

Emerging Trend in Software development in Library Automation and its Impact

Roopali Jamwal¹, Namita Singh^{2#}

Assistant Professor^{1,2}

Department of Comp. App., Govt.College for Women, Parade¹, Jammu

Department of Comp. App., Govt. Degree College, R.S.Pura², Jammu

roopaliagore@gmail.com, venthra@yahoo.com

Abstract: Academic libraries are the knowledge hubs with tremendous amount of big data stored in large number of books that can be used for the development purposes to support teaching, learning, research, innovation, community outreach and partnerships. Library automation incorporates the adoption of integrated library systems. e-granthalaya is an Integrated Library Management Software from National Informatics Centre(NIC), Ministry of Electronics and Information Technology, Government of India developed by a team of experts from software as well as Library and Information Science discipline for implementation in Colleges and university levels. It is beneficial for automation of in-house activities of libraries and to provide various online member services. Ver.4.0 ('Cloud Ready Application') is the latest version of e-granthalaya and provides a Web-based data entry solution in enterprise mode with a centralized database for cluster of libraries. This paper is based on a survey that examines the perceptions of librarians, faculty and other stakeholders with respect to library automation and its contribution towards the development of education. The results confirmed that the integrated library system improved the library operations and played an important role in supporting national development. This paper also highlights the challenges faced in adopting an integrated library system in colleges of Jammu division and that the same could be improved through a robust information service delivery system.

Keywords: e-granthalaya; Integrated Library Systems; Library Automation.

I. INTRODUCTION

Digitization plays an equal role in changing the structure of traditional library into integrated library by using technologies thus enabling broad-based access to global and local knowledge sources to solve local, regional and national development challenges. e-granthalaya was started as an In-house project at 'Karnataka State Centre of NIC, Bangalore' and first version of the software was designed for the Public Libraries in the State. Later, NIC HQs 'Library and Information Services Division' took over the designing of the software where library professionals were involved in the designing process and, thus, improved the software with enhanced user interface and simplify the work-flow of library functions so that it can suit to all kinds of libraries. Table below shows the various versions of the library software:

Technology/Platform used	Version	Year	DBMS
Visual Basic 6/ASP/HTML	1.0	2003	MS SQL Server 7
Visual Basic 6/ASP/HTML	2.0	2005	MS SQL Server 2000
VB.NET/ASP.NET 2.0	3.0	2007	MS SQL Server 2005
ASP.NET 4.0/AJAX/JQUERY/JSON/SilverLight	4.0	2015	PostgreSQL -an Open Source DBMS

Table 1: Library Platforms versions

The libraries in educational institutions in India have adopted state-of-the-art information technology for making the library and information services faster and effective. The automation of university libraries has already taken a lead in providing quality service and easy access to variety of information cutting across space and time.

II. Integrated Library Management System

It includes library management system integrated collection and acquisition, and the classification of physical loading, cataloguing, circulation, and reference service series, and, and access to information and retrieval. These computerized library services integrated together leads to library automation.

A. System Requirements for the implementation of e-granthalaya :

- Application is hosted in NIC National Cloud and can be used Online by User Libraries for Data Entry and Member Services.
- No Component is to be installed and neither maintenance at User End is required (Database and Application are hosted in NIC National Cloud and maintained by NIC).

- User Library needs to have Desktops with High-Speed Internet Connectivity (min 4 MBPS).
- Other Infrastructure required in Library: Desktop Bar Code Printer / Scanner / Small Laser Printer.

B. Software Components

A fully web-based integrated library management software that runs on distributed computers through a network or server must contain the following components:

- Database (Separate database for each library cluster)
- e-Granthalaya 4.0 Application(Latest Version)
- Crystal Reports Executables
- Z39.50 Libraries

C. Features at a Glance

The new version of e-Granthalaya, is based on the recent technologies from Microsoft and more features have been added. Following are the main features of the latest version of the software:

- Uses PostgreSQL - an Open Source DBMS as well as free edition of MS SQL Server (Any version).
- Provides Web-based Data Entry Solution
- Multi-Lingual: multi-lingual version supports data entry in all the 10 Indian Scripts/languages, supported by the Windows XP/ Windows 2000/2003 Server and Vista from Microsoft. The back and database (MS SQL Server 2005) supports the data in UNICODE while the labels can be displayed in the user's own language/script.
- Module-wise permission to the software Users
- Retro-Conversion as well as Full Cataloging Modes of Data Entry
- Authority Files/ Master tables for Authors, Publishers, Subjects, etc
- Multi-Vol, Multi-Copy and Child-Parent Relationship pattern
- Download Catalogue Records from Internet
- Z39.50 Client Search Built-in
- Exhaustive Reports for Print
- Export Records in CSV/Text File/MARC 21/MARCXML/ISO:2709/MSACCESS/ EXCEL format
- Merges databases into Single Database
- Common/Centralized Database for All libraries under One Organization, minimize data entry
- Main/Branch Libraries Acquisition/ Cataloguing
- Print Accession Register

III. Scope and Methodology:

26 leading colleges of have been taken into account in the present study. Survey research method has been adopted for the study. Besides an intensive literature search, Primary data is collected by means of a questionnaire that was circulated among the faculty,library-in-charge of the college libraries

under study. The researcher distributed 52 questionnaire forms and obtained 48 responses, thus getting 88% of data which is analysed as follows.

➤ Data Analysis

Before installing the egranthalaya-4.0 for the automation of Libraries in 26 Govt. colleges of J&K, 60 participants from these 26 colleges participated in the survey organized by the Department of Higher Education in collaboration with the team of developers of e-granthalaya from National Informatics Centre. After a detailed discussion on factors like current library infrastructure in various colleges, Internet facility in the various colleges and others factors like technical staff, technical library assistants, current status of automation of books etc., the outcomes of the study are presented in the fig. below.:

S.No.	Questions Asked	YES	NO
1.	Does your library make use of any library software?	21%	79%
2.	Does your college has high speed internet facility (withn 4mbps)?	36%	64%
3.	Do you have technical staff (computer operator and library assistant) for your support?	10%	90%
4.	Will the use of e-granthalaya be beneficial for the libraries of your colleges?	49%	51%

Fig.1: Questionnaire based Survey

The figure-1 shows that 21% of the libraries were already using some other library automated software, 64% of the colleges does not have any internet facility, 90% of the colleges does not have any technical staff and 51% of the people were not interested in installing this software in their respective colleges because of lack of infrastructure.

IV. Challenges with the System:

- I. **Speed of access:** As most of the colleges are in remote area, the high speed internet facility is not available there and as more and more computers are connected to the Internet its speed of access decreases. The system requires at least 4mbps data speed to run its software which is not possible in the remote areas. Digital library will need high bandwidth for transfer of multimedia resources but the band width is decreasing day by day due to its over utilization.
- II. **Initial cost is high:** The infrastructure cost of digital library i.e. the cost of hardware, software; leasing communication circuit is generally very high.
- III. **Efficiency:** Initially the software was installed at three libraries i.e. Ranbir Library, Govt. College for Education, Jammu and GGM Science College, Jammu but results were not very good owing to the reasons ; there was larger

number of books available in those libraries ;and many of the books were available in their older versions which could not be uploaded on the software.

IV. **Environmental Hazards:** Digital libraries cannot reproduce the environment of a traditional library. Many people also find reading printed material to be easier than reading material on a computer screen.

V. Conclusion

E-granthalya is a great innovation by NIC, which was installed in Ranbir Library, Jammu and GCE, Jammu. It is working successfully in these institutions and is providing a great interface among students, libraries and books. This software can be a big boon and support to the learning process, if it is installed in other libraries of J&K State after improving upon the above stated shortcomings.

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