CD-ROM collection management and development of a web interface by using WINISIS/GENISIS at P K Kelkar Library, IIT Kanpur

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Introduction

By the mid 80s, CD-ROMs (Compact Disc Read-Only Memory) made profound impact on libraries, small or big, affecting library services and operations in academic libraries. CD-ROM technology has attracted the trio—the publishers, the libraries and the users—with its unique features of large storage capacity and its iterative search facility. With the advent of web technology, CD-ROMs used to be looked as a transient technology. However, rise in number of CD-ROM titles and changing pattern of publishing industry shows that it has come to stay as a valuable and important storage device. CD-ROM collections in libraries are getting larger in size day by day.

Indian Institute of Technology Kanpur library, known as P. K. Kelkar Library, established in 1959-60 and housed in a three-storied building with an area of 5730 sq. mts., has over grown its collection drastically both in size and forms to its designed capacity.

In the recent past, the role of CD-ROMs in archiving digital collection, particularly in context to digital library, has all the more made it prominent with spread of DVDs. Several other factors, infact, have contributed to the hand in hand growth of CDs to the one of online technologies. Digital content in CD/DVDs and online has been viewed as a succor to the ever growing requirement of space to accommodate increasing hard copy collection. It came to be known as a de-stressing collection device in as much as it spares lot of shelving space which would have otherwise been occupied had growth of print collection continued unabated. During the 70s and thereafter, the digital contents in floppy diskettes, CD-ROMs, and finally online made their way to the library. Despite emergence of web, intermediate storage in CD-ROMs has come to stay as a parallel to the print one. The paper, therefore, addresses issues related to management of CD-ROMs collection at P. K. Kelkar Library.

No wonder, the print collection of P. K. Kelkar Library too has been bursting at its seams during the last three decades. Chemical Abstracts on CD for one year alone, contained in 08 CD-ROMs will save an average shelving space of 100 bound volumes occupying more than half of the double-faced racks covering roughly 2 sq m. space area. So CD-ROMs have proved to be a great de-stressing collection device.

Need for management and development of CD-ROM collection at P K Kelkar library

In early 1990s, P. K. Kelkar Library took a policy decision to procure preferably digital content, be it in diskette/CD/DVDs or online, as it was not only easy to handle the content with iterative search facility but also proved to be a de-stressing collection device. The basic idea was to shrink shelf space requirement. The library building
is already overloaded three times its designed capacity, a cause for potential seismic risk to its structure.

**Subscription of CD-ROM databases**

Subscription to different databases on CD-ROMs/floppy diskettes started in the early 1990s. These include: Ei-compendex : Dialog on Disc, Biological Abstract, CA on CD, PsycLIT, PsycInFO, Math Sci Disc, Sociofile, CITIS (Civil Engineers Database), Science Citation Index, NTIS Bibliographic Database, Current Contents, Semiconductor Data on CD-ROM, Sociological Abstract, Inspec on Disc, LISA, LISA Plus, Earthquake Built Environment Index, Books in Print, Recent Books, Ulrich Periodical Directory, etc. Based on these databases, library staff had successfully provided different reference and current awareness services to their users through CD-Networking until emergence of online technology.

**Books on CD-ROM**

Of late, there is a trend of bringing out books, conference proceedings in CD format only, dictated by time, money, and technology constraints of editing, storage and publication. The library has collected reference sources like encyclopaedias, dictionaries, standards, etc in this format. These include Encyclopaedia Britannica, McGraw-Hill Multimedia Encyclopaedia of Science and Technology, National Geographic, Thomas Register, ASM Handbook, etc. A good number of conference proceedings also exist in this format.

**Emergence of accompanied CD-ROM**

Very often than not, majority of the textbooks have accompanying CD-ROMs containing softwares, designs, data tables, exercises, problems and their solutions, projections/maps and the like. Accompanied CD-ROMs are heavily used by students and faculty as these are directly related to their course study and contain supporting software/data. CD-ROMs are increasingly received with current serial subscriptions. These include full text of the current year or current volumes of the serial, multi-year archive cumulations of the full text, indexes or special publications.

**Addressing the CD-ROMs issues**

Management of CD-ROMs is aimed at solving the following issues/queries from the library and users point of view:

**From library’s point of view**

1. What are the different categories and physical format of electronic resources available in library?
2. What would be the helpful arrangement of CD-ROMs on shelves?
3. What are the content available in these CD-ROMs?
4. What would be the metadata elements for cataloguing these resources?
5. Which software would be appropriate to manage the metadata?

**From users’ point of view**

1. Could the users have an accompanied CD for a given book?
2. Does the library have a particular software in its collection?
3. Does the library have CD-ROMs on a given subject/topic?
4. Which of the conference proceedings are on CD-ROMs only?
5. Does the library have a particular reference tool in CD format?

These questions prompted the library management to organize its CD-ROMs collection in order to provide access and to optimize its usage. The exercise was carried out by the library between July 2005 to November 2007. In addition to CD-ROMs, other electronic storage devices like DVDs, floppies, audio cassettes, VHS cassettes have also been included.

**CD-ROM collection management**

Due to specific format of CD-ROM, it is very difficult for libraries to arrange these in a helpful sequence on shelves. Unlike books, the spine of CD-ROM cover does not have enough space to write down the call number on it. If these are kept in CD Album then interpolation becomes difficult. There is also not proper standard size shelf to house these. After years of experience finally, it was decided to house these in four-tier transparent book cases.

The CD-ROMs in P K Kelkar Library have been divided into following categories to house them on shelves:
1. CD-ROMs accompanied with books,
2. CD-ROMs only,
3. CD-ROMs accompanied with journals,
4. Databases on CD-ROMs, and
5. Miscellaneous CD-ROMs.

The first two categories are arranged by accession number, whereas the last three categories are arranged by title alphabetically. CD-ROMs collection is available in CARS (Computer-Aided Reference Service), a closed reference area.

The major collection is in CD-ROMs and floppies, whereas a small collection is in video cassettes as well.

AACR2, chapters 7 and 9, consisting of ISBD[ER] rules have been followed for cataloguing the CD-ROMs.

**Software selection**

Selection of appropriate package for a particular environment is a challenging task. Having had a thorough survey and evaluation of existing systems, the following guiding parameters were responsible in selection of appropriate software:

- Ease of use,
- Web interface,
- Support of data exchange in international standards,
- Advanced search features,
- Accomplishment of the job by library professionals, rather than depending on programmers, and
- Completion of job within time frame and available human resources.

After taking into consideration the above noted points, WINISIS was chosen for database creation and to make it accessible on web through GENISISWEB, which can be easily configured with Apache web server.

**Overview of used softwares: WINISIS and GENISISWEB**

**WINISIS**

Windows version of CDS-ISIS, which is popularly known as WINISIS, is a widely used information storage and retrieval software, developed by UNESCO, to meet out the automation requirements of the libraries and information processing centres, particularly in developing countries. Originally it was developed for DOS platform as Micro-CDS-ISIS in 1985. The work on Windows based CDS-ISIS software was started in 1995 by UNESCO. The present ‘Winisis version. 1.5 build 3’ has been introduced in 2003.

The most important feature of WINISIS is its capability to handle an unlimited number of databases each of which may consist of completely different data element sets. Users have the freedom to design an *n* number of databases according to their specific requirements. Other important features are:

- the handling of variable length records, fields and sub fields, thereby saving disk space and making it possible to store greater amount of information;
- the handling of repeatable fields;
- an information retrieval component using a powerful search language providing for field-level and proximity search operators, in addition to the traditional and/or/not operators, as well as free-text searching;
- powerful sort and report generation facility allowing the user to easily create any desired printed products, such as catalogues, indexes, directories, etc.;
- a data interchange function based on the ISO 2709 international standard used by leading data base producers; and
- Powerful hypertext functions allow designing complex user interfaces.

Many libraries, museums, and individuals are using CDS/ISIS for managing different library housekeeping as well as other activities across the world. The literature survey concerning this study shows its application in varying fields which include: creation of bibliographic databases for in-house collection such as books, newspaper clippings, thesis, manuscript, etc; automating acquisition procedure; circulation control; serial control; serial holdings; SDI, current awareness service; article indexing; subject indexing; map catalogue; thesaurus databases; creation of digital libraries; E-journals Gateways; directories and union catalogues.
GENESISWEB

GenesisWeb is the most popular and easy to use open source software to make CDS-ISIS database online on web. It is written in Microsoft Visual Basic by Pierre Chabert at former IBISCUS Association (France) for UNESCO. It provides the mechanisms required for the Web server software to interact with a CDS-ISIS database through WWWISIS interface. Its source code is also freely available. There are two versions available, namely GENISIS WEB and GENISIS CD.

Not only its interfaces are available in various languages, namely English, French, Spanish, Polish, Italian, Portugese and Catalan; it is feasible to develop it in any given language.

Database creation in WINISIS

A bibliographic database of the CD-ROMs and other electronic resources was created by using Winisis 1.5 build 3 version. WINISIS provides greater database design flexibility for creating a new database with so called “Database base design wizard”. This process is simple, straightforward and menu-driven and can be performed by non-programmer. The wizard first asks the user to enter the name of a database to be created and then it provides one after another the four consecutive windows, namely Field Definition Table (FDT), Data entry Worksheet, Display Format and Field Select Table (FST) to complete the database definition process.

Field Definition Table (FDT): The data fields were chosen as per AACR2 rules with some minor modifications as per local requirement (Table 1).

Based on above FDT, Data Entry Worksheet as shown in Fig.1 was customized. The FST table shown in Table 2 was applied to generate search term of the CD-ROM database.

Installation of Apache web server

As a pre-requisite, a web server is required for the GENESISWEB to publish WINISIS database on web.

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<th>Pattern/subfield</th>
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Table 2 — Field Select Table (FST)

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<td>480</td>
<td>0</td>
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<td>620</td>
<td>0</td>
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<td>0</td>
<td>Mhl, v400^b</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1 — Data entry worksheet
Apache Web Server for Windows XP was used. The application was tested in Windows platform. The library is the test bed computer is running Windows XP. The MS Windows installer package of Apache web server “apache-2-0-59-win32-x86” was downloaded from www.apache.org. Complete installation was in default directory, i.e. C:\Program Files\Apache Group\Apache2.

Among all options available for publishing Winisis\textsuperscript{16} databases on web, preferred GENISISWEB was preferred due to its simplicity and advanced features over others which include: display of field index, Use of operators among fields and also from within the same field, search of different fields using drop-down menu, support of CSS (Cascading Style Sheet), export facility for generated application to real internet/intranet server, powerful indexing techniques based on WINISIS architecture, etc.

**GenIsisWeb Installation:**

GENISISWEB version 3.2.1 was successfully installed. The paths for ‘cgi-bin’ and ‘DocumentRoot’ were to “C:\Program Files\GenIsisWeb” and “C:\Program Files\Apache Group\Apache\htdocs\”. The parameter ‘Sub-folder “wwwisis” in “DocumentRoot” was provided to access the web pages.

GENISISWEB provides a user friendly graphical assistant to create a web application. The working with this tool is so easy that one can create a basic user interface in a few minutes. But one has to spend some time on its different buttons to get familiar with its output and ability.

Designing a web interface with GenIsisWeb it involves the following steps:

1. Creating the query form,
2. Creating the short query report display form,
3. Creating the detailed query report display form, and
4. Creating and testing the Application.
Creating the query form

The first step in designing a web interface with GENISISWEB is query form design. The ‘Query Form’ assistant allows to add, modify and delete fields. When the Add button is clicked, the program will automatically list the already defined fields from WINISIS database. Now, the opted field(s) is added one by one to the query form. The properties can also be set for each field like item types, default operator, access to the index, automatic right truncation, text box size, etc. One can also provide limit facility for users among different variables in a field. It is possible to set different properties for form, index, and page by supplying appropriate choice. The allowed features are limitless, but one has to explore and take maximum benefit of it.

The design of the query form was based on the users’ behaviour and their approach towards search strategy. The Figure 2 shows the search interface screen. The form provides four multi-field text boxes for user to enter search terms. From the drop down box, user will select the field upon which he wants to do search. This facilitates the use of Boolean operators ‘and’ and ‘or’ among the fields and also within the fields. After filling the form the user can click the ‘Click here to search’ button to execute the search. The system searches the collection and present the results to the user.

With the little bit application of HTML the rules of the library have been described on query form. Online help button on the query form to describe how to search the collection has also been provided.

Creating the short query report display form

The next step is to design the short display form for retrieved records against a user query. To do this, GENISISWEB provides another assistant window namely ‘Format:Listing’ which could be activated by clicking on it. This window has basically two parts. The left part of the window provides two options: Internal and External. The right part of the window provides three menus, namely ‘Page’, ‘Results display’, and ‘Browsing’ which facilitates to set the different properties to the Short display form.

If one wants to design ones result display form by using this window, one has to select ‘Internal’ variable from display format drop-down menu. By choosing...
Fig. 4(a) — Detailed display of search result

Fig. 4(b) — Detailed display of search result
'Add' button from this window one will proceed to next page. This begins the actual creation by adding desired field(s) to the search display form. Further, it allows to format each field with different properties like character size, font, control position, background colour, foreground colour, italic, bold, merge cells, justify, etc. Different linking options are also provided with a particular field. By choosing ‘external’ display format, one can use the existing defined display formats from the Winisis database.

Figure 3 shows the short query result display form. Title field has been provided with a link to detailed display.

Creating the detailed query report display form

The next step is to design the detailed query report display form with “Format: Detailed”. The feature and working of this assistant are same have been discussed in previous section. Figures 4(a) and 4(b) show the detailed query report display forms.

Creating and testing the application

After creating query form, short display format and detailed display format one has to save the application by clicking "Application!Create application". This has created all the necessary forms for the application in the folder /htdocs/wwwisis.

This application was made accessible through browser at address http://127.0.0.1/wwwisis/appli.htm on local computers. Minor modifications were made in Apache Web Server configuration file to listen the IP Address of local machine to provide web access on intranet.

The access to query forms for obtaining Users’ feedback has only been extended to Computer Aided Reference Service (CARS) Division which organizes the collection. Users’ feedback was incorporated to improve the design of the query form to permit better search options.

Conclusion

A planned and systematic effort has been made to organize the CD-ROMs collection available in the CARS area of the P. K. Kelkar Library. Whereas ‘CD-ROMs Accompanied with Books’ and the ‘CD-ROM only’ have been arranged by Accession Number; the other CD-ROMs related to journals, databases and other documents have been arranged alphabetically by title.

The cataloguing of CD-ROMs has been done as per provisions of AACR2, chapters 7 and 9. WINISIS, Windows version of CDS-ISIS, supporting ISO-2709 for data exchange, has been used to organize the collection accessible on web through GENISISWEB.

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