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Bulletin Board System for Libraries

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Abstract

Electronic bulletin board systems are vital tools for computer-mediated communication among computer users. These are similar to the bulletin boards that are displayed in a library. However, these are operated electronically on computer networks. This article gives an overview about electronic BBSs, the infrastructure required to set up BBS, and their applications in general. An attempt has also been made to design an Indian Bulletin Board System for libraries, a conceptual BBS on which different types of information could be organised and a number of services could be provided to the users.

1. INTRODUCTION

Bulletin Board Systems (BBS) started in the late 70s, as a means of communication for virtual community existing in Cyberspace where participants usually under pseudonames may send and receive public and private messages to each other on any topic, transfer software, play online games, etc. Ward Christensen and Randy Suess of USA had discussed on 18 January 1978, about designing of the first electronic BBS in the world and implemented the system on 16 February 1978. This System was a message only system for the PC users and the topics included were C, Assembler, AI, programming techniques and communications. This BBS was designed on an 8080 processor with 24 KB RAM, a floppy disc drive and a modem interface.

2. WHAT IS A BBS?

The BBS is a miniature form of an online system for a cost-effective distribution of information in electronic format. BBS supports interactive communication between users on a wide variety of subjects ranging from hobbies to politics. On some BBSs, it is possible for the users to communicate both interactively and to leave messages for other users. Some bulletin boards are considered more of a talk-net than a platform to exchange research information. Most BBSs make available a discussion topic list with brief descriptions under each topic heading. Easy to use menus guide the new user through the bulletin boards. Some bulletin boards provide file transfer services. Rutgers Bulletin Board Service (Quartz, USA) and University of North Carolina

(Samba, USA), Bulletin Board for Librarians (BUBL, UK), National Information on Software and Services (NISS, UK) are some of the important bulletin boards available on the networks.

2.1 BUBL, UK

Bulletin Board for Librarians (BUBL), is one of the registered BBS on Joint Academic Network (JANET), UK, designed to be accessed and used in interactive mode. BUBL was designed using Userbul software, produced by Leicester University, England. This interface allows the users to move easily between files within the bulletin board. Since the datasets are arranged hierarchically, users need not 'climb' or 'descend' through menus in order to reach files or menus they desire, for example the main menu can be recalled at any time, by typing 'M' and pressing Return key (Fig. 1).

Section M *Page 1 of 1*

**** Main Menu****

A	All about BUBL	J	Glossary
B	Reference Section	K	Practical Exercises
C	New Titles in LIS	L	British Library R&D News
D	Directories	N	Latest changes in BUBL
E	Current Contents	O	Concise (Pan-European Info Services)
F	Mailing lists	S	Electronic Journals & Texts
G	NISS	V	Library Systems & Software
H	User's Board	Z	CTILIS

Options :
HELP, HINTS, SEARCH, MAIL, POST, QUIT, M(Main Menu) or (RETURN) (Next Page)

Please select section name, page number or option

Figure 1. Main Menu of BUBL, UK

BUBL aims to provide a network of library resources of information on JANET and other networks such as Internet to the users.

2.2 NISS, UK

The National Information on Software and Services, based at the universities of Bath and Southampton, provides a gateway to several services. These include an online bulletin board (NISSBB), and a catalogue of software and databases on JANET. Its primary function is information dissemination and online services for the UK higher education community. In NISS bulletin board, information is structured in a hierarchy of sections and selected via menus. NISSBB has a public access collection, i.e. a collection of datasets with powerful search facilities. The 'POST' command on the NISSBB can be used to mail all the information given under the sections on the bulletin board to local computers. For example, if a person wants the address list of university libraries in UK, he can use the 'POST' command to get the relevant information downloaded to his/her mail box.

2.3 Subject-based BBSs

2.3.1 Chemistry

American Chemical Society (ACS), Organic Chemistry Division and Chemical Abstracts Service and STN International have jointly designed and implemented a new BBS for chemists. It allows online meetings and to communicate with each other without physically travelling to a single location.

Chem REFS (Chemical Research and Education Finding Sources) is another electronic bulletin board (available to the ACS members) containing information on grants and contracts in the chemical services and engineering. The bulletin

board also carries a new section with weekly coverage of science policy issues, the federal (US) budget, and change in grant and contract procedures or guidelines. Except for the telephone charges, there are no other costs involved in using this system.

2.3.2 Engineering

The CIME-ISE is a free electronic bulletin board service of ASME's Publications Directorate. It is an online 24-hours service and can be accessed with 300-, 1200- or 2400- baud rate modems. CIME-ISE currently offers several programs that includes FAT- video (Fortran Accessory Tools) which operates with IBM monochrome, CGA and EGA video standards. It has a variety of programming tools for Pascal, Basic, Turbo Basic, Boosters and T- Enhance.

2.4 BBS in India

Some of the Bulletin Board Services available in India are listed in Table 1.

3. GENERAL APPLICATIONS OF BBS

- ☐ Electronic mail
- ☐ Software exchange
- ☐ Electronic computer conferencing
- ☐ Electronic publishing
- ☐ Current contents

Table 1. Some Bulletin Board Services available in India

Name of the BBS	City	Sysop/Cosysop	Dial Number Available	Time
Live Wire	Ahmedabad	Roopal Mehta/Rishabh	411116	24 hrs
CiX	Bangalore	Atul Chitnis	3341137	24 hrs
Live Wire	Bombay	Suchit/Anish Nanda	5787812 5777770	24 hrs
Live Wire	Calcutta	Shamit Khemka	241356 2488763	24 hrs
Status Royal	Chandigarh	AK Agarwal	697648	2000 to 0800
Genius Net	Chandigarh	R Prabhakar	547144	24 hrs
Cyberden	Delhi	Satyen Jhaveri	600001	2000 to 0800
Delhi Online	Delhi	D Khurana	5581166	2000 to 0800
ECTC Net	Delhi	Kishore/Jyoti	6845520	24 Hrs
Headnet	Delhi	Bhargava Jayant/Menakashi Jhamb	2222135	2000 to 0800
Nebulanet	Delhi	Sameer Madan	5739404	2000 to 0800
Netropolis	Delhi	Ashish Gulhati	4601978	24 hrs
Network 33	Delhi	Ankur Ruhagi	603497	1800 to 0600
PCQ Online	Delhi	PK Roy	6221734	24 hrs
Poison Den	Delhi	Ashwani Agarwal	2910518	24 hrs
Quantum Lnk	Delhi	Aditya/Sayan Ghosh	6885548	1800 to 0600
Solutions	Delhi	Nitin Chandra/Deepak Datta	6855362 6865881	24 hrs 24 hrs
Status BBS	Delhi	Alok/Anjali Sinha	6475111	24 hrs
Twilight Zone	Delhi	Manu Kaushish	6830299	200 to 0800
Wondernet	Delhi	Aman Anand	5741230	1800 to 0600
Jabberwocky	Pune	Gautam/Vikram Godse	678749	24 hrs
Live Wire	Madras	Loyala Josep	4838826	24 hrs

- ☐ Mailing lists
- ☐ Special interest groups/newsgroups
- ☐ Conducting research, surveys, etc.
- ☐ Networking
- ☐ Computer-based chatting (simulation)
- ☐ Electronic document & article delivery
- ☐ Bulletins/features
- ☐ Access to network resources
- ☐ Archive.

4. INFRASTRUCTURE REQUIREMENTS FOR BBS

Establishing an electronic BBS, requires a PC, a modem, a telephone line and the BBS software. There are several software packages that allow us to setup and run a BBS. These software run on variety of computers from a simple PC (286) to Pentium (multi-processor), minis and mainframes.

4.1 Manpower

One system operator (SYSOP) is required to maintain the system who will receive information from the contributors, edit it and add to the BBS. Thus, he is called as BBS moderator or operator. Depending upon the increase in the amount of information, more manpower may be required to operate, update and maintain the system. The person(s) may/may not be a computer professional; any one having some experience on computers and also some knowledge in BBS would be able to perform this job.

4.2 Hardware Required to Access/ Use BB Services

Anyone having an IBM AT or compatible with 512 KB RAM, having high density floppy drive, 15 MB hard drive, RS 232 serial port with modem and cable, and voice grade telephone line would be able to access/use these services.

4.3 Hardware Required to Setup a BBS

4.3.1 Computer and Peripherals

For setting up a multimode BBS of 10 lines, the PC should have multiple COM ports and faster speed to handle multiple connections. For setting up a full-fledged, national level professional BBS, a dedicated 33 MHz clock speed mainframe is required. An average system configuration required for setting up a BBS would be :

Computer : Server with 486 DX2/33 MHz or 40 MHz or higher if possible, 20 to 24 MB RAM and 500 MB HDD.
Operating System : DOS/Windows /Novel/Unix
BBS software : WildCat 4.01 (more softwares are listed in Table 3).
Telephone : A dedicated telephone line/ lines depending on the requirement.
Modem : ZyXEL 1496E or equal having required baud speed.
Modem Speed :1.2 kbps to 28.8 kbps.

4.3.2 Modem

Modem is one of the important components of the BBS. All BBS software do not support all kinds of modems, however, a few like Hayes and US Robotics modems support all types of BBS software. It is better to select a modem of industry standard (i.e., Hayes, AT Commands, MNP Protocol, etc.) and international standards (CCITT V.32, V.22, etc.). Since users will be using modems of different makes, it is better to select a modem that supports maximum protocols.

A 1,200 bps modem is sufficient for the low-end BBS, however, 2,400 bps modem is a better choice. Some popular modems with their baud rates are given in Table 2.

Table 2. Popular modems in use

Manufacturer	Modem Name	Baud Rate
DC Hayes	Micro modem IIc	300
	Smart modem	1200
	Smart modem	2400
Navigation	J-CAT	300
	Apple Cat II	1200
	2400 Professional	2400
Recal Vedic's	1200 PA	1200
	1200 PC	2400
	The Maxell modem	2400
	1200 VP	
		2400
TRS-80	DC 2212	1200
US Robotics	The Courier 2400	2400

A number of BBS software packages are available. These include a few that are available free of cost, and others which may be purchased through commercial vendors. Due to limited market, BBS software are usually available directly from the software or communication companies. The packages cost from less than fifty US dollars to several thousands of dollars. There are a few public domain BBS software available free of cost and may provide programming skills to novices and hobbyists.

4.4 Selection Procedure for BBS Software

There is no perfect BBS software which matches the needs of all the users. Each software has some strengths and weaknesses and therefore comparisons among the software are difficult. There are three main characteristics that decide the selection of a BBS software, *viz.* user needs, software features, and software quality.

4.4.1 User Needs

The needs for designing a BBS must be defined clearly. The clearer the user needs, the easier the task of selecting a BBS software. The needs include the following:

- What is the purpose of the BBS?
- Who are the users?
- What features are to be added?
- Any important facilities such as online surveys, electronic conferencing, chatting, etc. to be provided?

4.4.2 Software Features

An intensive literature survey should be conducted to know the features of the software usually published in the form of ratings. The features include:

- Extent of software customisation.
- Extent of programming.
- Back-up protection.
- Range of hardware program.
- Features such as chat, conferencing, down loading, posting, etc.
- No. of ports it can support.

4.4.3 Software Quality

The following features should be looked into while checking the quality of a BBS software.

- User friendliness and reliability of the software.
- Availability of editing features with nesting system.
- Documentation (both online and hard copy).
- User support.
- Updating of the software.

4.4.4 PC Board—An Ideal BBS Software

PC Board is an easy to use, standard and inexpensive BBS software that is being widely used by hundreds of users around the world. It can support from two users to 65,535 users. PC Board includes other modules (normally very expensive if we buy

them separately) such as an Internet/UUCP Gateway, a Fido Mailer QWK Mail Support, Credit Accounting, SysOp utilities, dBase file Access, Multi-channel CHAT, Local/Network and Dial in/remote, logins, and support for both intelligent and non-intelligent multi-port hardware with port speeds upto 1,15,200 bps. Moreover, these also provide PCB Mail (a Mail Manager for IMS Windows) free, with the result that Windows e-mail application is fully integrated with PC Board. The price varies depending upon the number of nodes needed by the user.

Some of the important PC-based BBS software packages are listed in Table 3.

Table 3. PC-based BBS software packages

BBS software	Baud rate (bbs)
PC Board	NA
RBBS (Remote BBS)	300-1200
Searchlight	NA
TBBS	NA
WILDCAT 4.1	NA
Access	300-1200
ABBS (Apple BBS)	300
BBS-PC	1200-2400
Conference Tree	300-1200
Dial-Your Match	300-1200
Diversi-DIAL	300
The Dungeon	300
Fido	300-2400
FoRem PC	300-9600
Great BBS PC	300-2400
Idea-Tree Message System	399-2400
Let's Talk	300-2400
PC-Date	300-1200
Usenet	300-1200
Metropolis Online	NA
Excel-PC Board	NA
Celebration Station	NA
Sound of Music	NA
Canadian Remote System	NA
Metroline BBS	NA

5. A PROPOSED BBS FOR LIBRARIES

The BBS should be attractive (in terms of its ingredients to attract callers), user-friendly, advertising, informative and should provide up-to-date information. An important barometer of BBS success is the number of calls it generates. An attempt is being made to design a model BBS namely Indian Bulletin Board System for Librarians (IBBSYL). Various features of the proposed system are explained in the following sections. IBBSL can be designed and implemented by any national agency like INSDOC or DESIDOC. General topics to be covered in the BBS can include advice columns, articles on subjects of interest, book reviews, electronic mail and conferencing, inter-library loan, job listings, library information (such as programs, addresses, board members, etc.), local BBS members list, mailing lists and new books, online newsletters and surveys, information and advice on computers/ telecommunications, news, word-processing, information exchange, advertisements, conferencing, sponsors and grants, bulletins (display of text files), public message areas (online conferences), file transfer (upload and downloading), etc.

5.1 Basic Features

IBBSYL would provide online information services to the ERNET users (particularly librarians in India). The proposed BBS would have the following sections in the main menu:

A - All about IBBSYL
B - Reference Services
C - Current Contents
D - Directories
E - Electronic Journals
F - New Titles in LIS
G - Mailing Lists
H - LIS Research in India

I - Services of DESIDOC/INSDOC
J - TIC's News
K - Library Systems and Software
L - Special Interest Groups

5.1.1 All About IBBSYL

This menu would cover all the background information about the IBBSYL project, LIS-link, system management, how to contribute your articles, contacting people, discussion on IBBSYL (such as additions, deletions, improvements, suggestions etc.), editors of various sections of IBBSYL and library services. This will be an introductory and informative section for the users of BBS. The sub-menu would be as given below:

A1 - IBBSYL Basics
A2 - LIS-Link
A3 - IBBSYL-Management
A4 - Contribution to IBBSYL
A5 - IBBSYL Contents
A6 - Discussion on IBBSYL
A7 - Section Editors
A8 - Library Services

5.1.2 Reference Services

This menu would mainly cover the various reference sources available on ERNET and Internet. It will be particularly useful to Library & Information Science professionals for providing quick and better services to their users.

B1 - Guide for Libraries on ERNET
B2 - How to Use the ERNET–PSS Gateway
B3 - Short Guide to ERNET
B4 - Guide to Internet Resources
B5 - Library Resources on the Internet
B6 - Union Catalogue of Indian Periodicals
B7 - Union Catalogue of Periodicals in the DRDO Libraries.

Each menu would have sub-menus to facilitate the user to get more information on each option. For example, B3 sub-menu can have the following sub-menus :

B3 - A Short Guide To Ernet
B3A - What is ERNET
B3B - Access to ERNET
B3B1 - Pre-requisites to Access
B3B2 - Addressing Conventions
B3B3 - Login and Logout
B3C - Electronic Mail
B3C1 - User Interface for E-mail
B3C11 - Mail
B3C12 - Elm
B3C2 - X.400 Message Handling System
B3C3 - Mailing lists
B3D - File Transfer
B3D1 - Using FTP
B3D2 - Anonymous FTP
B3D3 - FTP by Mail Servers
B3E - Remote Login
B3E1 - Telnet
B3E2 - RLogin
B3F - Netnews Bulletin Board
B3F1 - Reading News
B3F2 - Posting an Article
B3G - X.500 Based Directory Service
B3G1 - User Interface DE
B3G2 - List of Countries Reachable
B3H - Archive
B3I - Databases
B3I1 - National Databases
B3I2 - International Databases
B3J - Documents
B3K - Gopher
B3L - WAIS
B3M - Freenets.

5.2 Value-Aided Services

5.2.1 Current Contents

This menu would provide information from the contents page(s) of latest journals. Simply by selecting a menu option, the contents of that particular journal will be displayed. For example by typing 'CL1', and pressing 'Enter' key, the system will display *Library High Tech* journal's latest

issue contents page. This service can be further extended by giving an abstract of that article also.

5.2.2 Directories

Various directories available on IBBSYL would be covered under this menu. These include OPACs, information services and mail addresses on ERNET, different types of library directories, etc. This will help the remote library users and would be a better method of resources sharing.

5.2.3 Electronic Journals/Projects

This menu will give the latest information about electronic publishing, electronic journals and the research projects undertaken by various institutions. One can read a few full-text electronic journals through this BBS. Even, DESIDOC Bulletin of Information Technology can also be made available in electronic form on IBBSYL and all the ERNET users will be able to access the same at their offices.

5.2.4 New Titles in LIS

This menu would provide information about the latest books, monographs, reports, etc. published in the field of LIS. Abstracts or reviews of these publications would also be included on this BBS.

5.2.5 Mailing Lists

The standard LIS mailing lists from India, UK, USA for LIS conferences, seminars and meetings would be available in this section.

5.2.6 LIS Research in India

This section would provide information on LIS research in library schools, scientific institutions and research groups. It would also provide information about research funding bodies, how to apply for a research project and get the research grants.

5.2.7 DESIDOC/INSDOC Services

It would give information about national documentation centres like DESIDOC or INSDOC and their services to scientific community. The services provided by Defence Science Library, Reprography Division, Printing Division and Database Design Division and the service charges for the outside users would be listed. Later, publications brought out by these agencies can also be made available in electronic form on this system.

5.2.8 TICs News

This section would give the list of services provided by the Technical Information Centres (TICs) of the major institutions situated in various parts of the country. The meetings organised by various libraries/TICs and their outcome may also be provided in this section.

5.2.9 Library Systems & Software

It will be an advice information section for the librarians about the latest hardware, software, databases and CD-ROMs available in Indian and foreign markets.

5.2.10 Special Interest Groups

Special interest groups (SIGs) can have interaction with each other through teleconferencing. The system may have as many SIGs as are required. For example, the Public-Access Computer System Forum (PACS-L) is a computer conference that deals with all computer systems that libraries make available to their patrons.

SIGs are formed to discuss on various topics of patron's interest through computer (online) conferencing. Utilising the BBS, the users can discuss various topics such as CD-ROM databases, expert systems, hypertext programs, multimedia, network-based information resources, OPACs, etc. Messages sent to PACS-L are

reviewed by the conference moderators, who distribute it to participants. For example, the University of Houston Library provides PACS-L as a public service. It does not verify the accessory of the submitted message nor does it endorses the opinions expressed by message author. Authors of the PACS-L messages are solely responsible for the content of their messages.

6. CONCLUSION

A number of bulletin board services are available on national/international networks throughout the world facilitating information exchange through e-mail, computer conferencing, etc. to a group of people working in a particular subject area or geographical region. Initially BBSs were started in the universities/research institutions. However, private agencies are also operating such services now-a-days. BBS software vendors claim that majority of their customers (about 80%) are from business or government and only about 20% are hobby or entertainment users. While a number of BBS software packages are available for UNIX, the vast majority are written for MS-DOS to make the service as cheapest as possible. Shareware and Freeware are available on many larger BBSs for downloading.

7. FURTHER READING

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