Access to Engineering and Technology Information In Networking Environment

T. B. Ghosh

Abstract

Everyday information is generating in an exponential rate and time is very short to communicate and disseminate the information to its users. The duty of the Librarian and library professional is to procure documents and to process and disseminate the same to its users, but now a day's information is generating in an exponential rate and time is very short to communicate and disseminate the information to its users and they have to learn the modern technology and to keep track about the different sources of information available on the Internet and method of accessing the same. Different sources of information, directories, search engines, meta search engines, virtual libraries and other sources of information is described in this paper

1.0 INTRODUCTION

The world is progressing in jet speed. Trends of growth of industries, research and development, financial institutions, business and commerce, educational institutions are increasing enormously. For the development of any sector either it is industry or educational institution information is the root of the development. The main source of information is books, journals, reports etc., but everyday information is generating in an exponential rate and time is very short to communicate and disseminate the information to its users. Hence, the producer i.e. publishers are shifting the mode of dissemination from print media to electronic media. Due to introduction of Internet it become easier to publish any material for anybody with less expenditure and less accessories in comparison to the print media. As a result there is also overflow of Internet on the Internet.

**2.0 USE OF INTERNET ON LIBRARY AND LIBRARY PROFESSIONALS**

The Library of any organization is the main source of Information. In traditional library system the duty of the Librarian and library professional was to procure document mainly printed and to process and disseminate the same   to its users, but now a days they have to learn the modern technology and to keep track about the different sources of information available on the Internet and method of accessing the same in addition to maintain their traditional Library as the traditional library can not be abolished. For example in traditional method the reference staff of the library or Reference Librarian used to procure a large number of reference books and other printed reference sources and to study the same to answer the quarry of its users. Now a days it is very difficult to answer to the quarry of the user depending only on printed reference materials as there are a vast sources of information available on the Internet, which are not available in printed document. Butt all the sources available on the Internet are not reliable and accurate, in addition to this, a large quantity of useless information are available on the Internet. Therefore it is a difficult task for the Librarian to disseminate the right information to right user in right time and it is necessary for the Library professional to learn different approaches to search the information.

2.1 The size of the World Wide Web

The Indexed Web contains **at least 26.06 billion pages** (Saturday, 22 December, 2007).

The Dutch Indexed Web contains **at least 484.66 million pages** (Saturday, 22

December, 2007). The graph of use of World Wide Web is given below (usage up to Saturday, 22 December, 2007.
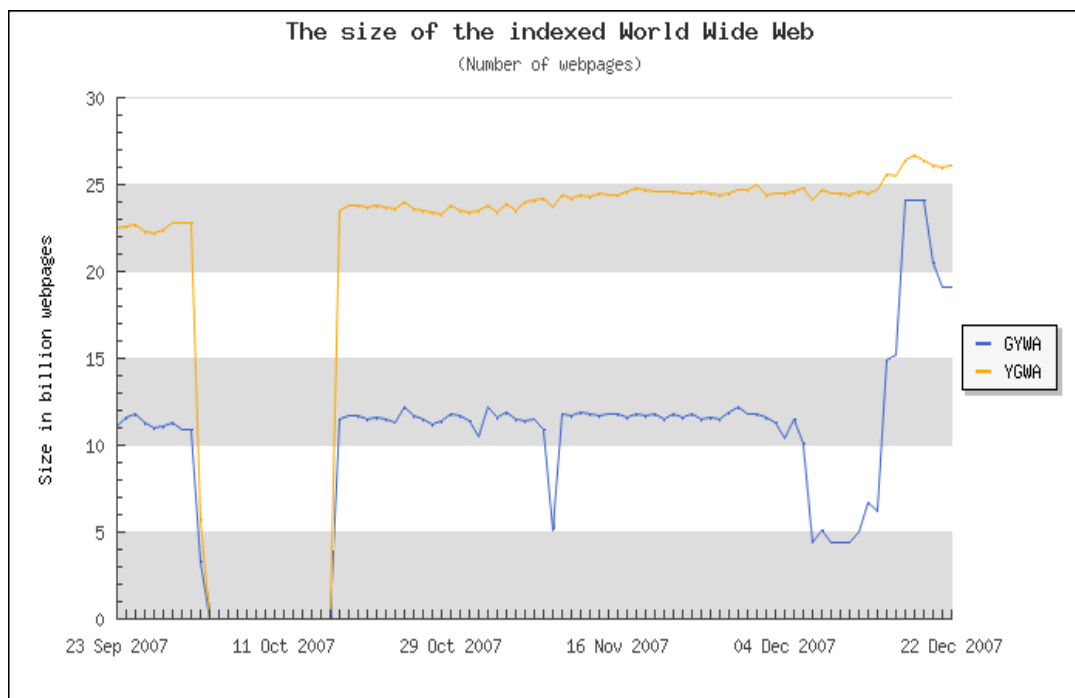
3.0 DIFFERENT APPROACHES TO SEARCH INFORMATION

A large number of sites with several pages of information is available on the Internet. It is increasing about 2 times in a year. At present near about 7.1 million unique sites are available, out of which 41% are public access and remaining with access restrictions. Out of total sites available on the Net only 6% are Educational and Scientific, 83% are commercial and others are ephemeral nature of materials. In this situation the Library professionals should learn the different approaches for searching the information as follows:

1. Visiting the individual sites of organization or individuals such as http://www.inflibnet.ac.in for INFLIBNET or http://www.iitd.ac.in for IIT, Delhi, http://www.svnit.sc.in for SVNIT, Surat etc. and using

2. Directories;

3. Search Engines;

4. Meta Search Engines and

5. Information Gateways/Virtual Libraries

4.0 DIECTORIES

Directories are Subject Trees or Catalogue. It is Created and maintained by human editors. Steps are reviewed and then selected through submission and through constant visit. No programmes ('Spider' or 'Robots') are used. Resources listed are usually annoted. Directories may have search engines for their own directory i.e. Yahoo. Examples of some of the directories are as follows:

4.1 Yahoo (http://www.yahoo.com)

It has started since 1994. It is subject directory. It consists of approximate 1,700,000 websites under 14 major categories and 25,000 subcategories. It is indexed by human beings most of who are Library Professionals. It receives submissions of web sites with descriptions and it has advance-searching facilities..

4.2 Galaxy (http://www.galaxy.com)

It has started since 1994. it is arranged in near about 36 broad categories and . Searching and browsing facilities are provided. It is organized by Internet librarian

4.3 Open Directory Project (http://www.dmoz.org/)

The Open Directory Project is the largest, most comprehensive human-edited directory of the Web. It is constructed and maintained by a vast, global community of volunteer editors. It was founded in the spirit of the Open Source movement, and is the only major directory that is 100% free. There is not, nor will there ever be, a cost to submit a site to the directory, and/or to use the directory's data. The Open Directory data is made available for free to anyone who agrees to comply with free use license.

4.4 About .com (http://www.about.com)

It is founded in 1996and was acquired in March 2005 by The New York Times Company (NYSE: NYT). Today, About.com is recognized as a top 10 content site and one of the largest producers of original content on the Web.

4.5 Indiatimes (http://www.indiatimes.com)

Indiatimes is the most popular Internet and mobile value-added services destination for the global Indian. Covering everything from art to airlines, Indiatimes is taking the digital age into people's lives, influencing the way they live and respond to changing times, work and transact.

5.0 SEARCH ENGINES

Search Engines are huge databases of web page files, assembled automatically by machine. Search Engines employ 'Spider' or 'Robot' or 'Crawler' to crawl through web space from link to link. Search engine searches first its own databases. Its coverage is comprehensive and it is usually up to date. There are two types of search engine.

1. Individual Search engine – compile their own searchable databases on the web
2. Meta Search Engine – It searches several other Search engines and give the result

Some important Search Engines are described below:

5.1 Google (http://www.google.com)

It has been started since 1999. It is one of the most popular, fast and comprehensive Search Engine. It contains more than 20 billion web page as on 21 December 2007 in different languages. The graph   of the same is stated below:

Size Google
(Number of webpages)

5.2 Altavista (http://www.altavista.com)
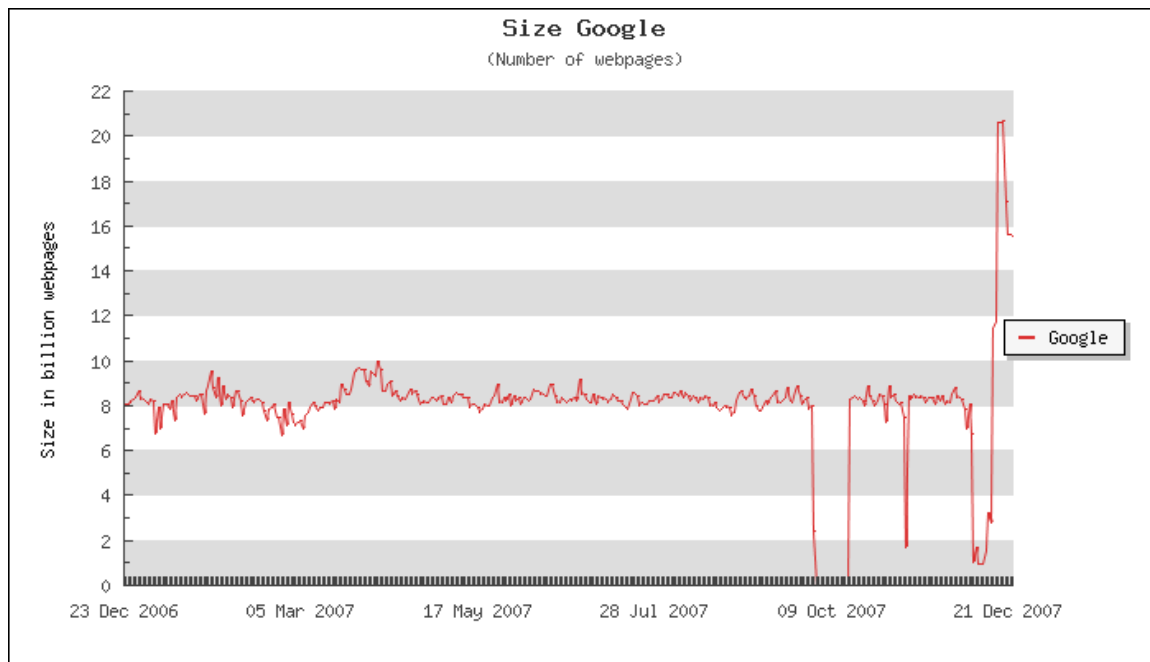
It has been started since 1995 AltaVista, a business of Overture Services, Inc., is a leading provider of search services and technology. AltaVista continues to advance Internet search with new technologies and features designed to improve the search experience for consumers. Based in Sunnyvale, Calif., AltaVista has a rich history of innovation embodied in 61 search-related patents. The graphs of numbers of textual documents indexed during September 1999 to March 2002 is given below (accessed on 22.12.2007 at

http://searchenginewatch.com/showPage.html?page=2156481#showdown)

**MILLIONS Of Textual Documents Indexed
December 1995-September 2003**
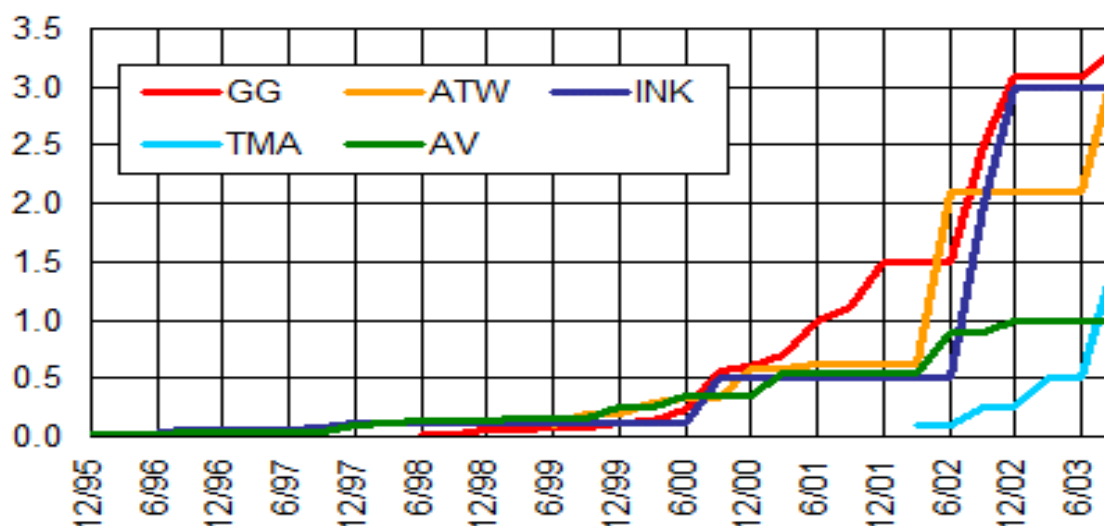
5.3 Other Search Engine

List of other important search engine is stated below:

Alexa Inernet	http://www.alexa.com/
Ask.com (formerly Ask Jeeves)	http://www.ask.com/
Exalead	http://www.exalead.com/search
Gigablast (searching 10 billion pages)	http://www.gigablast.com/
Live Search (formerly MSN Search)	http://www.live.com/
MozDex	http://www.mozdex.com/
Picsearch (Search the web for images. An image search service with more than 2,000,000,000 pictures.)	http://www.picsearch.com/
Hakia (semantic search)	http://www.hakia.com
Northernlight	http://www.northernlight.com
Webcrawler	http://www.webcrawler.com
Exite	http://www.excite.com/
Lycos	http://www.lycos.com
Khoj	http://www.khoj.com
India Index	http://www.indiaindex.com
123 India	http://www.123india.com
International Directory of Search Engine	http://www.searchenginecolossus.com

6.0 META SEARCH ENGINE

A meta-search engine is a search engine that sends user requests to several other search engines and or databases and returns the results from each one. Meta search engines enables users to enter search criteria once and access several search engines simultaneously. Since it is hard to catalogue the entire web, the idea is that by searching multiple search engines the users are able to search more of the web in less time and do it with only one click.

6.1 Ixquick (http://www.ixquick.com)

It is the world's most powerful mete search engine. Its search results are more comprehensive and more accurate. Ixquick's unique capabilities include a Universal Power Search, a global search and power refinement. Find phone numbers and addresses worldwide with Ixquick's International Phone Directory, and comparison shop globally with Ixquick's Lowest Price search.

6.2 Mamma (http://www.mamma.com)

Mamma is the mother of all search engine. It searches 10 major search engines simultaneously and it is very comprehensive.

6.3 Clusty (http://clusty.com)

Clusty got its start in Pittsburgh in 2004 when the search software company Vivísimo decided to take its award-winning search technology to the web. Clusty queries several top search engines, combines the results, and generates an ordered list based on comparative ranking. This "metasearch" approach helps raise the best results to the top and push search engine spam to the bottom.

6.4 Dogpile (http://www.dogpile.com/)

Dogpile is a metasearch site — it searches multiple engines, filters for duplicates, and then presents the results to the user. Dogpile uses multiple popular search engines, as well as sponsored links. Dogpile puts the power the entire leading search engines together in one search box to deliver the best-combined results. The process is more efficient and yields more relevant results.

7.0 Other Meta search engines

MetaCrawler	http://www.metacrawler.com/
Excite	http://www.excite.com
HotBot	http://www.hotbot.com
BrainBoost/Answer.com	http://www.answers.com/bb/
Info.com	http://info.com/
Krozilo	http://www.krozilo.com/
MetaLib	http://www.exlibrisgroup.com/metalib.htm
Myriad Search	http://www.myriadsearch.com/
SideStep	http://www.sidestep.com/
Copernic	http://www.copernic.com/index.html
Serfwax	http://www.surfwax.com/

8.0 Virtual Library

Virtual Library is the collection of databases and informational sites arranged by subject that have been assembled, reviewed and recommended by specialists, usually by librarians. Conceptually it looks like a library. It is website with pointers and links to other sites. Some of the Virtual Libraries are as follows.

World Wide Web Virtual Library	http://vlib.org/
Infomine: Scholarly Internet Resources	http://infomine.ucr.edu/
BUBL (Bulletin Board for Libraries) Link	http://bubl.ac.uk/link/types/mailinglists.htm
Internet Public Library	http://www.ipl.org/
Librarian's Internet Index	http://lii.org/

8.1 Virtual Library for Applied science and Technology
http://www.geocities.com/ghosh_svrec/

The author has compiled a Virtual Library on Applied Science and Technology at URL http://www.geocities.com/ghosh_svrec in different sections like e-books, e-journals, e-databases, e-prints information, E-learning, etc. considering the information requirement of the academicians of Science and Technology. A snap sort of the index page is shown below

The main and important links are described in the following sections:

8.1.1 E-print Sources: (http://www.geocities.com/ghosh_svrec/eprint.html)

E-prints and Open Access Archives are closely related. The Open Access Archives (OAA) is where authors of published research papers and papers intended for peer-reviewed publications could self archive the full text of their work for all to refer.

Researchers who self-archive, want to improve access to papers while presenting the recognized quality control established by journals.

Now a days the Internet and its usefulness creation of vast qualities of digital contents have accelerated the pace of changes in our libraries and the library services. Electronic libraries, Digital libraries, Electronic journals, electronic books, online databases are introduced. Subscription of E-journals are introduced by INDEST consortium and UGC Infonet, but the subscription of all these resources involves a large amount of financial burden, which is not possible to bear for individual researcher, small and medium sized voluntary organizations and self financed institutions. Looking in to the needs of researchers and academicians of different discipline the author has tried to compile the link of E-print, preprint sources at the URL **http://www.geocities.com/ghosh_svrec/eprint.html**. Followings E-print resources are the most important.

- **CiteSeer or Research Index**
- **OAIster**
- **BASE (Bielefeld Academic Search Engine)**
- **ARC (A Cross Archive Search Service)**
- **OpenDOAR** (Open Directory of Open Access Repositories)
- **SHERPA** (Securing Hybrid Environment for Research Preservation and Access)
- **OpenSearch**
- **Find Articles**
- **Article Directory**

In addition to the above links subject wise (i.e. mathematics, Computer Science, Environmental Engineering etc.) links are also provided for the benefit of the researchers.

8.1.2 Online Free E-books http://www.geocities.com/ghosh_svrec/ebook.html

Due to advancement of web technology different organizations and institutions like Virginia University, Pennsylvania University and other organizations have taken

up digital library and E-book projects. As a result different E-books are freely available online. Freely available online electronic books on Applied Science and Technology and other interdisciplinary subjects are identified and linked in this section. Some reference books dictionaries and encyclopedias are also linked in this site.

A section is created under the heading Children 's Digital Library which includes children's story books, text books and MP3 audio books.

8.1.3 Online Free E-Journals:
http://www.geocities.com/ghosh_svrec/ejnl.html

Journals on Applied Science and Technology including Information Technology and Internet those are freely accessible are identified and linked with the above-mentioned URL.The number of journals is not exhaustive as the work is going on and it is a continuous process.

In addition to Applied Science and Technology, Journals of the following areas those are freely accessible are also linked.

- **Library and Information Science**
- **Intellectual Property Rights**
- **Collection of Journals of MOA** (Making of America). It includes back files of 23 Journals of old period ranging from 1843 to 1900.
- **Ornithological Journals**. It consists of the back files of 7 Ornithological Journals of old period ranging from 1884 to 2000.

8.1.4 Online Free Databases: http://www.geocities.com/ghosh_svrec/dbase.html

Different databases on Applied Science and Technology like Compendex, INSPEC, ASTP etc are available on CDROM as well as online, but it is not possible to subscribe the same for small and medium sized libraries and self financed Engineering colleges due to high rate of subscription. The author has made an attempt to identify the Online Databases, which are freely accessible through Internet and linked with URL http://www.geocities.com/ghosh_svrec/dbase.html Outline of the online databases linked in this URL as stated below:

- **Thesis & Dissertations**. It contains thesis database of different prominent universities and organizations
- **Engineering Databases**
- **Patent Databases** (U.S. Patent Data base, Free Patent online etc)
- **Environment database**
- Biotechnology Information Directory

8.1.5 E-Learning Resources

Recently the author is trying to add one more section i.e. E-Learning resources in to this Virtual Library at http://www.geocities.com/ghosh_svrec/elearning_engtech.html It includes the video links with the different institutions and organizations like M.I.T., U.S. department of energy and other video links to watch the video on the desktop of the user.

9.0 E-Resources of the Institute

The SVNIT is a member of INDEST Consortium and getting INDEST E-Resources. In addition to this Institute is subscribing other e-Resources and archiving other documents collected from other online sources

9.1 Online E-journals subscribed by the INDEST Consortium

The SVNIT Library is also a member of INDEST Consortium and the getting access of following e-resources like other NIRs

Full Text Resources
- IEEE Online - IEEE Journals
- Springer Verlag's: Link - Engg. and general resources
- Proquest Science - Formerly Applied Science and Technology Plus
- Science Direct
- ACM Digital Library - Mathematics and Comp. Algorithms

- ASCE Journals - Civil Engg. and Applied Mechanics
- Nature
- ASME Journals Journals - Mechanical Engg.

Bibliographic Resources

- JCCC - J-Gate Custom Content for Consortia

The link of INDEST E-resources is created in the Institute's web page for easy access of the faculties and students.

9.2. Online E-resources subscribed by the Institute

INDEST Consortium was established in 2004 and gradually the trends of Internet and e-resources have been increasingly continuously. He Institute has introduced 18 Post Graduate Courses and different Ph.D. Programmes. As a result necessity of more e-resources is felt and the Institute has subscribed following e-resources , in addition to the e-resources subscribed through INDEST Consortium.

- Science Direct: Back files of Engineering and Chemical subject bundles fro issue 1 to 1994
- ASTM Journals
- ASTM Standards
- Taylor & Francis online Journals (4 subjects 130 Journals)
- ESDU - Engineering Science Data Unit
- LNCS - Lecture Notes in Computer Science

9.3 Archive of documents collected from other online sources

The institute library has been maintaining an archive of documents collected other freely available online resources. The librarian used to collect information from the concerned heads of the department, In-charge of different Post Graduate sections and Ph.D. Guides about the topic of potential research and downloading the research papers, Ph.D. thesis from sources and archiving the same in mirror server for acceing in networking environment. At present contents of 10 years question papers, 70 Ph.D.

thesis 500 research papers and 150 e-books including audio books from different sources by harvesting the several e-print servers all over the world are created in the mirror server. These contents are linked in the library web page under the heading "Other Resources Created by the Library"

9.4 Online E-books

E-book is one of the most important resources of the library. During the severe flood in Surat in the month of August, 2006 near about 20,000 books were washed away. Considering the worst situation, the collection of e-books is felt necessary and the library has procured 7,150 numbers of books including handbooks, encyclopedia and referex engineering collections as stated below.

Sl.	Particulars	No. of titles	No. of Volumes
(A) Handbook, Encyclopedia & Refrex Engineering Collections			
01	Handbooks (Elsevier Science & Wiley Inter science)	30	174
02	Encyclopedia (Elsevier Science & Wiley Inter science & UNESCO)	30	460
03	Engineering Village Refrex Engineering Collection	407	407
Total Handbooks, Encyclopedia & Refrex collection		467	1,071
(B) E-books published by Springer & Wiley Interscience			
04	Springer E-books published in 2005 to 2007 on Computer Science, Engineering, Earth & Environmental Science, Chemistry & Material Science, Mathematics & Statistics, Physics & Astronomy.	5,767	5,767
05	Wiley Interscience publications	267	267
	Total	6,034	6,034
	Total of E-Book (A + B)	7,150	7,150

10.0 E-prints

Recently e-print institutional repository is introduced at http://eprints.svnit.ac.in ePrints@SVNIT repository collects, preserves and disseminates in digital format of the research output created by the SVNIT community. It enables the Institute community to deposit their preprints, post prints and other scholarly publications using a web

interface, and organizes these publications for easy retrieval. While ePrints@SVNIT can be accessed by anybody, submission of documents to this repository is limited to the SVNIT community. ePrints@SVNIT repository is running on E-Prints open archive software, a freely distributable archive system available from eprints.org. ePrints@SVNIT complies with the Open Archives Initiative (OAI) framework allowing publications to be easily indexed by web search engines and other indexing services.

Initially a few papers are uploaded and a lot of research papers are under uploading process.

11.0 CONCLUSION

The use of Internet in academic libraries in India is must to provide instant access to information, increase efficiency in providing information services. Merely having access to Internet is not enough, but at the same time one has to exploit the availability of electronic information treasure on Internet. For this mastering over the navigation tools and search engines to search through the thick jungle to get the relevant information is required. It may not be too long when the librarians may be treated as Electronic Librarian or Internet Librarian

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