**DESIGN AND IMPLEMENTATION OF A STUDENT PROJECT MANAGEMENT SYSTEM**

**CHAPTER ONE**

**1.0 INTRODUCTION**

One of the recent advances in the world of information technology is the rapid development of communication which has turned the world into a global village, we can send mails electronically (e-mail), search for information (www), buy goods online (e-commerce), withdraw/ transfer money (e-banking), school online (e-learning); this has affected the society positively to a great extent, as a result, computerization of project management should not be exempted in this revolution.

Project Management (PM) is the [discipline](http://en.wikipedia.org/wiki/List_of_academic_disciplines) of planning, organizing, and managing resources to bring about the successful completion of a specific project goals and objectives. A [project](http://en.wikipedia.org/wiki/Project) is a finite endeavor having a specific start and completion date, undertaken to create a unique product or service which brings about beneficial change or added value. This finite characteristic of a project stand in sharp contrast to [processes](http://en.wikipedia.org/wiki/Process), or operations, which are permanent or semi-permanent functional works to repetitively produce the same product or service. In practice, the [management](http://en.wikipedia.org/wiki/Management) of these two systems is often found to be quite different, and as such requires the development of distinct technical skills and the adoption of separate management philosophy, which is the subject of this study.

The primary challenge of project management is to achieve all of the project goals and objectives while adhering to classic project constraints usually [scope](http://en.wikipedia.org/wiki/Scope), [quality](http://en.wikipedia.org/wiki/Quality), [time](http://en.wikipedia.org/wiki/Time) and [budget](http://en.wikipedia.org/wiki/Budget). The secondary and more ambitious challenge is to [optimize](http://en.wikipedia.org/wiki/Operations_research) the [allocation](http://en.wikipedia.org/wiki/Resource_allocation) and integration of inputs necessary to meet pre-defined objectives. A [project](http://en.wikipedia.org/wiki/Project) is a carefully defined set of activities that use [resources](http://en.wikipedia.org/wiki/Factors_of_production) ([money](http://en.wikipedia.org/wiki/Money), [people](http://en.wikipedia.org/wiki/People), [materials](http://en.wikipedia.org/wiki/Material), [energy](http://en.wikipedia.org/wiki/Energy), [space](http://en.wikipedia.org/wiki/Space), [provisions](http://en.wikipedia.org/wiki/Provisions), [communication](http://en.wikipedia.org/wiki/Communication), [motivation](http://en.wikipedia.org/wiki/Motivation), etc.) to achieve its goals and objectives.

Project management is quite often the province and responsibility of an individual [project manager](http://en.wikipedia.org/wiki/Project_manager). This individual seldom participates directly in the activities that produce the end result, but rather strives to maintain the progress and productive mutual interaction of various parties in such a way that overall risk of failure is reduced. A project manager is often a client representative and has to determine and implement the exact needs of the client, based on knowledge of the firm they are representing. The ability to adapt to the various internal procedures of the contracting party, and to form close links with the nominated representatives, is essential in ensuring that the key issues of cost, time, quality, and above all, client satisfaction, can be realized.

Regardless of the approach employed, careful consideration needs to be given to clarify surrounding project objectives, goals, and importantly, the roles and responsibilities of all participants and stakeholders. In software development, this approach is often known as "waterfall development", i.e., one series of tasks after another in linear sequence. In software development many organizations have adapted the Rational Unified Process (RUP) to fit this methodology, although RUP does not require or explicitly recommend this practice. Waterfall development can work for small tightly defined projects, but for larger projects of undefined or unknowable scope, it is less suited.

The Cone of Uncertainty explains some of this as the planning made on the initial phase of the project suffers from a high degree of uncertainty. This becomes specially true as software development is often the realization of a new or novel product, this method has been widely accepted as ineffective for software projects where requirements are largely unknowable up front and susceptible to change. While the names may differ from industry to industry, the actual stages typically follow common steps to problem solving "defining the problem, weighing options, choosing a path, implementation and evaluation."

**1.2  Statement of the Problem**

It has become widely recognized that manual storage of student projects has inherent problems. Looking at the University of Port Harcourt as a case study, students submit hard copies of projects to their various departmental libraries. The disadvantages of this manual method are as listed below;

1.     Possibility of repeating project topics without detection by a project supervisor

2.     Records of project topics carried out by a student are stored in the departmental library for a long time which occupies valuable office space

3.     Projects are prone to loss due to natural disasters such as fire outbreak.

4.     Difficulty in searching for project topics already done

5.     Projects cannot be accessed outside the University, that is, it has the problem of geographical barrier.

6.     Backing up projects becomes a problem since more space will be employed.

Faced with the need to organize projects, the proposed system for management of student projects is unique and totally innovative in its integrated approach. Its functionality of making project storage easier makes it called for. The system to be developed makes use of richinternet technology to replace desktop application with web application running on a remote server. The systemshares the advantage of both web application and desktop application, and removes the mostdisadvantages of both.

**1.3  Aim and Objectives of the Study**

The aim of this research study is to develop a student project management system for the University of Port Harcourt to effectively manage students’ research projects.

The objectives of this research study are as listed below;

1.     To design a database for the system

2.     To implement the system using MySQL and PHP

3.     To test the student project management system using uniport as a case study.

**1.4  Significance of the Study**

The significance of this study is to move from manual documentation of projects to Computerized documentation of projects for easy retrieval, storage, accuracy and security. This research work will offer the following advantages to the various departments in the University of Port Harcourt;

1.                 Reduced Storage: The cost of commercial property and the need to store documentation for e.g. retrieval, regulatory compliance means that paper based project storage competes with people for space within an organisation. Scanning projects and integrating them into a project management system can greatly reduce the amount of prime storage space required by paper.

2.                 Flexible Indexing: Indexing paper in more than one way can be done, but it is awkward, costly and time-consuming. Images of projects stored within a project management system can be indexed in several different ways simultaneously.

3.                 Improved, faster and more flexible search: Project Management Systems can retrieve files by any word or phrase in the document - known as full text search - a capability that is impossible with paper.

4.                 Improved Security: A project management system can provide better, more flexible control over sensitive projects. Many project management system solutions allow access to projects to be controlled at the folder and/or document level for different groups and individuals. Paper projects stored in a traditional filing cabinet or filing room does not have the same level of security i.e. if you have access to the cabinet you have access to all items in it.

5.                 Disaster Recovery: A project management system provides an easy way to back-up projects for offsite storage and disaster recovery providing failsafe archives and an effective disaster recovery strategy. Paper is a bulky and expensive way to back-up records and is vulnerable to fire, flood, vandalism and theft.

6.                 No Lost Files: Lost projects can be expensive and time-consuming to replace. Within a Project Management System, imaged projects remain centrally stored when being viewed, so none are lost or misplaced. New documents are less likely to be incorrectly filed and even if incorrectly stored can be quickly and easily found and moved via the full-text searching mechanisms.

**7.**Digital Archiving: Keeping archival versions of projects in a project management system helps protect paper documents that still have to be retained, from over-handling.

**1.5  Scope of the Study**

The scope of this project covers Students’ Research Project Management in the University of Port Harcourt. This scope will be achieved in the following areas;

1.     Keeping track of research projects both approved and completed

2.     Harnessing the energy of staff at a faster pace

3.     Managing complex changes in an organized way

4.     Retrieving data as at when required.

**1.6  Limitations of the Study**

During the course of this research work, some constraints were encountered. Most prevailing among the constraints is the limited time for the conclusion of the study; other factors considered as challenging in the cause of this work include the following;

1.     Reluctance by the  officials to freely give out official information on how projects are being managed

**2.**Financial implication of the research work.

**1.7Definition of Terms**

**Project:**A project is a research or design which is carefully [planned](https://en.wikipedia.org/wiki/Plan) to achieve a particular aim under a specified time constraint.An ongoing project is usually called (or evolves into) a [program](https://en.wikipedia.org/wiki/Program_management).

**Milestone:**A significant event in the project, usually completion of a major deliverable. A milestone, by definition, has duration of zero and no effort.

**Computerization:** The act of introducing a computer system or of changing from a manual to a computer system.

**Action Plan:**A description of what needs to be done, when and by whom, to achieve the results called for by one or more objectives. It contains task assignments, schedules, and resource allocations.

**Assumption:**There may be external circumstances or events that must occur for the project to be successful (or that should happen to increase your chances of success). If you believe that the probability of the event occurring is acceptable, you could list it as an assumption. An assumption has a probability between 0 and 100%. That is, it is not impossible that the event will occur (0%) and it is not a fact (100%). It is somewhere in between. Assumptions are important because they set the context in which the entire remainder of the project is defined. If an assumption doesn't come through, the estimate and the rest of the project definition may no longer be valid.

**Closure:**The act of completing a project or a phase of a project, either because it has been completed or because it’s being terminated early.

**Corrective Action:**This is an action taken to eliminate the causes of an existing non-conformity or other undesirable situation. Changes made to bring expected future performance of a project.

**Cost Management:**The function required to maintain effective financial control of a project through the processes of evaluating, estimating, budgeting, monitoring, analyzing, forecasting, and reporting the cost.

**Critical path:**The sequence of activities that must be completed on schedule for an entire project to be completed on schedule. Each task on the critical path is called a critical task.

**Data**: A collection of facts made up of numbers, characters and symbols stored on computers in such a way that it can be processed by the computers.

**Gantt chart:**A Gantt chart is a bar chart that depicts activities as blocks over time. The beginning and end of the block correspond to the beginning and end-date of the activity. It is a project management tool.

**Information:** Important and useful facts obtained as output from a computer by means of process input data with a program.

**Program:**A Software designed for a certain use, such as word processing, electronic made, or spreadsheet entries. Sometimes it is called application.