Developing of Digital Library Through GSDL: An Experience at GITAM

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Abstract
The methods of accessing and retrieving knowledge are changing in the present scenario for all the users. The need of digitalization, historical background of GSDL, features of the GSDL software and working flow are discussed in the study. This paper presents a study regarding creation the digital library assimilate and disseminate the information using the famous OSS GSDL. In this paper as methodology the literature review, documents related to software and practical approaches of creation of digital library at GITAM are used.

Keywords: Open Source Software, Information Dissemination, GSDL

Introduction
With the impact of IT the world is converting in a global village. In the present scenario the role of libraries and librarian are also changed. In India the concept of digital library is in developing stage. There are a lot of libraries which are not automated. The demand and behavior of users are changing rapidly with compare to the libraries. Users want the information at their smart phones or PCs. The digital library is the demand of time and in the context of digital library, the role of library professionals is also changed.

Definition-"A digital library is a large database for the people who are working on hypertext environment which supports the life cycle of creation, storage, preservation, dissemination and use of data, information and knowledge. It is an organized collection of digital material which is accessible by the users on computer or smart phone by using any specified protocol via network." (Kaushik & Rathee 2010).

Need of Digitalization
It is widely accepted that there hug explosion in information and the users want appropriate information. 'Save the time' is the fourth law of library science given by Dr. S.R. Ranganathan, become more important in present time. The time is the most important factor for the users and digitalization is the key issue to solve the time issue of the users. Users want quality based services from the libraries at doorstep. Shifting of the environment of users and information, information explosion, multiple functions of same information, distance learning and online publication etc are some key factors which increase the need of digitalization.

At national level National Digital Library of India is developed by IIT, Kharagpur and launched on 10 December 2006. NPTEL, SWAYAM etc programs are running by various institutions on digital platform in India.

Resources of the Digital Library
As traditional libraries have various resources, digital libraries have also some resources for functioning and providing satisfactory services to the end users according to

their demand. Information in electronic or digital form in any format which can stored, processed, organized in database or system and can retrieved by users on the PCs or smart phone by using any selected protocols for networking. The information may be in multimedia, text or any other format e.g. html, pdf, docx, image, video file formats, audio file formats etc. Networking and accessibility may be differ according to the policies and can access over LAN, MAN or WAN. For the digital library there are two types of resources are required that are online and offline.

On line Resources
1. E-books, Audio Books, Video Books, Electronic Text, images, maps, audio files, video files and multimedia etc.
2. E-journals
3. Database of books or information
4. LAN, MAN and WAN for web browsing and email etc.
5. Well trained manpower for online help
6. Technological Environment (protocols such as TCP/IP) for communication

Off line Resources
1. Hardware : Computer, Storage Devices, Scanner, Printer, Networking Devices
2. Software (Operating System, Digital Library Software and Applications)
3. CD-ROM etc.
4. Audio visual aid etc.

Literature Review
Sarvankumar and Mani (2017) made a study on GSDL and highlight the features of the software. Rathee and Kaushik (2018) made a study on setting up digital library or institutional repository. The all basic steps are discussed in the study. The factors of the GSDL was analyzed and the GSDL evaluated by using the DEMATEL approach. The cause and effect group of factors was given in the study made by Rathee and Kaushik (2018). George and Mara (2009) analyzed the various digital library softwares such as fedora, Dspace, GSDL, Keystone and Eprint and found Dspace was most suitable. Cervone (2006) developed an

understanding towards the aspects of the software selection. Goh et al (2006) studied softwares to provide a checklist for the selection of softwares for digital library. Nichols et al consider that GSDL is versatile multilingual open source software for the digital environment.

Green Stone Digital Library Software (GSDL)
Among open source softwares GSDL is one of the most popular OSS for creation of digital library and freely distribution under the terms of GNU General Public License. It is a multilingual software supporting various languages internationally. It is a package of its dependent softwares and available as a suite of software tools i.e. core system, Image Magick, Ghost script and Apache Tomcat. It provides the facility to create digital library and published it on CD-ROM for distribution of the created digital library. GSDL software is developed as the New Zealand Digital Library Project at the University of Waikato in cooperation with UNESCO and the Human Info NGO in Belgium (Raghvan et al 2010).

For creation of digital library in GITAM, we select the GSDL software information collection and presentation in digital form. This software provided attractive and easy to use full-text searching, metadata based browsing. The collections of GSDL are easy to maintain and handles a large number of documents with a uniform interface. It supports different languages as it is multilingual. For distribution of GSDL in developing countries it's CD-ROMs have been published by the United Nations and other agencies. Digital libraries are reforming how information is stored, retrieved and disseminated in the fields of education, science and culture around the world particularly in developing countries. We consider that to share the information in public domain, the GSDL software will encourage the deployment of the digital libraries.

Historical Development
In 1995, the journey of development was started from the establishment of New Zealand digital Library Project (wiki). In the beginning 50,000 computer science technical reports are included in the collection downloaded from the internet. The history of Greenstone releases are as: Table 1

Features of GSDL
The following facilities are provided by the GSDL:
1. Accessible via Web browsers
2. Runs on Windows and Unix.
3. Full-text and fielded search.
4. Flexible browsing facilities.
5. Creates access structures automatically.
6. Makes use of available metadata.
7. Plugins and classifiers extend the system's capabilities
8. Multiple-language documents.
9. Multiple-language user interface
10. Classifiers allow hierarchical browsing.
11. Multimedia collections.
12. Designed for multi-gigabyte collections.
13. New collections appear dynamically.
14. Collections can be published on CD-ROM.
15. Distributed collections are supported
16. What you see—you can get!

The following options and steps are used for creation of the digital library:

Librarian Interface
This option is used for collecting and making up documents, the building digital library collection. This tool provides access to the software's functionality from a graphical point. For creating digital collection the following steps are followed.
Creation of New Collection: to create a new collection open the 'file' menu and choose 'New', then the following screen will appear.

Fig. 1

Selection of Metadata: Software provide different type of metadata. After creating collection document uploadation and its metadata process is done step by step.
Gathering: Gather area to select which files to include in the collection which is built by us. Files can be copied into the collection by dragging or dropping. Figure 2 shows the option of gathering.

Table 1

Year	Month	Version	Year	Month	Version
2019	May	3.09	2002	Jan	2.38
2017	Oct	2.87 (Maintenance Release)	2001	Oct	2.37
				Jun	2.36
				May	2.35
2016	Nov	3.08		Apr	2.33
2014	Nov	3.06		Feb	2.31

2006	Dec	2.72		Feb	2.30
	Oct	2.71	2000	Dec	2.30
	Mar	2.70		Sep	2.27
	Jan	2.63		Jul	2.25
2005	Jun	2.62		Jun	2.23
	Apr	2.60		Jun	2.22
	Mar	2.53		Apr	2.21
2004	Oct	2.52		Feb	2.12
	Jun	2.51	1995	The new Zealand Digital Library Project was established	
	Feb	2.50			
2003	Dec	2.41			
	Jun	2.40			
	Mar	2.39			

Fig. 2

Enrich: This option is used for additional information i.e. metadata is enriched for the gathered files into the collation. This section helps to metadata creation, edition, assigning and retrieving, and to use external metadata sources.
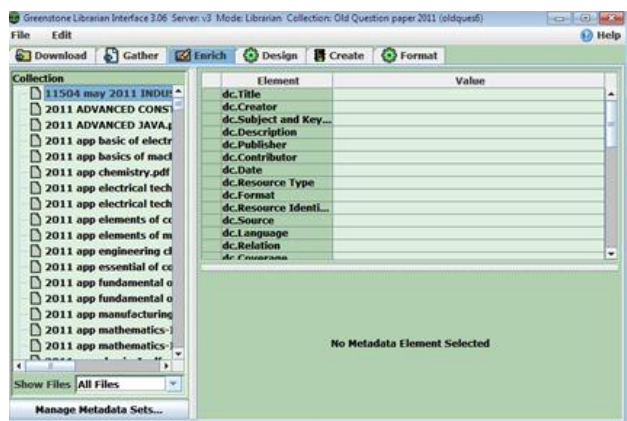

Fig. 3

Design: After metadata information, the next step is for designing, it helps us to decide how the document should appear, which kind of information searchable, which language supported, where the buttons should be appear on webpage and in which way the documents will appear. All these things can be customized through the design option.

Document Plugins: This option in designing helps to show the documents perfectly to the user on webpage, without any supporting software available at the end user. GSDL can import digital documents in various formats and plugins of these formats show the documents on webpage e.g. there is no need to install any video player for video files or acrobe reader for pdf files. The uploaded documents can converted into Greenstone Archive Format (GAF) which is an XML equivalent format.

Search Type: Here we can add search type. If we want to add advance search, we have to enable advance search option.

Search Index: Here we can add or edit search the names of the fields on which we want to build the indexes.

Browsing Classifier: Indexes specify what parts of the collection are searchable this section help to add or remove indexes, and set a default index.
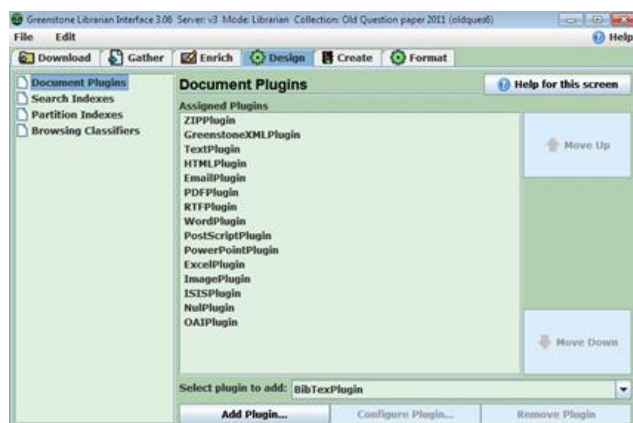

Fig. 4

Create: This is the last option to finalize the creation of collection. The first two entries in the list on the left are 'Import' and 'Build', which give settings that apply to the import and build scripts respectively.
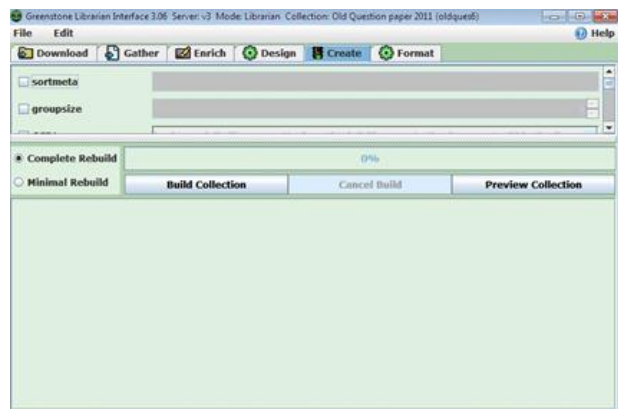
Fig. 5

Format: This option is used to customized the GSDL i.e general information, search, formatting and translation text features on the web interface.

Fig. 6

Web Interface: End users may access the digital library web page at any device having browser e.g. PC, laptop, mobile phone etc. The screen shoot of Digital Library of GITAM is shown in Fig. 7.
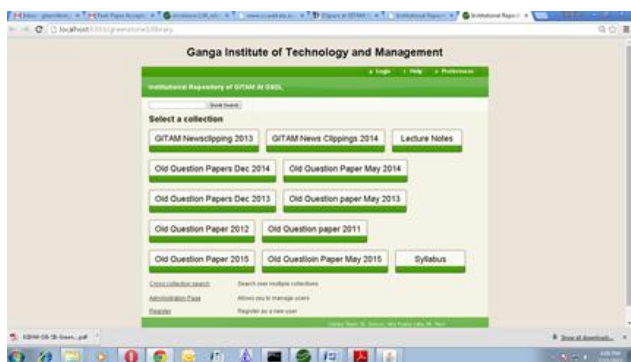

Fig. 7

Digital Library at GITAM

The Digital Library is an essential infrastructure of information dissemination and empowerment of user. It is a very powerful tool that can serve as an engine of information transfer. The Digital Library contains old

question papers, syllabus, journal articles, lecture notes, News clippings, etc. It can be accessed at LAN in the campus on any web browser by using the address- http://gitamlibrary:8383/greenstone3/library

Conclusion

Due to the fund limitation the libraries have to stop the different projects. To avoid this problem the Open source softwares are the best solution. The GSDL is the most suitable software for digital library management due to its content management, full text searching, CD-ROM publishing. This is the only software that can be published on CD-ROM. It is very helpful for those areas in which internet connectivity is not available and users can get information without internet connectivity.

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Conflict of Interest
None.

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