Registering a domain name also comes with acquiring some web space.

Some available domain names are:

i.   .gov (government related)

ii.   .net (network related)

iii.   .edu (education related)

iv.   .org (organizations, mostly non-profit)

v.   .com (companies related)

4.5.1 SOME GUIDELINES TO ASSIST ONE IN SELECTING A DOMAIN NAME

i.   Select a domain name that contains your most relevant keyword phrase.

ii.   Your domain name should be easily remembered.

iii.   Avoid using abbreviations or anything that will be difficult for your visitors to remember.

iv.   Keep your domain name as short as possible.

4.6 FILE TRANSFER PROTOCOL

In computer communications, FTP is a method of transferring files from one computer to another. The protocol is a set of rules that ensures a file is transmitted properly to the receiving computer. A computer that stores files that can be retrieved using FTP is called an FTP site or FTP server. FTP is part of the Transmission Control/Internet Protocol (TCP/IP), the system that enables different types of computers and networks on the internet to communicate.

4.7 PUBLISHING

A fully developed website remains an offline page until it is ready to be uploaded to the internet.

Publishing a website involves uploading the created pages unto the internet. To do this a domain name is needed (as mentioned above) or otherwise, a free host can be used.

4.8 MAINTAINING THE SITE

The internet has surely evolved into a market that has a strong outreach and penetration like none other and its dynamic nature is the primary reason why it needs to have a fresh look at all times because our website is a virtual reflection of us.

Getting the website developed is just the first step towards reaching out to the students. The degree of dynamism involved in the school environment today makes it inevitable for the website to be dynamic.

This makes it imperative that the website is frequently updated in terms of information present to ensure that the students get revitalized information on every visit.

It helps to retain the existing standard of the department and also gives new students the latest information about the services of the department.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

The benefits of online dissemination of information cannot be over emphasized and students of the department are given every piece of major information they need. Rooms have been made for easy accessibility, maintainability and future expansion by recreation. The cost of design, development and management is considered cheap and affordable by most institutions. Therefore, other individuals, the public sectors and organizations are eagerly seeking the services of web developers to explore their talents thereby creating job opportunity which in turn creates wealth through the internet.

5.2 RECOMMENDATION

One of the best ways to encourage creativity in students is to ensure that their projects after being carried out, are implemented by the department. This project was developed in such a way as to facilitate future improvements, innovations and expansion.

Joomla Content management system was used because it is one of the easiest and most secure ways to start in the web application development and requires minimum technical know-how. It provides a quick overview to help you get an idea of how the technology works.

I strongly recommend the use of the Joomla software in web designs especially for the department because of its wide capabilities, functionalities, user friendliness and most especially the security feature.

REFERENCES

[1] http://www.joomla.org

[2] http://www.en.wikipedia.org/wiki/websites

[3] http://www.scribd.com/contributorsoftheinternet

[4] http://www.google.com/websites

[5] ELECTRICAL AND COMPUTER ENGINEERING

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