

Digital Library and Silent features of Greenstone Digital Library Software

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Abstract

Digital library is the need of the present scenario and it is highly in demand these days for the libraries to provide the good services to the users. This article focus on what is digital library, types of software i.e. Commercial software & Open Source Software, and Greenstone Digital Library Software (GSDL) silent features for creating institutional repository. Requirements of hardware for open source software GSDL installation. GSDL installation process, and Jaipuria Institute's GSDL institutional repository screen-shots including case study presented in this article e.g. how to improve digital collection. This paper explores the Digital library needs, advantages & disadvantages and include some suggestions for using Greenstone Digital Library, how this is useful for small libraries and administrative staff work as well, i.e. policy document etc.

Keywords: Digital Library, Case study, Open Source, DELNET (Developing Library Network), GSDL

Introduction:

Theoretically, the term digital libraries can be logically defined as “an extension and enhancement of physically stored information, by means of retrieval systems that manipulate digital data in any medium” (texts, images, sound: static or dynamic images) (**Borgman, 1999; Marchionni, 2000; Marchionini& Fox, 1999**).

The digital library is a bridge between different areas of people, various types of technologies on every subject. Different subject areas related information is available over the internet. The availability of information on internet can serve the purpose of the digital library.

The most important function of a library is organization of the library system where information is managed and stored in digital format. A digital library is an integrated set of storing, searching, cataloging and retrieving the information which provides the coherent organization and convenient access to typically a large amount of digital information.

Digitization is a process of converting analog signal to digital form. It converts the physical documents in to electronic forms. The physical document may be printed form i.e. image, film, manuscript etc are called analog format and we convert in to digital format .The image of

physical documents is captured by scanner or digital cameras for clarity of the image. These electronic resources are made accessible to users via internet and computer.

When we digitize the document there are following policies for digitization:

1. Policies to use the items i.e. how to use the material or distribute to users.
2. Potential users or audience for preservation of original and digital files.
3. Ownership of the information
4. Collection criteria for choosing the information to be digitized

1.1 Requirement for a digital library:

For digitization we need the following equipment

1. PC
2. Application Software
3. Scanner
4. Digital Camera

For developing the digital library we use the two types of software

a) Commercial software

b) Open Source Software

a) Commercial software: Commercial software are paid software used for digitization of the library resources. This software are expensive hence all libraries cannot afford these commercial software. Very few libraries use this software due to its high establishment and maintenance cost.

b) Open Source Software:

Open source software is called where the source code developed over the Internet for public domain. And there is a facility of peer review, modification for improvement of the software. It can be redistributed in modified form or unmodified form. Open source software use the collaboration software method and produce the innovation and possibility of user centric development. Open source software use for the library database management and digital library software etc.

1.2 Characteristic of Digital Library:

A digital library is a systematic collection of digitized information. This is accessible via computer by using TCP/IP or other method.

The following are characteristic of the digital Library:

- A) The acquisition, preservation, storage and retrieval process are used by the technology.
- B) Storage of information available in digital text or image etc.
- C) Possibility of access all over the world directly or indirectly
- D) User friendly while dealing with the Information object.
- E) Information are available in machine readable form.

1.3 Need for a Digital Library:

To provide the good service to the users at the users' desktop there are following needs:

- a) **User friendly:** The digital library information services are more users friendly.
- b) **Changing Trend:** The modern user always wants the information at his/her desk. This generation is more tech savvy and prefer information in digital form-on tablets, mobile, Computer screen etc. This kind of demand is difficult to cater through traditional libraries.
- c) **Multiple use of knowledge:** Knowledge in digital libraries can be used to easily by different users at the same time. This use of information does not only save cost but also helps in dissemination of same in information at various places.
- d) **Information Explosion:** There is large amount of information available in the public domain which is not properly organized. Digital library is able to manage the problem of information explosion to some extent. Digital library is able to handle the large amount of digital content by providing link or embedding.
- e) **Minimal effort in searching of information:** Searching information in traditional library set up is a cumbersome task for users while with the advent of digital library this problem is no more there.
- f) **Distance Learning Possibilities:** Digital libraries made education system to transcend from its traditional way of providing education in the society. Students sitting different part of the world can avail the library facility and complete their education through distance learning.
- g) **Saving on Library expenses:** Unlike traditional library digital libraries have much less cost on its establishment and maintenance. The cost of technologies is much more less than that of traditional libraries

- h) Problem of Storage:** Traditional libraries need huge physical space for storage while in case of Digital libraries to overcome this problem of physical storage. Digital libraries can be maintained in server with minimal space.
- i) Storage Problem in Traditional Libraries:** Libraries are spending much of its budget by way of maintaining the collection in a usable form that also demands a huge physical space. Digitization hopes to overcome this. Digital Medias comes with a huge storage capacity.

1.4 Advantages of the Digital Library:

A digital library does not require the limited space. It is virtually available across the world via network.

There are following advantage of Digital Library.

a.	No Geographical boundaries	In the digital library concept there is no need to go to the library physically, people from all across the world can get information via Internet.
b.	Round the Clock Availability	In Digital libraries browsing there is no time boundaries. It can be access any time as 24 hours a day and 365 days of the year
c.	Multiple Accesses Facility	The same resources can be access at a same time from different users
d.	Well organised Approach	It provides the rich collection of data in organized way. Where we can easily move from the catalogue to the particular book then particular chapter so on.
e.	Information Retrieval	The information retrieval facility allow to users to search the information using the one word from entire collection.
f.	Preservation	The same copy of the original can be made by number of times without ruin the quality

g.	Space	The traditional libraries have the space problem but digital libraries don't have problem like that
h.	Cost	According to traditional library the digital library has much lower cost. While the traditional library spend the large sums of money for book maintenance, rent and additional books

1.5 Disadvantages of the Digital Library:

The virus of the computer is great deficiency of the digitized information which degrade the prosperities of digitized material.

a.	Copyright	The copyright law violate by the digitization as the thought content of one author can be freely transferred by others without his acknowledgement. That why there is a problem to distribute the information to users.
b.	Speed of Access	A lot of computers are connected to the internet so the user face the problem in internet speed
c.	Initial Cost is High	The cost of the infrastructure is very high for the digital library. i. e. the cost of hardware, software etc
d.	Efficiency	:Due to information explosion there is lack of efficiency for finding the right material
e.	Preservation	Because of rapidly technological changes the digital library become out-of-dated and data become inaccessible.

1.6 Role of Librarian in Digital Environment: In digital environment there has been already built a system where the information reach at the end user desk. In this case we can not overlook the librarian role. In digital age there is a need of librarian for packaging and repackaging of information to provide the electronic information for reference purpose. So, the librarian will be more or less or hypertext engineer. The digital age new environment will be really challenging one for librarian.

2.0 Greenstone Digital Library Software:

The Greenstone digital library software is a tool used to digitize the library resources and make it available for the users in digital form. It is a comprehensive tool for establishing digital Library collections. Greenstone started in 1995 by a very small group of the people. This was developed by the New Zealand digital library project at the University of Waikato. It is distributed as an open source, in different languages in collaboration with UNESCO and the Human Info NGO

The prime objective of greenstone is to make technical reports online and provide the accessibility to research scholar on web. Users can search the document using keywords or any other relevant words and get the desired result in an organized form.

This software helps in organizing information and library content in a new way and publishing it on the web or on any removable devices such as pen drive, CD-ROM/DVD. This software is extensively used in many countries. www.greenstone.org be looked at to know more about its use and users. UNESCO's goal behind this software is to disseminate the educational, research and cultural data, especially in developing countries.

2.1 Purpose and scope:

To give the good service to the users, universities and small libraries The United Nations Educational, Scientific and Cultural Organization (UNESCO) are helping the libraries for improvement of digital library collections for public domain.

There are some purposes which support the Greenstone.

- The construction of collection
- Information distribution on web
- Customization facility depending on available metadata
- End-user collection building for Librarian interface
- Reader interface and Librarian Interface for collection building(in multilingual)

Features of GSDL (Greenstone Digital Library Software):

Interface: The last user can access the digital library materials via user interface which is operate by a web browser. While in librarian interface there use the graphical Interface.

Format: The metadata sets define the use of greenstone's metadata set editor. In Greenstone metadata there is predefined metadata sets i.e. Dublin Core (DC)-RFC 1807-New Zealand Government locator service (NZGLS) - Australian Government locator service (AGLS).

Plug-ins: The Plug-ins exists for –XML, MARC, CDS/ISIS, Procite, BibTex, Refer, OAI, Dspace, METS. This is used for ingest document in different formats. For textual format the plug-ins is: Postscript, word, pdf, HTML, ZIP Archives, excel, PPT, email etc.

In context of multimedia, the plug-ins is Images TIFF, GIF, JPG, JIF, MP3 Audio, MPEG, etc.

2.2 Interoperability: OAI-PMH (Open Archives Protocol for Metadata Harvesting) can harvest documents in GSDL collection. After exporting the collection from METS and Greenstone it ingests the document in METS form. Even any dspace collection can be imported in to Greenstone.

Multilingual Facility: Using the UNICODE it provides the facility of searching and building in any UNICODE compliant language. The user's interface available in multilingual i.e. Hindi, Bengali and kannada.

Multimedia Facility: It also has a facility of non-textual multimedia i.e. audio-video and pictures with metadata. Give permit for searching and browsing facility for multimedia.

Indexing Facility: Greenstone can build the indexes from full text documents and also metadata. The indexes can create a various metadata fields.

Collection building: The collection building is important function of GSDL. This is very simple process. There are three methods for collection development:

- i. Command line
- ii. The collector
- iii Using the GLI tool

The above has introduced with the version of 2.40. The excellent change of the Greenstone that it can be download on Greenstone as “ Greenstone Librarian Interface”, a tool for collecting expanding and building digital libraries. It give the facility for accessing the Greenstone's function in easy way like “Point & Click” interface and it is also available in Unix systems.

Search and Browse:

It provides the facility for multi search option as full text based indexing.

(DELNET (NACLIN, 2009)

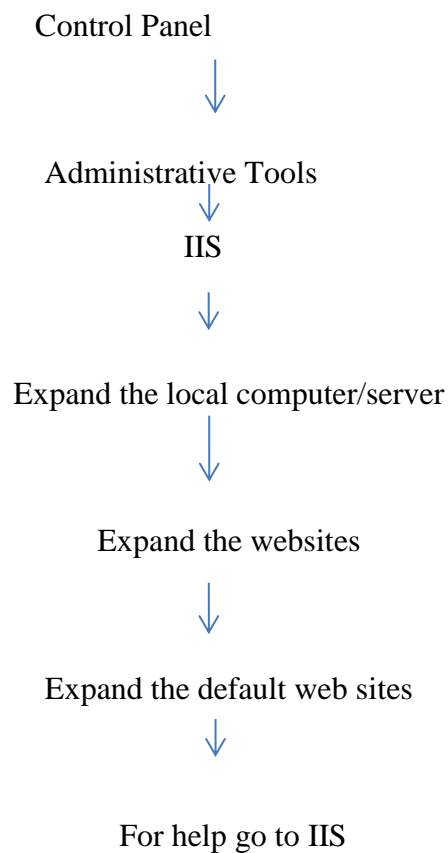
2.3 Installation Process:

Step 1: see the *http://localhost*

Step 2: Should choose the web server that can be IIS (Internet Information Services) or Apache

Step 3: If the wwwroot folder is available the below location

C:\Inetpub\wwwroot then follows the following steps



The other way to install this we can go to the below link and can install easily

<http://localhost/IISHelp/iis/misc/default.asp> and see the following screen

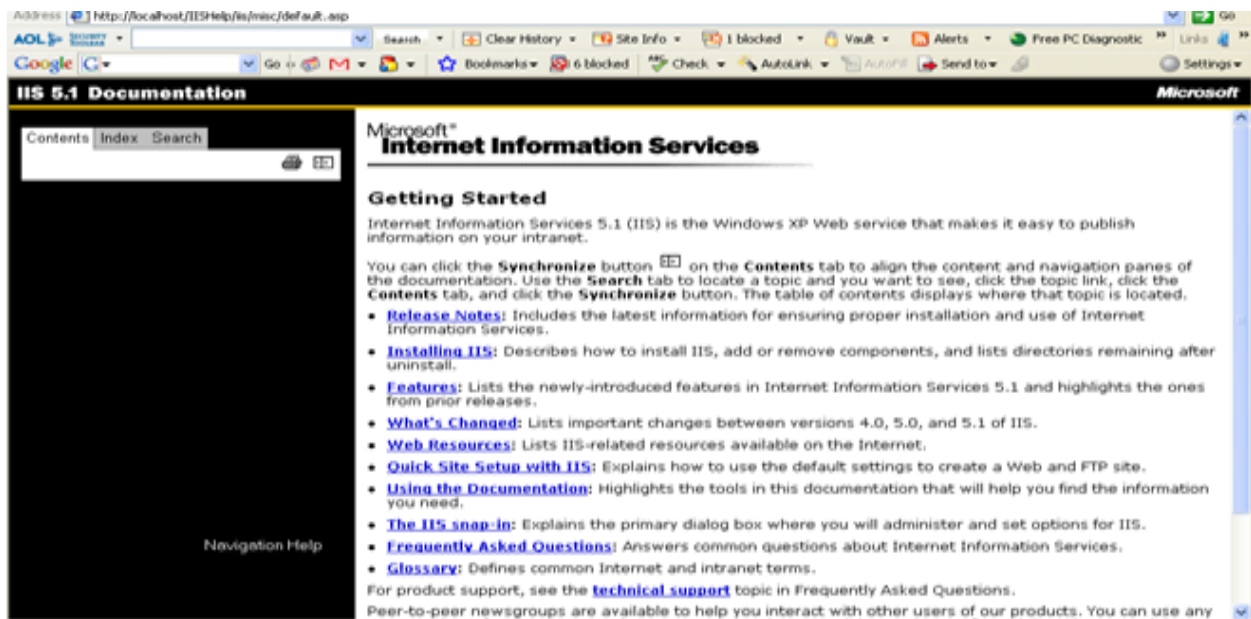


Image credit: greenstone.org

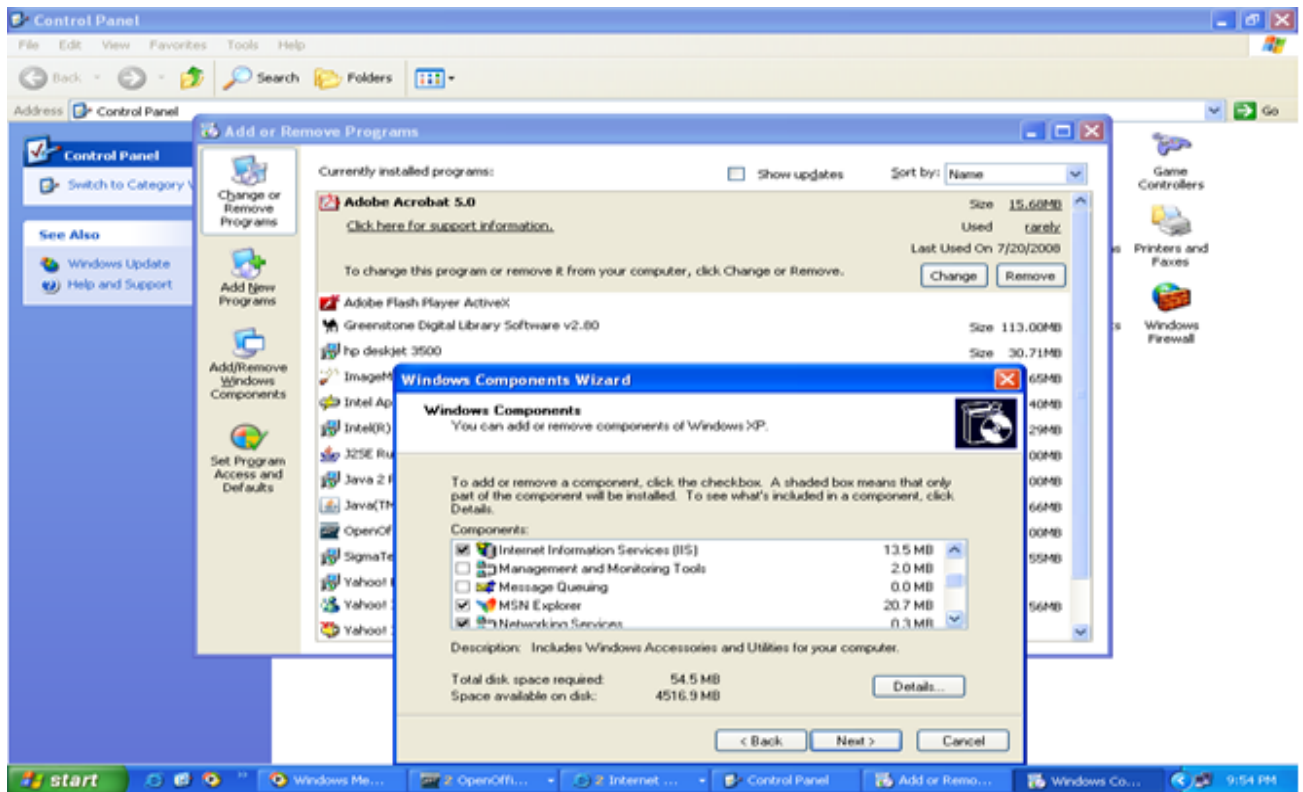


Image credit: greenstone.org

Follow the next button as above said and installed it. Now installed the GSDL (Greenstone Digital Library Software) followed by the above instruction.

2.4 Case Study: Jaipuria Institute of Management (Noida)*:

Jaipuria Institute of Management, Noida established in 2004. This state of the art campus in the heart of the corporate hub of the NCR (National Capital Region) region provides students with wide exposure to number of industries.

The institute of Jaipuria Library using the GSDL for providing the information to the users. They have around 15000 collections. And they do not digitize the manuscript. They keep track of cases or any other material (i.e. articles, ppt, case studies etc) issued to faculty students so that if the same material is requested by users in future they can provide it easily. Before GSDL they were using the Dspace but they face the problem in Dspace for heavy data that problem solved by GSDL. There is no need of approval in GSDL like Dspace. Uploaded data in greenstone software already verified.

* The author personally visited the library to understand and explain the practical aspects of GSDL

After installation process we see Librarian Interface page as screen-shot below:

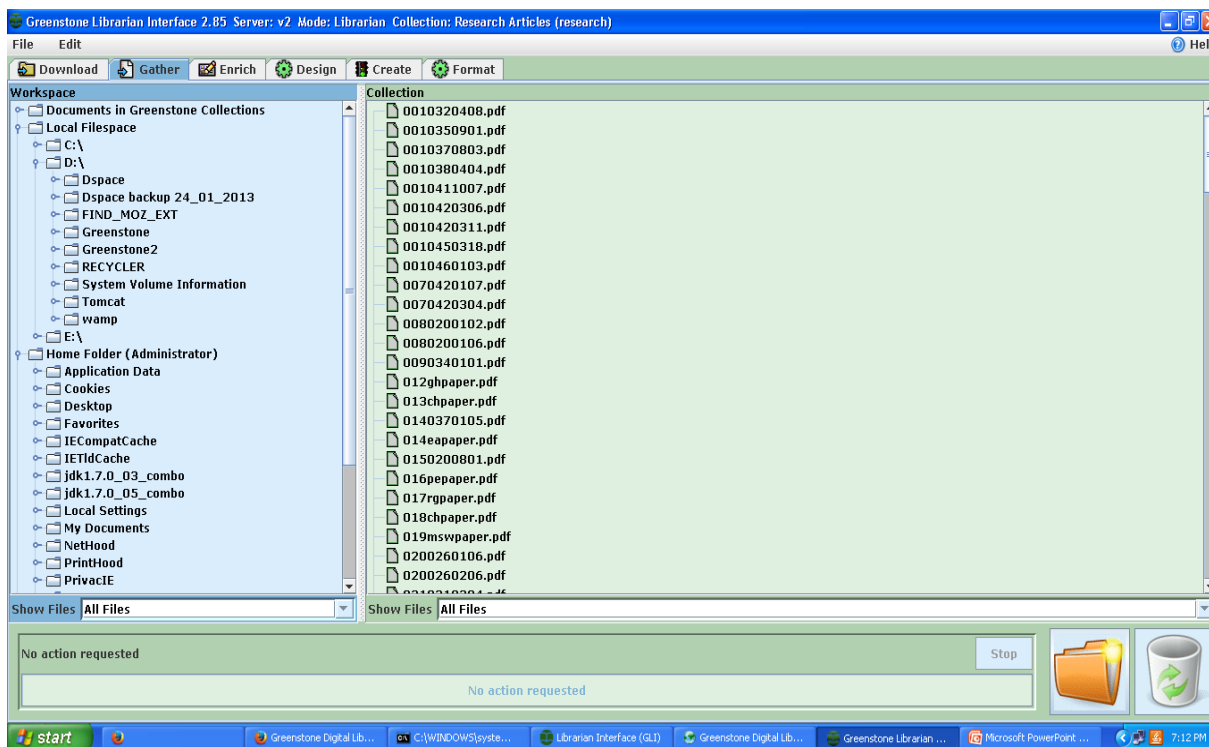


Image credit: Greenstone (Jaipuria institute of Management)

Now we create the digital collection then we go to:



Then we write the collection name & description & then click on **Ok**. Now it will create new collection we can give any name “**Research Articles**”. Then go to **Gather** Option (we can browse the data from CD etc. where the file downloaded).

Now go to **enrich tab**-for reading the bibliographic record. And assign metadata with Dublin core standard like dc* and save the assign metadata information.

then click on **Design Tab search index delete index** (i.e. ex.title or ex.source)

Create new collection one by one by using dc*.

Now in under **Research Articles** the collection define that the classifier are as under

Go to format tab → now we fill up the create email ids. → Create Tab click the bottom Build collection (wait & watch the progress)

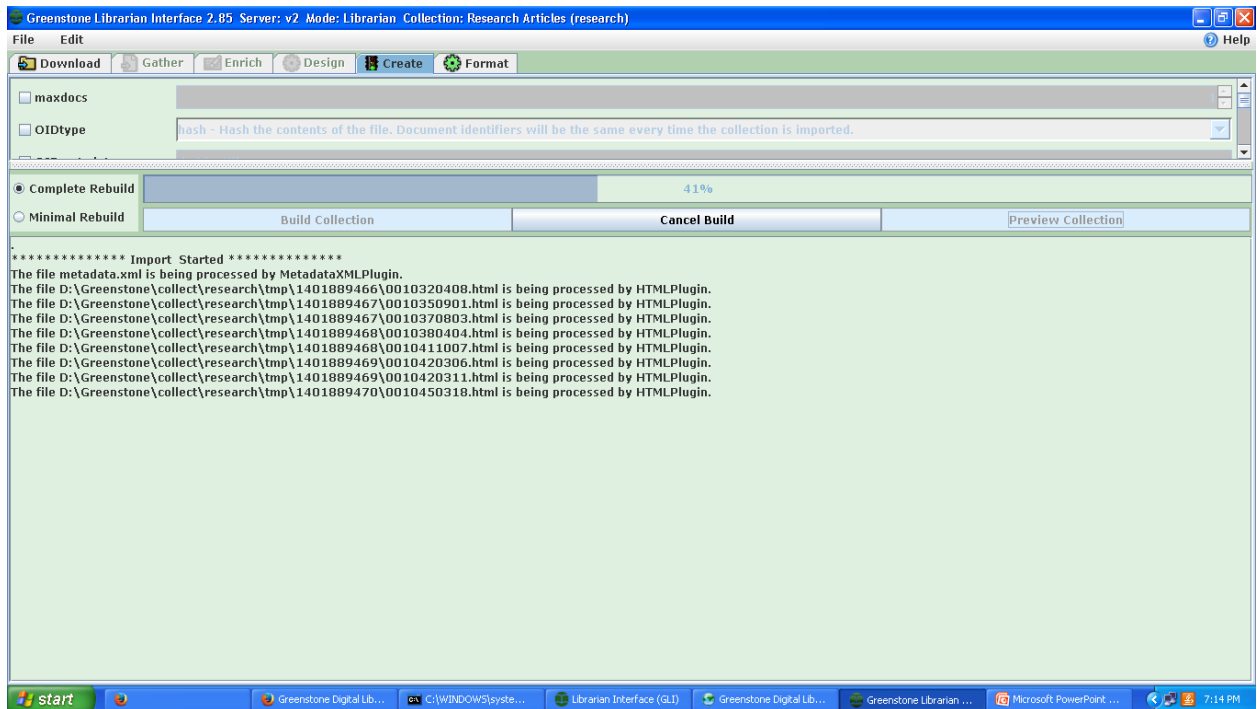


Image credit: Greenstone (Jaipuria institute of Management)

And now click the option to see the collection:



Image credit: Greenstone (Jaipuria institute of Management)

Let's see the collection of case studies :

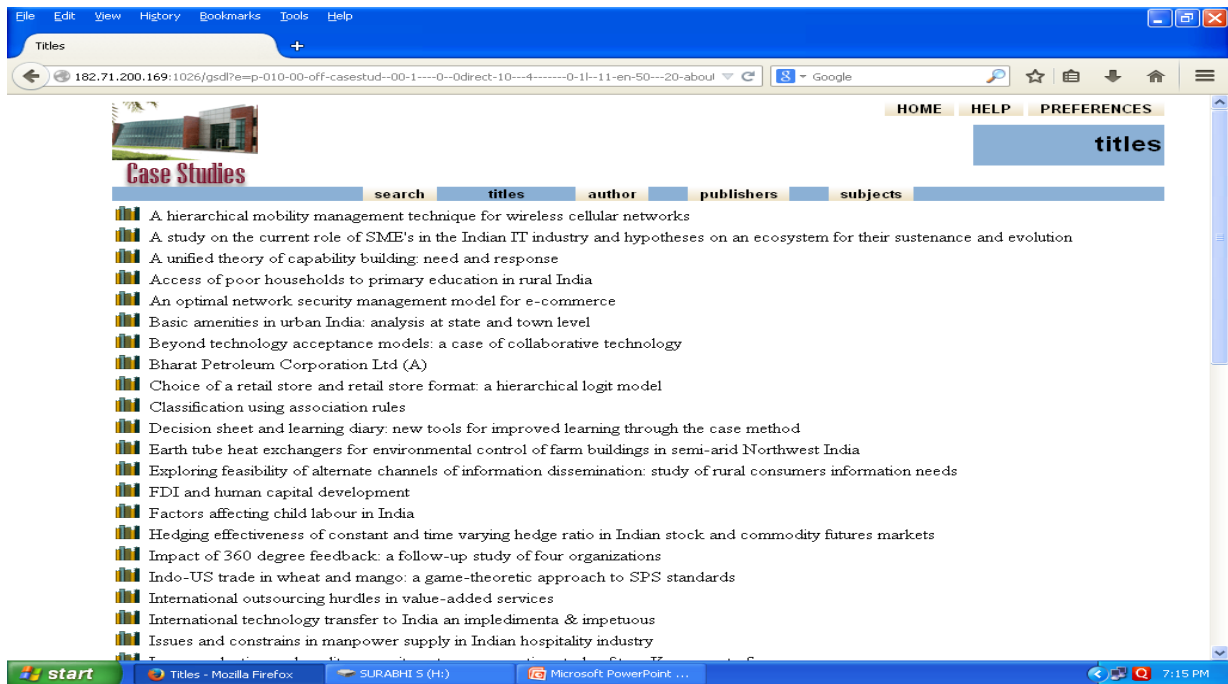


Image credit: Greenstone (Jaipuria institute of Management)

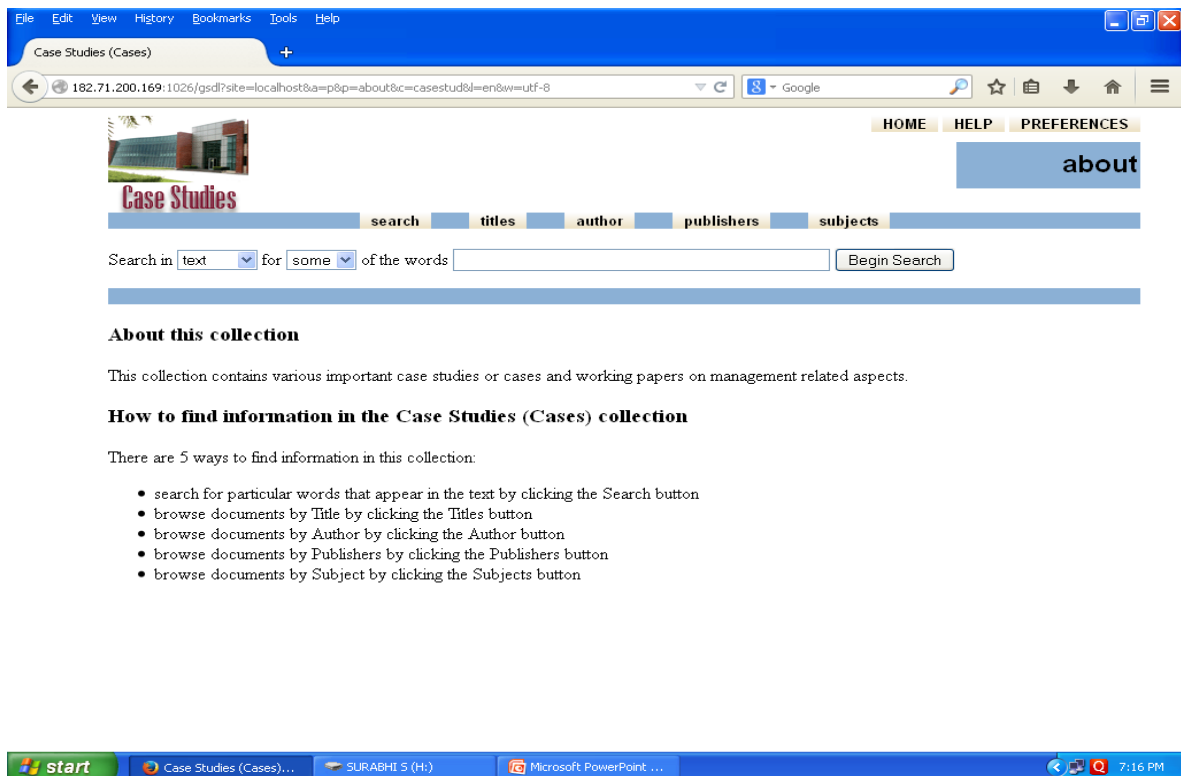


Image credit: Greenstone (Jaipuria institute of Management)

Case studies full text are available in pdf format (see the below screen-shot).

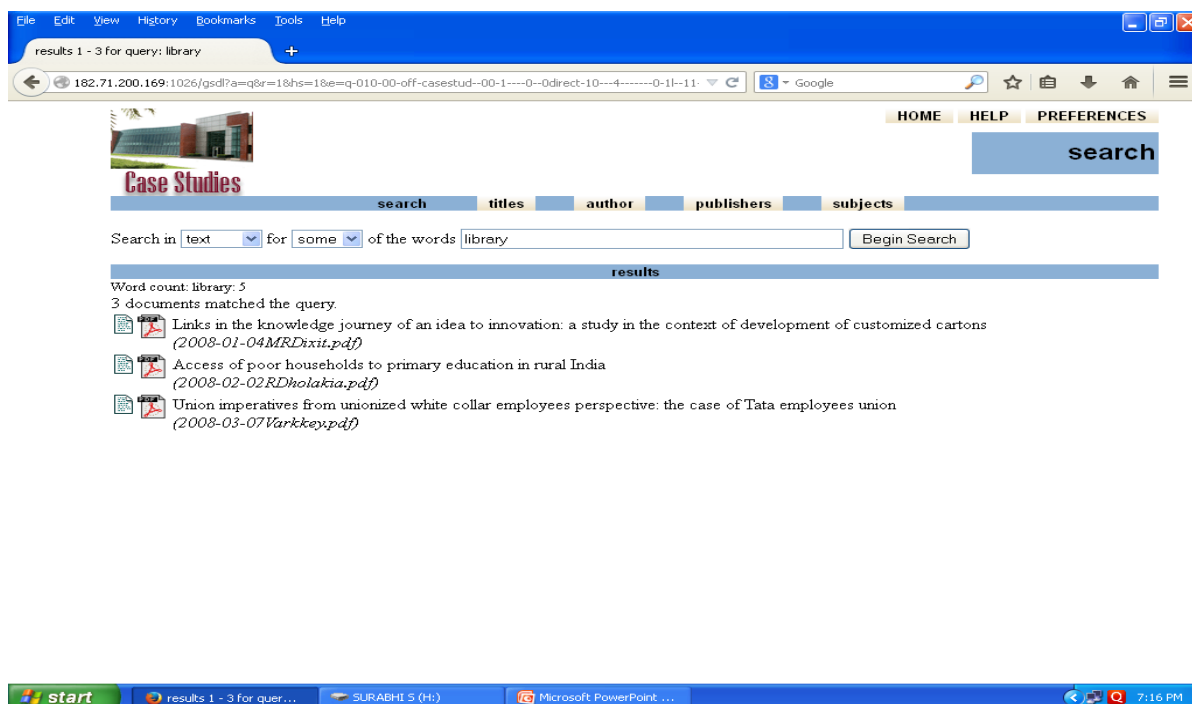


Image credit: Greenstone (Jaipuria institute of Management)

3.0. Conclusion:

In this age of information and communication technology, everyone wants information on digital form. It is not only easier to access but also reduce the cost significantly. Digital libraries are not going to replace the physical existence of document fully but without any doubt we can say that looking at the current trend and demand of the users putting digital library in place is not only necessary but also is need of the hour.

Let us introduce hybrid library model as some time physical libraries are also important. The initial establishment cost of digitization is high but it has been observed that once the initial establishment is done then the cost to maintain and manage this digital library is far less than that of any traditional library set up.

The greenstone digital library software useful for small libraries where the libraries can distribute their institution photograph, articles, thesis, abstract etc. Even the administrative staff can use the greenstone software for uploading their policy documents etc.

4.0 References:

1. Ahmad, Parvez; Aqil, Mohammed and Anwer, Md Tariq (2012) "Building Digital Collection with Greenstone: Development and Customization". *International journal of library science*, 5(1)
2. H, W. I., david, B., & F, B. S. (2001). Greenstone : Open source digital library software with end-user collection building *Online Information Review*, 25(5), 288-298. Retrieved June 1, 2019, from the emerald database.
3. Marchionini, G And E A Fox(1999) Progress toward digital libraries: Augmentation through integration: *Information Processing and Management*, 35pp. 219–225..
4. M.G., S., & T, S. (n.d.). Seamless Aggregation and Integration of Diverse Datastreams: Essential Strategies for building Practical Digital Libraries and Electronic Information Systems. *dspace.iimk*. Retrieved June 2, 2014, from <http://dspace.iimk.ac.in/bitstream/2259/382/1/91-102.pdf>
5. Munnoli, S. (n.d.). Organizing digital information using open source software: An attempt for knowledge management in corporate sector. *NISCARE*. Retrieved June 28, 2014, from [nopr.niscair.res.in/bitstream/123456789/.../ALIS%2051\(1\)%2022-27.pdf](http://nopr.niscair.res.in/bitstream/123456789/.../ALIS%2051(1)%2022-27.pdf)
6. Paknejad, A. (2013). Technical assessment of Greenstone toward development of digital libraries in Iran. *The Electronic Library*, 31(5), 593-607. Retrieved June 29, 2014, from the emerald database.
7. RAJASEKHARAN, K., & NAFALA, K. M. (n.d.). Welcome to E-LIS repository. - *E-LIS repository*. Retrieved June 2, 2014, from eprints.rclis.org/9139/
8. Rao, . V. (2009). Managing Digital Collections with Greenstone Digital Library Software. *NACLIN*, Retrieved May 5, 2014, from www.naclin.org/BuildingDigitalLibraries.pdf
9. Seminars. (n.d.). *Indian Institute of Management Kozhikode*. Retrieved June 3, 2014, from iimk.ac.in/libportal/dl.pdf
10. Sudhanshu, J., & Manu, S. (2013). Emergence of e-libraries Among South-Asian Countries: Critical Issues and Concerns. *CSI Communication*, 16. Retrieved June 4, 2014, from www.csi-india.org/c/document_library/get_file?uuid=3743d96a

11. Witten, I. H., Boddie, S., & Thompson, J. (n.d.). About Greenstone. *Welcome*. Retrieved June 1, 2014, from <http://www.greenstone.org>
12. Witten, I. H., & Bainbridge, D. (2005). Creating digital library collections with Greenstone. *Library Hi Tech*, 23(4), 541-560. Retrieved June 2, 2014, from the emerald database.
13. Yan, H. (2004). Digital content management: the search for a content management system. *Library Hi Tech*, 22(4), 355-365. Retrieved June 1, 2014, from the Emerald Group Publishing Limited database