*Indian Streams Research Journal*
*Vol - I , ISSUE - V [ July 2011 ] : Library Science* **ISSN:-2230-7850**

Article : The traditional Library system and the framework to convert it into Digital Library: A case Study

Author : Mr. N.D. Jambhekar [ S.S.S.S.K.R. Innani Mahavidyalaya Karanja (lad), Dist- Washim ]

**Abstract**

*The present day, Library is an information processing centre. Its effectiveness is determined by the efficiency and productivity of Librarian and library workers who work with system. Most of the information in this existing traditional like Library is paper based and in a structured handled by the librarian which is tedious. To improve the productivity, activities, task and functions of existing paper based library system, there is need of E-Library. The working and maintenance of traditional library system is harder due to the huge number of hard copy books and their storage. The record keeping and management make the operation hard. The Digital Library System refers to methods of gathering large amounts of information into digital form so it can be stored, retrieved and manipulated by computer easily. The effect of Digital library is successful only if, the information keep inside it can be searched rapidly. The Digital Library is said to be successful, if it can be easily useable by the college students, teaching staff for their study, research work.*

*This research provides the analytical study of existing library system in college and provides a framework to build the Digital Library system (DL) with the help of case study. The development requires a software engineering process that evaluates the existing library system in a systematic manner. Rigorous analysis of the existing library system must be carried out like evaluating the catalog system, types of books, journals, and other reading material must be separated by their categories. Because, the Digital Library is completely dealing with the digital data in the form of text, graphs, images of photo copies, sounds etc. , Digital Library and its storage systems need various technologies, including scanning, OCR, digital storage techniques, data compression, indexing and search algorithms, display devices and the Internet.*

*To implement the DL, some important things should be implemented first like recording the entry of visitors, maintaining the security and privacy, controlling*

*the flow of readers i.e. huge traffic comes and reading a common book, controlling the traffic of outsiders if the DL is access by the Wi-Fi network, isolates students or researcher or guests and allow the access of periodicals, journals or any internal or confidential data of DL to them. The challenges of dissemination of information from a remote site to multiple places must be effectively handle by DL*

**Keywords**

*DL, SDLC, storage media, data compression, indexing, searching algorithms, networking, storage formats, users, security, traffic.*

## Objectives

(1) To analysis the existing (traditional) library system in college by analyzing the catalog structure, users of library, types of reading material inside the library, accessing system, inventory management.

(2) Finding the way to record the existing reading material into digital form.

(3) Generating the framework, that, then used to build the digital library.

(4) Observing the effect of traditional library use against the digital library use on the users.

(5) Finding the best system development plan.

(6) Building the structure of DL with the help of best Quality techniques.

(7) Designing the best Graphical User Interface that suits the different users of DL.

## Hypothesis

(1) By using this advance, improved (Electronic) Digital Library, students, lecturers, researchers take their data from the digital database, even there is a single copy of journal, book available.

(2) This DL approach is beneficial over the traditional existing paper oriented library system approach.

(3) This DL effectively fulfill the requirements of everyone who dealing with the Traditional Paper based Library.

## Introduction

Today, the rate of peoples to read books is tremendously increased due to awareness of education everywhere. The college's efficiency is depends on their ability to manage information effectively, whether for educational, research, business and governmental purposes. Each time, we must rely on paper based library. To concern with the demand and availability of books in the paper oriented libraries, it is not possible to available the copies of books, journals to all students, lecturers, researchers at a time depending on their changing requirements. This is not affordable to any paper oriented library to keep all books with complete needed copies. To solve these problems, the Digital Libraries must be implemented across colleges.

The **Digital Library** is a critical technology for every person like students, lecturers, researchers, their guides as well as other persons willing to use that Digital Library. The Digital Library System refers to methods of gathering large amounts of information into digital form so it can be stored, retrieved and manipulated by computer easily. Using DL, the retrieval of information is easy, with no limit of accessing. Various books, journals can make available through this new technology based Digital Library.

## Literature Review/Background

Wide access to large information collections is of great potential importance in many aspects - economic, environmental, health, cultural, social, etc. - of everyday life. A huge amount of material has also been collected on every year. A large part of these collections is currently available only on paper or in analogue form. Even if we ignore the problems of preservation, this fact poses severe limits on their accessibility as well as on the cost effectiveness of their management. The shift from traditional libraries to the digital is not merely a technological evolution, but requires a change in the paradigm by which people access and interact with information. A traditional library is characterized by the following:

· emphasis on storage and preservation of physical items, particularly books and periodicals

· cataloging at a high level rather than one of detail, e.g., author and subject indexes as opposed to full text

· browsing based on physical proximity of related materials, e.g., books on sociology are near one another on the shelves

· passivity; information is physically assembled in one place; users must travel to the library to learn what is there and make use of it

The traditional library produce some drawback like, heavy cost to maintain the records, large storage space need to store the records/files, efforts that needed to search the required file from the large storage. There will be a problem occur, that damages the records due to bugs, or decay of papers. For this reason many Colleges, Universities and government bodies trying to convert the paper based library into Digital Library.

**Data Required for Digital Libraries**

The Digital Library is completely dealing with the digital data in the form of text, graphs, images of photo copies, sounds etc. Digital Library and its storage systems need various technologies, including scanning, OCR, digital storage techniques, data compression, indexing and search algorithms, display devices and the Internet. Ultimately, everything that people are interested in accessing will have to be digitized. The reason is that digital searching will become so easy, inexpensive, fast and ubiquitous that users will not tolerate, or will not access, traditional materials, special techniques for non-textual materials, such as music, images, videotape, etc.

**Data Generation / Collection**

For the Digital Library the core data required for it, must be in the Digital format. So if the collected data of any format should be converted into digital form. Converting text, images and objects to digital form requires much more than digital photography or even high-resolution scanning and requires some process, like

· initial input, either scanning or keyboarding

· conversion to one of a set of standard digital formats

· optical character recognition (OCR) to capture text characters for searching

· creation and input of metadata and cataloging information

**Proposed methods**

There are two important things in the DL environment, the ***Human-System Interaction*** and the ***Technical support***. The human-system interaction is depends on the actual working of the proposed system. To developed this system, we must follow the standard process known as *System Development Life Cycle (SDLC)(1)*. It contains several phases that guide the developer in designing and development of the Digital Library. The development is carried out by selecting the case study of proper College's paper based traditional library. The traditional paper work library must be re-engineered to generate the new Digital Library by using the preservation of paper work into the digital form is known as *Preservation Modeling Methodology*. The preserved data should be protected under the intellectual property rights (IPR)(2). In this case study approach research, The required methods to develop the framework are-

· Selecting the proper paper based library for the analysis.

· Identify the sources of data

· Depending on the sources of data gather the data for DL

· Divide the by their categories i.e. images, text etc.

· Identify the required digital devices need for the digital library work.

· Identify the personnel from the existing paper based library, required during the development of new DL. Arrange their schedule to work with the development phases.

· Extract the working knowledge of existing library form the personnel like librarian, by providing the questionnaires, feedback form, handouts.

· Selection of proper design and coding style.

**Technological Aspect**

Digital Library is completely dealing with the technology. The users of DL can use mobile, PDA, Laptops, Desktop Computers or any digital devices to access the digital library. So some important issues should be considered, like

· Identifying the digital devices, that are used to access the data from DL.

· Storage selection of data of DL like Magnetic media's, optical devices, etc.

· Networking facility.

· Valid permission/limitations to user like providing them a UserID and Password to access their account like Borrowers' Ticket (BT) used in the paper based library.

· Remote Logging facility i.e. user can access DL from any place.

· Security, where the restrictions must be implemented on the hackers, crackers or any malicious users.

· Central directory to access the DL.

· Maintaining the traffic against the DL, so that it cannot crash.

**Expected outcomes and their importance**

This digital library will become truly useful, if it must assist users in making the transition from paper books to digital hypermedia. The Digital Library gives:

· Portability. Books can readily be carried, are compact, light in weight and comfortable to read. Anything you can't read in bed will never displace a book.

· Reliability. Reading books would still be possible even if every computer on earth were down.

· Familiarity with the medium. The pages of a book are easy to turn, the book can be opened to any page, and the linear hierarchical organization of the material is easy to grasp.

· Low cost – No Cost.

· Ability to annotate. Comments and corrections can be written in a book; passages can be marked for emphasis or studying, and a book can be resold to recover costs.

**Scopes of Digital Libraries**

The library of the future will be digital and have the following features:

· contain all recorded knowledge online (billions of items)

· distributed, maintained globally

· accessible by:

o any student, lecturer, researchers

o any time

o anywhere from college campus or from the college web site.

o via the Internet

· act as the information resource for the college.

But here, to open and use the information form college digital library, students must login form their college user-id and password.

**Limitations**

Due to the digital nature, this DL is very useful, but it can have some limitations, like

· The conversion of non-digital data into digital format is difficult and time consuming, laborious work.

· Good network facility with good coverage is crucial one.

· Availability of digital devices like computer to access the information from DL.

· Copy rights law to convert the restricted papers into digital form.

· High cost to develop the DL with costly digital devices used in the development of DL.

**3.7 Conclusion**

In this fast running life style, every person try to compete with other persons, world and with himself. In this competition age, the importance to the information is very crucial. The information is the basic building blocks of success. There is a bottleneck, on the road to achieve the success, this bottleneck is the paper based traditional library. This library system is costly, slower, ineffective, sometimes failure to achieve the goal of excellence. If human beings adopt the Digital Library, then DL's faster, efficient, and cheaper to access the information, gives human beings a competitive background and helps to achieve the excellence in this competitive era.

## References

(1) Roger S. Pressman, "Software Engineering: A practitioner's approach" , 6th Edition, Mc-

Graw Hill ISBN 0-07-365578-3., International Edition 2005.

(2) Seamus Ross,Margaret Hedstrom, "Preservation research and sustainable digital libraries", Published online: 13 January 2005.

(3) Gary Cleveland, "Digital Libraries: Definitions, Issues and Challenges", *UDT Occasional Paper # 8* March, 1998.

(4) Barry M. Leiner," The Scope of the Digital Library", Draft Prepared by Barry M. Leiner for the DLib Working Group on Digital Library Metrics January 16, 1998

(5) Baby, M.D. ; Raghunathan and Pradeepam, Stanley James. "Changing trends in library and

information science.", New Delhi: Ess Ess Publications, 2000.

(6) Stallings, William. "Network security Essentials: Applications and Standards" . Delhi :

Pearson Education Asia, 2001.

(7) Singh, Shankar. "World Wide Web Handbook for Librarians". New Delhi: Ess Ess

Publications, 2000

(8) Ali Behforooz and Frederick J. Hudson, “Software Engineering Fundamental task”, Oxford

University Press, Inc. 1996.

(9) Praphat K. Andleigh and Kiran Thakur, “Multimedia Systems Design”, Prentice Hall PTR,

1996

(10) Raghu Ramkrishna and Johannes Gehrke, “ Database Management system”, Mc Graw- Hill,

International Editions, 2000.

(11) Dr. Vijay Laxmi and Dr. S.C. Jindal, “Digital Library”, 2004, set 1,2,3.

(12) Savita Mittal, “Digital Library”, Ess Ess Publication 2005.