

A Digital Library Proposal for Engineering Libraries

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This paper tries to make a proposal for building digital libraries using open source software with special reference to DSpace. The authors are associated with Cusat digital library¹ that made using DSpace open source software. The authors provide practical ideas for designing, developing and maintaining a digital library that caters the needs of users by saving time and effort.

Keywords: Digital Library, Open Source Software, Institutional Repositories, DSpace

1. Introduction

The technological advances in various fields have empowered librarians with new tools and techniques. Librarians were always in the forefront of adopting new methods of doing things using latest technologies. The advent of open source software is an important area of exploration for the librarians. A large number of applications using open source software were made by libraries across the world. Many libraries started to automate their functions using open source integrated systems. Libraries made use of open source software like DSpace², E-Prints³, Fedora⁴ etc for building digital libraries and institutional repositories. This paper is offering a proposal for building a digital library in an engineering library using DSpace open source software in Indian context.

2. Why Digital Libraries

When the world in which we live use and experience the advantages of digital technologies and media, librarians cannot go with traditional methods for disseminating information. Since most of the items are available in digital format and there are facilities to explore these developments, the task of librarians is becoming easy. A digital library shall be an important achievement for the academic community of faculty and students. While library integrated systems are giving information about information, digital libraries shall offer actual content. This may save the time of both users and staff. Digital libraries help to store the digital contents in an organized, secure, and searchable archive and preserve these for future use. A web based digital library helps to distribute the contents worldwide. The contents shall also get top search result in Google. The library staff may save time in issuing many documents as they are in digital library. Users can also save their time for searching and selecting many items.

3. DSpace Open Source Software (<http://www.dspace.org>)

Software is an important component of digital libraries. But it was beyond the reach of librarians in terms of cost. The advent of free/ open source software (FOSS) projects made ground-breaking changes

in the library environment. The FOSS are existing for various purposes from operating system (GNU/Linux) to building digital libraries/ institutional repositories (Greenstone, E-prints, Fedora, DSpace).

Among the various software for digital libraries/institutional repositories, DSpace developed in 2002 by MIT Libraries and Hewlett Packard (Hp) Labs, is the most popular one across the world. Though actually developed for building institutional repositories, many libraries have used DSpace for digital libraries. Institutional repositories are specifically designed to organize, disseminate and preserve knowledge created by an institution. When an institution captures and disseminates data relevant for its community created outside the institution, we can call it a digital library. DSpace software can be downloaded from <http://sourceforge.net>,⁸ the open source software repository.

4. Setting Objectives

Engineering libraries are catering the specific information needs of faculty, research scholars and students of graduate post graduate courses. They provide access to textbooks, reference books, journals, databases, e-journals and many other sources of information. The large amounts of documents are beyond the control of librarians. Unless organized and kept digitally, information retrieval from these sources shall be very difficult for both users and staff. Hence this proposal.

The objectives, importance and workflow of Engineering Digital Library are given below;

4.1 Title of the Proposal : Engineering Digital Library

4.2 Objectives of Engineering Digital Library

- Create a database of journal articles with Author and key words
- Scan full text of the journals and store in a server class machine
- Design a search interface for journal titles/ books and other items
- Provide full text of articles to faculty and students
- Digital Preservation and Online Access of Engineering Resources
- Scan and preserve out of print textbooks
- Scan and preserve in-house publications
- Scan and preserve Government and legal documents
- Scan and preserve Question papers and Syllabus
- Digitize Project reports and theses
- Digitize media reports on related subjects
- Preserve faculty articles
- Search all resources through a single window

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- Easy access and delivery of items
- Maximize the use of engineering resources
- Help engineering community outside the institution
- Save the time of the Teachers, Students and Staff
- Save Storage Space

5. Workflow of Engineering Digital Library

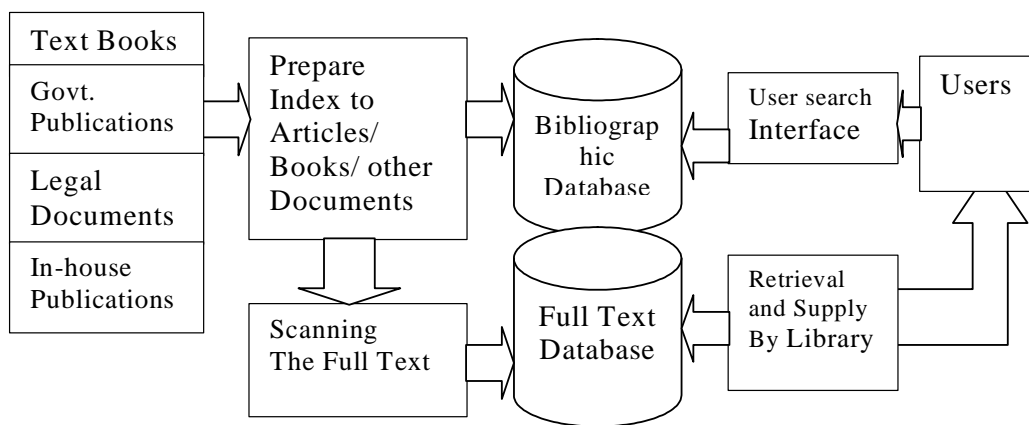


Figure1: Shows the workflow of engineering digital library

6. Hardware

The minimum hardware requirements of the project are listed below.

1. Server- around 140GB Hard disk or higher with 4 GB Ram having Linux Operating System
2. Desktops- 2 numbers for digital contents creation, organization and communication.
3. Scanner - Document Flatbed Scanner 50 ppm/100ipm at 200 dpi. Avoid document scanners without flatbed unit since we require scanning of fragile and mutilated items. A book scanner is highly recommended.
4. Audio/ Video recorder - for capturing speech/ lectures, presentations etc.
5. PDF creator licensed software or Linux open office
6. UPS for continuous power supply
7. Online support for making the digital library on the net/ LAN and
8. Storage media for backup- CDs/DVDs/Pen drive/ SAN storage etc

7. Human Resources

Since the proposal is based on DSpace, the staff pattern can be structured on DSpace principle; an administrator and several e-people. The digital library is controlled by the administrator who can create, delete, or edit the digital library structure. The librarian or principle investigator can become the administrator. The first task is digitization of materials. This can be done either with the existing staff or with staff hired for the purpose. Organizing the digitized materials in separate communities is important for uploading the items to digital library structure. The administrator has to manage the duties of scanning, giving file name, creating metadata, preparing abstract and uploading the item to communities.

8. Challenges

The success of a digital library is depending upon the financial and technical support from the parent institution. Though we are not spending amount for software, we need to invest a huge amount on hardware at the initial stage. The server space can be saved if it is installed on an existing one. The best performing document scanner price is ranging from 2 lakhs to 5 lakhs. Book scanner cost goes beyond that. If the library is short of staff members, you need to hire staff from outside. Education and training for administrator and other staff is compulsory before going to actual installation. Even after proper education, a librarian may not be able to install and configure the system himself. Outside support or support from other wings of the parent body may be obtained. The library may seek the support of funding agencies through proper channel to finance the project. The proper server maintenance, up gradation of hardware and software from time to time, effective mechanism and policy for back-up and making the digital library growing by adding new items of information are the other important challenges for the digital library. Proper education and instruction for faculty and students must be given for effective utilisation of the digital library.

9. Conclusion

Digital libraries are not things beyond the reach of librarians. They offer great opportunities for both users and staff. The present proposal is aimed at exploring the possibilities of open source software as well as modern computer and communication technology. There are numerous ways of acquiring knowledge and experience in this regard. Many institutions conduct workshops and seminars on these areas. Documents dealing with digital library initiatives are available on the net. The success of open source software project is depending upon the community support. Members who are experts in this area share their knowledge ideas through email forum and blogs. The live DSpace installations by universities and institutions can be examined for further study. Library science literature covers this topic enormously.

References

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