Free Online Electronic Information Resources on Applied Science and Technology

BY

T. B. GHOSH, LIBRARIAN
S. V. National Institute of Technology, Surat - 395 007

ABSTRACT

The paper discusses free online electronic information resources and different means of collection of the resources. The online electronic information resources on "Applied Science and Technology are compiled and linked at URL: http://www.geocities.com/ghosh_svrec and described the different free Internet resource like online electronic journals, online electronic books, online databases, organizations, virtual libraries on Applied Science and Technology and special page on earthquake information..

1. Introduction

With the rapid development of technology and emergence of Internet, electronic publishing is getting a tremendous impetus form the publishing industry as well as libraries and information centers. E- books, E-journals, E-magazines, E-conferences, etc. are the leading digital resources and exerting a dominant pressure on the publishing world and paving the way to the transition from print to electronic media.

The enormous changes that are taking place in the information and communication technology have stretched too far into all walks of life. Library and information centers are no exception to this. Librarians of Engineering Institutions have traditionally been at the forefront in the integration of new technologies into their services and the explosive growth of Internet has created innumerable opportunities and challenges. Engineering Libraries have immediately realized that there is a need to organize the information sources available on the web so that their users could find resources for their research, teaching and consultancy services.

2. Online Electronic Information sources

Over the last decade all aspects of computer technology, processing techniques, storage media and input/output devices have become faster, more compact, sophisticated and less expensive. Internet is one of the boons of information technology. Introduction of Internet and web technology has reduced the cost, time and manpower of publishing documents. As a result organizations, institutions and even individuals are publishing on the Internet.

The place of exploitation of Internet by the Library and information center are unlimited and endless. Internet provides a wealth of information such as online E-books, E-journals, E-news letter, E-database etc. These vast resources can be accessed by the library and information centers and can be provided to the users.

3. Limitations of Libraries and Information Centres.

Information resources are unlimited but the budget of the institution is limited particularly in case of self financed engineering and technical institutions. The ministry of Human Resources Development has arranged for Consortia based subscription of online electronic journals and databases for IIT (Indian Institute of Technology) REC/NIT (Regional Engineering Colleges / National Institute of Technology) on the other hand personal experience of the author found that self financed engineering college libraries except a few have been suffering from acute shortage of budget and they are not in a position to subscribe core journals of the concerned discipline. Looking in to this problem the author has started to compile the links of online electronic books, electronic journals, online databases on Applied Science and Technology which are accessible free of charges at URL: http://www.geocities.com/ghosh_svrec In addition to online books, journals and databases author has also created the links of other Engineering Institutions, Organizations, Engineering Digital and Virtual Libraries and other reputed libraries for the use of engineering academics and professionals .

4. Free online Electronic 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 are identified and linked in this section. Near about 1067 number of E-books on Applied Science and Technology as stated below are freely accessible online.

Subject / Topic	Number of books available online
Applied Science	
Mathematics and Computer Science	375
Astronomy	52
Physics	60
Chemistry	78
Geology	40
Total Applied Science	**605**
Technology	
Engineering (General)	31
Hydraulic and Ocean Engineering	06
Environment (including Pollution)	46
Highways, railways & Bridges	01
Building Construction	07
Mechanical Engineering	17
Manufacturing	34
Electrical Engineering	53
Motor vehicle, Air and space technology	84
Mining and Metallurgy	06
Chemical Technology	16
Photography	04
Total Technology	**305**
Other Interdisciplinary subjects	
Handicrafts, Arts and Crafts	08
Home Economics (Including Food & Cooking)	43
Military Science	98
Naval Science	17
Total Applied Science and Technology	**1067**

In addition to the above a few e-books on Applied Science and Technology are available online at Gutenberg Project (at http://www.promo.net/pg/) and some e-books on Computer and Internet are also available at Hogan Publishers at http://www.hoganbooks.com . The publishers are keeping these books on line for free access for a specific period of time.

5 Online Electronic Journals (http://www.geocities.com/ghosh_svrec/ejnl.html)

About 104 number of journals on Applied Science and Technology including Information Technology and Internet those are freely accessible are identified and linked with the above mentioned URL. Out of 104 journals 71 journals are available in full text and abstracts/contents of the remaining journals are also available free of charges. The number of journals is not exhaustive as the work is going on and it is a continuous process.


6 Online Database (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. Near about 29 numbers of Online Databases which are freely accessible through Internet are identified and linked with URL http://www.geocities.com/ghosh_svrec/dbase.html. Out of 29 databases followings are the most important for the students and faculties of Applied Science and Technology.

6.1 Earthquake Engineering Abstracts (http://nisee.berkeley.edu/eea.html)

This database is maintained by the National Information Service for Earthquake Engineering (NIESEE), University of California, Barkeley. It covers the world's technical literature in earthquake engineering since 1971. Coverage includes technical reports, conference papers, monographs, journal articles. Provides Query by author, title, keywords, date. View citations and abstracts. It contains 10,00,000 records and is updated continuously. A maximum of 200 records will be displayed at a time. It provides author, title and keyword search and Boolean search under author, title and keywords and searchable in any range of year from 1971. A search example is stated below in figure no. 1 for clear understanding.

Fig. 1

Search Term

Selection of the Year
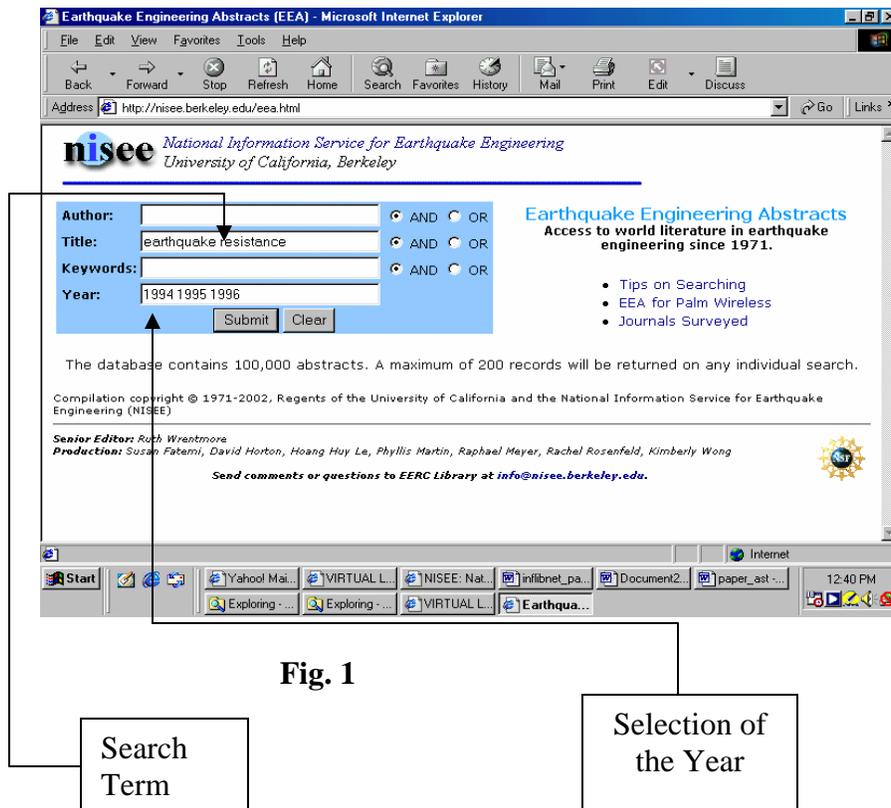
A sample search is made under the term "earthquake resistance" for the year 1994 1995 and 1996 and total 32 documents are retrieved as shown in figure 2.
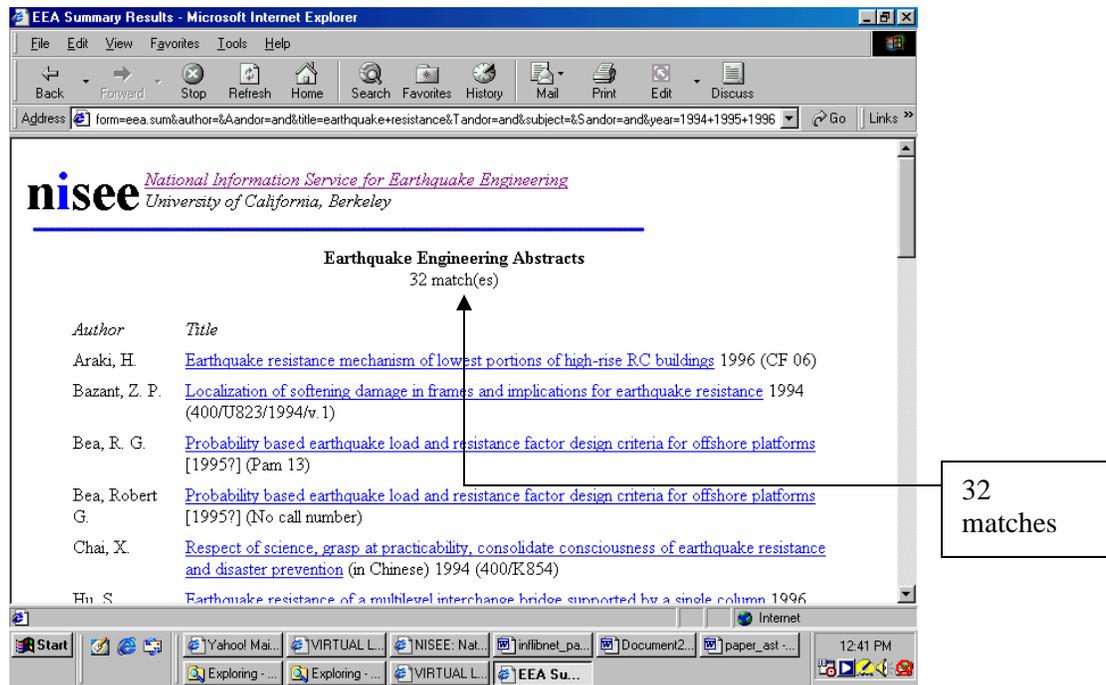

Fig. 2

If the user click on the required article the abstract will be displayed on the screen as shown in figure no. 3 and the user can download or can take printout of the same. Materials in EEA are available on loan from the Earthquake Engineering Library at the University of California, Berkeley. More information will be available from EERC Library, 1301 S. 46th Street Richmond, CA 94804-4698, Phone: 510-231-9403, Fax: 510-231-9461 Email: eerclib@nisee.berkeley.edu
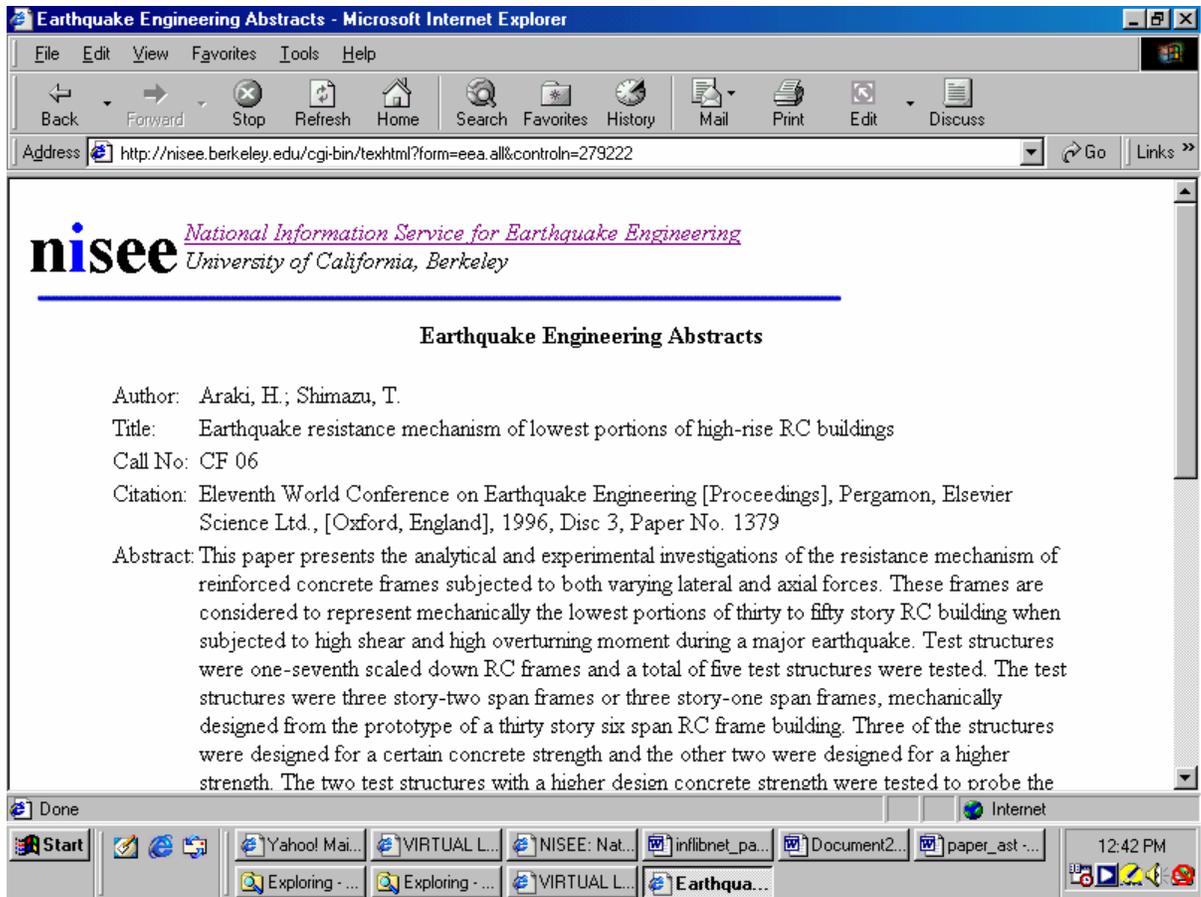
Fig. 3

6.2 U.S. Patent Full-Text and Full Image Database (http://uspto.gov.patft)

This database contains two parts i.e. (1) Patent Grants Database and (2) Patent Applications Database. Patent Grants Database includes full-text since 1976 and full-images since 1790. Patent Application Database is being published since 15th March, 2001. The databases are having following searching facilities:

- Quick search
- Advanced Search
- Patent number search (In case of Patent Grant Database)
- Application Number Search (In case of Patent application Database)

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Index page of the Database is shown below in figure number 4:
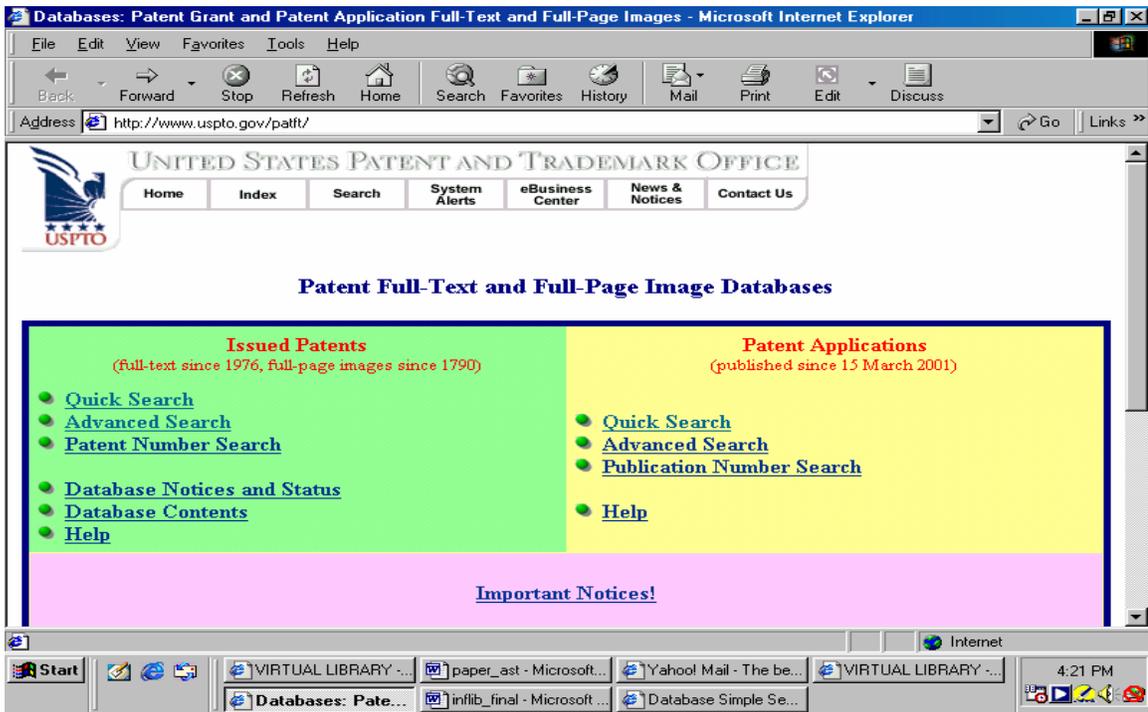
Fig. 4

It also provides Boolean search facilities and the database may also be searched by type and year as shown in figure number 5: The search was conducted under term (1) "Digital signal" and (2) "processing" and option of year was "1996-2002". It retrieved 33013 number of documents as shown in figure 6. If the user click on the particular document the full text of the document along with abstract will be displayed and the user can download or get printout of the same.
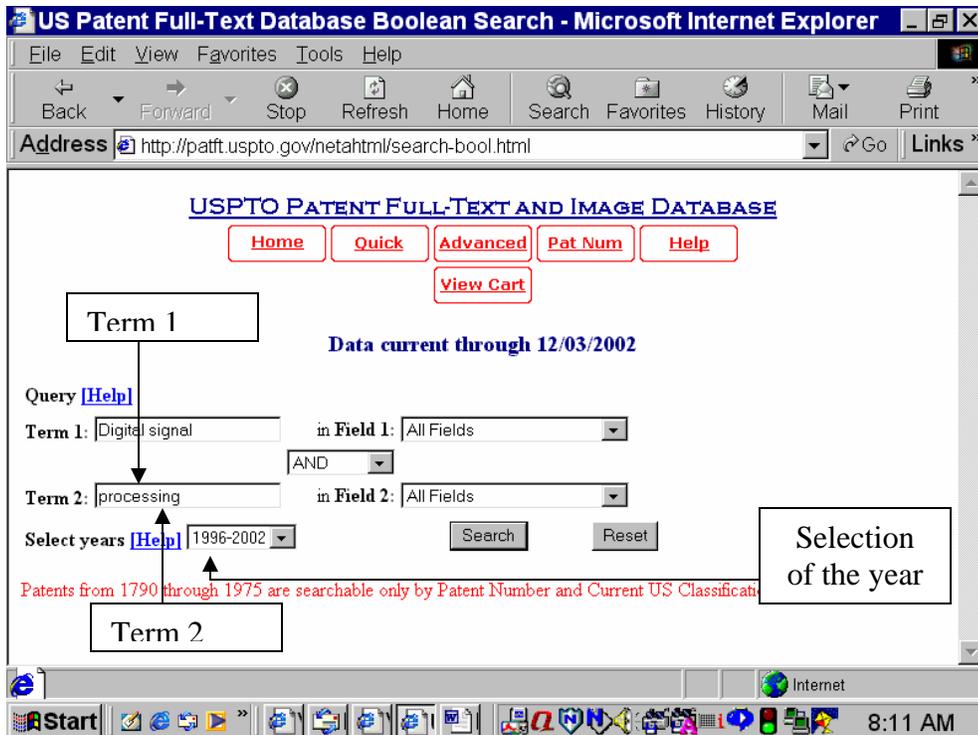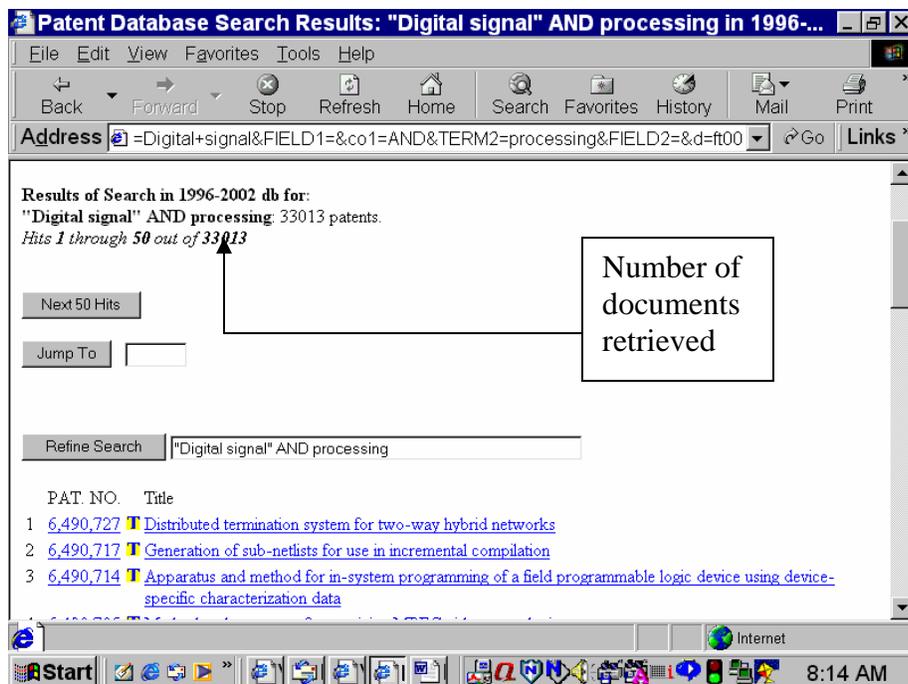
Fig. 5

Fig. 6

6.3 NASA Technical Reports Server (http://techreports.larc.gov/cgi-bin/NTRS)

The NASA Technical Report Server is an experimental service that allows users to search the many different abstract and technical report servers maintained by various NASA centers and programs. Specifically, it is a unified interface to many separate WAIS servers. NTRS is both a superset of the of the various servers, and a canonical listing of the servers. It includes following databases:

Ames Research Centre

Astronomy & Astrophysics (ADS)

Dryden Flight Research Centre Glenn Research Centre

Goddard Institute for Space Studies

ICASE

Jet Propulsion Laboratory

Johnson Space Centre

Kennedy Space Centre

Langley Research Centre

NACA Reports (Abstracts only)

NACA Reports (Full text)

Physics and Geophysics (ADS)

CASITRS (RECONselect)

Space Instrumentation (ADS)

Stennis Space Centre

LANL Astrophysics e-Prints (ADS) Marshal Space Flight Centre

Selected Current Aerospace Notice

Goddard Space Flight Centre

NTRS is intended for use by the various research communities targeted by the various report and abstract servers. It is open to all members of the Internet/World Wide Web community. It provides Boolean search facilities. A sample search has conducted under the term "digital signal processing" as shown in figure 7.
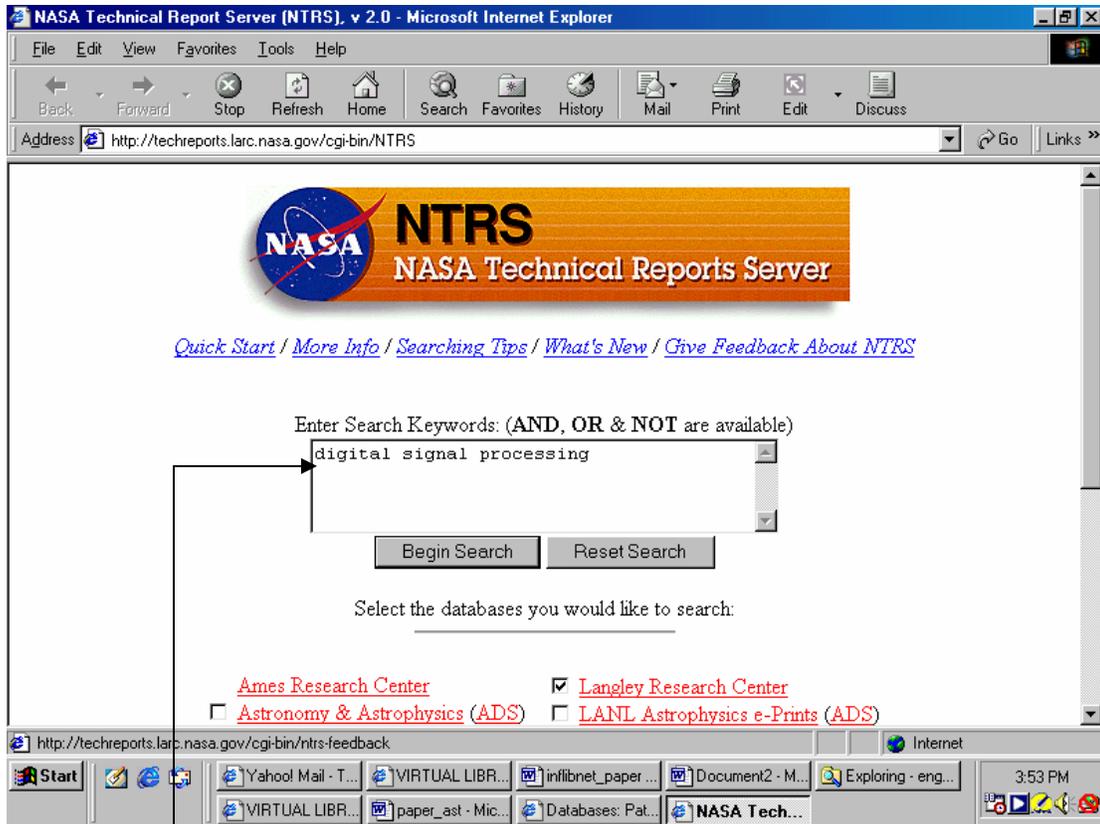
Fig. 7

Search Term

177 numbers of records are retrieved as shown in figure number 8. The user have to single click on the required item to see the abstract and the full text is available in PDF format. Abstract is shown in figure number 9.
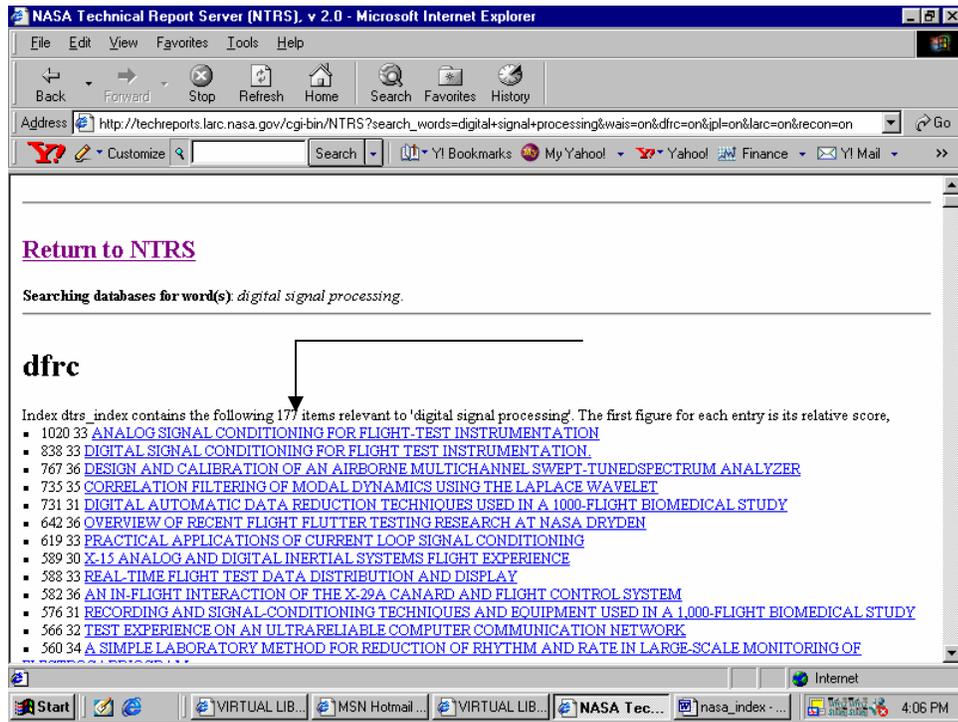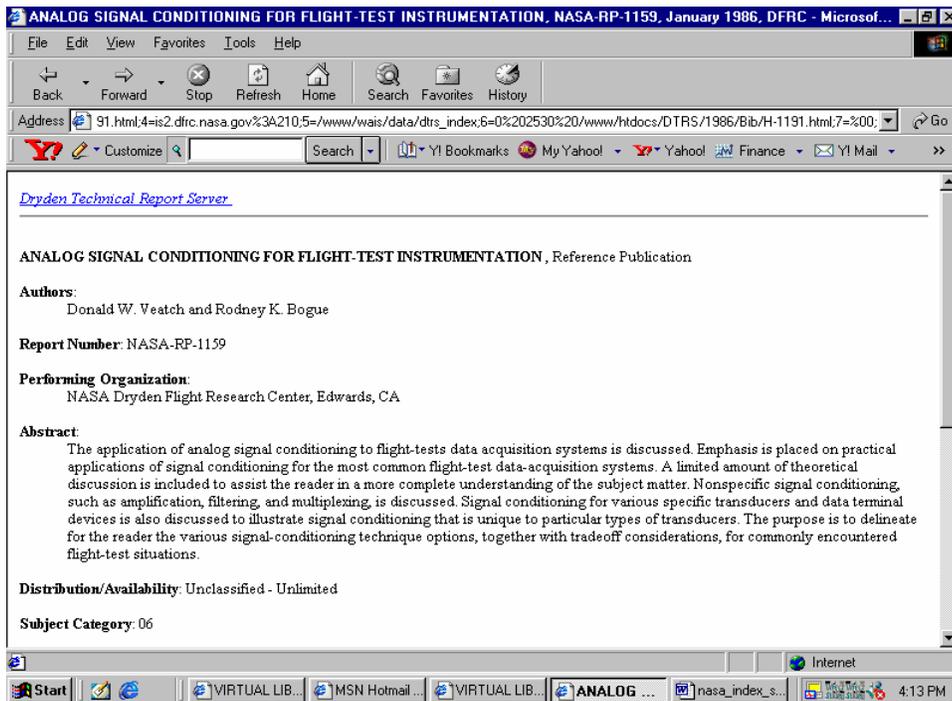
Fig. 8

Fig. 9

4.4 Conservation database (http://www.wcmc.org.uk/cis/index.html)

This database is maintained by UNEP (United Nation Environment Project) WCMC (World Conservation Monitoring Centre). It provides information services on conservation and sustainable use of the world's living resources, and helps others to develop information systems of their own.

It is beginning of the process of making this information available through the Internet with this collection of the links, such as Species databases on the world's threatened animals, Plants and trees, Protected Areas, Forest, Marine and National Biodiversity profiles.

4.5 AIRS: Aerometric Information Retrieval Systems
 (On atmospheric Pollution) (http://www.epa.gov/airs/airs.html)

In 2001 EPA (Environmental Protection Agency) changed the Aerometric Information Retrieval System (AIRS) to a database that solely related to tracking the compliance of stationary sources of air pollution with EPA regulations. It provides information on Air Pollution, Air facility subsystems, Air quality systems, Air toxics etc.

5. Libraries-Virtual Libraries-Digital Libraries
(http://www.geocities.com/ghosh_tbd/lib.html)

In this section reputed libraries all over the world, different digital libraries and virtual libraries are linked. Among all the libraries following are the most important ones.

5.1 World Libraries on the World Wide Web
 (http://www.123world.com/libraries/index.html#t)

It provides ultimate source of authentic and reliable information about 137 of libraries of the world on the net. This list of libraries includes the link of public libraries, research libraries, state libraries, national archives, libraries of different

educational institutions, agricultural and technical libraries, business libraries, science libraries, and IMF libraries all over the world. It is arranged in alphabetical order.

5.2 Digital Library of Virginia Tech (Virginia Polytechnic Institute and State University): (http://scholar.lib.vt.edu)

It provides (1) Scholarly Publishing services including E-journals, Electronic theses & dissertations, news, reports, survey database and Virginia Tech Publications and (2) Library Services and Archives including E-reserves, special collections, manuscripts, rare books, University archives and searching digital library and archives.

5.3 Digital Library: University of California : (http://elib.cs.berkeley.edu)

The University of California, Berkeley Digital Library Project is a part of Digital Libraries Initiative, sponsored by the National Science Foundation and many others. It provides quick access of the collection, overview of the collection, image retrieval by image content, document image analysis and distributed search.

## 5.4 Australian Virtual Engineering Library (http://avel.edu.au)

It provides Australian Digital Theses, ENGINE Database from IEAust, SciTech Library Newsletter and Full Text Papers on Biomedicine & Biotechnology, informatics, Nanotechnology, Robotics, Solar Energy, Sustainable Development, Chemical , Civil, Electrical, Environmental and Mechanical and Mining Engineering, Computer Science & I.T. and Engineering Education. This is one of the best site for Engineering and Technology field. It provides full text search facilities. This virtual

library is most useful and interesting to the engineering students and academics. The most interesting feature of this library is that users can access and can download their full text resources whatever they digitized. It contains 3,950 documents till date. The retrieval process is shown in the following figures. Figure no 10 is the main index page of the Library:
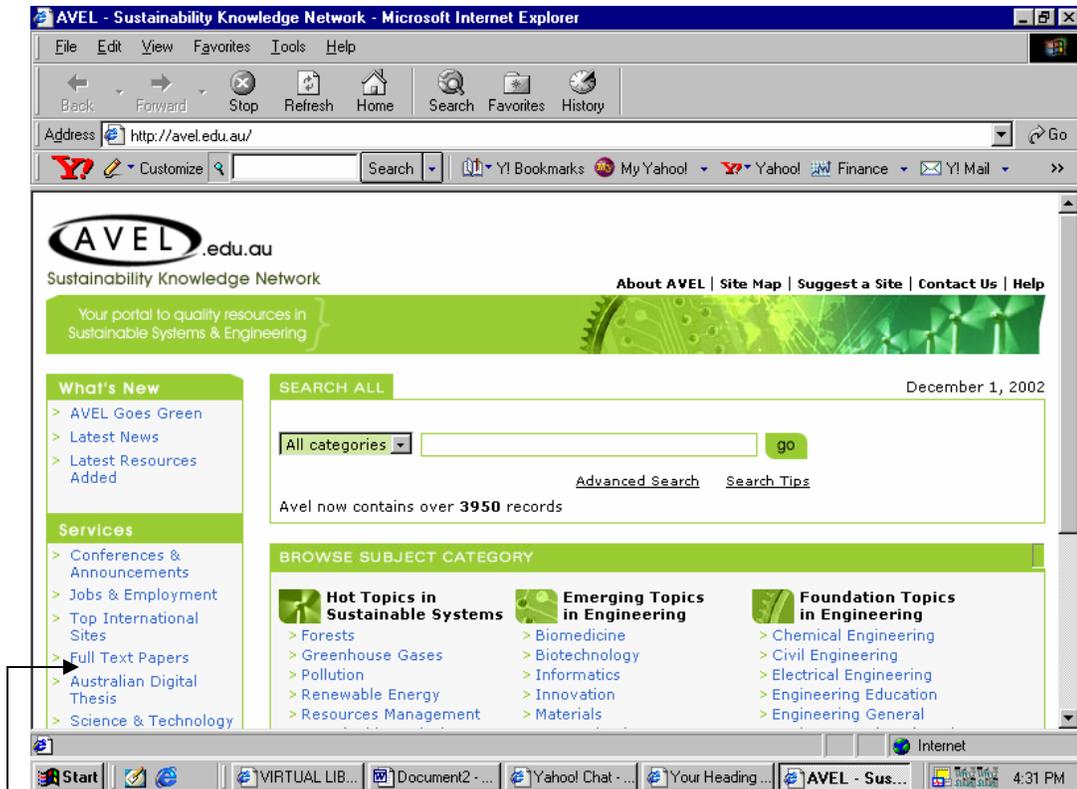
Fig. 10

For searching full text paper please click on full text paper and user will get the next window as shown in fig. 11 to submit required term
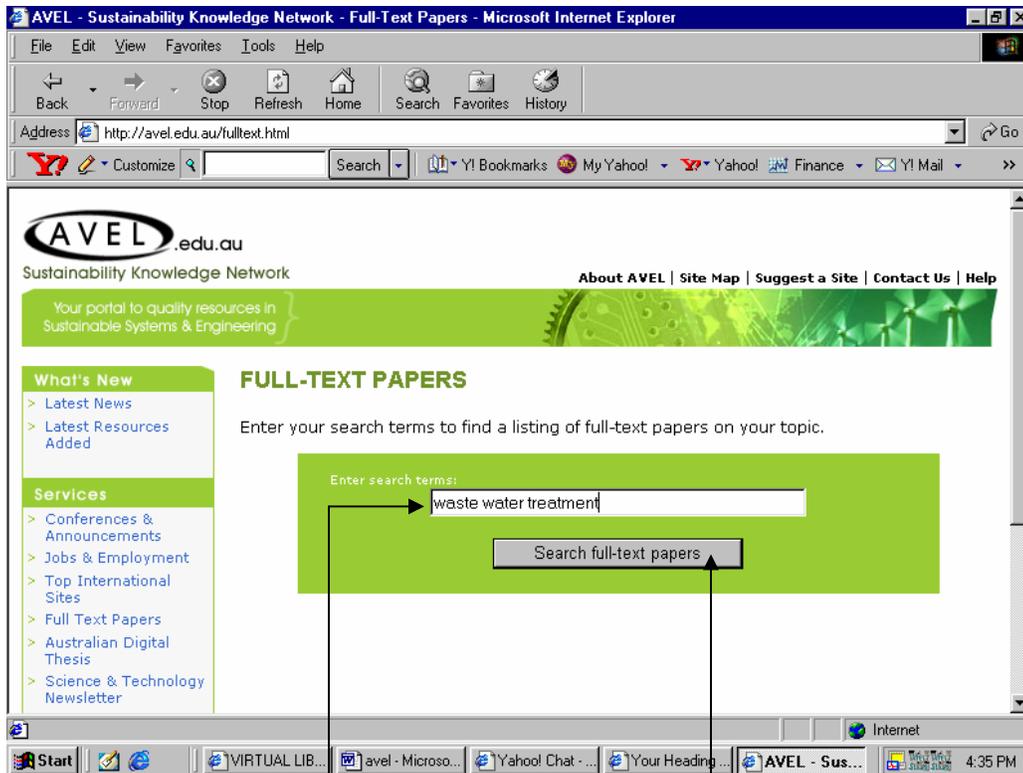
Fig. 11

Enter search term i.e. west water treatment

Click on "search full-text paper

Search has conducted under term "Waste water treatment" and total 9 numbers records are retrieved as shown in figure number 12. If the user click on the required item the full text of the document will be available and the user can download the same and can get printout.
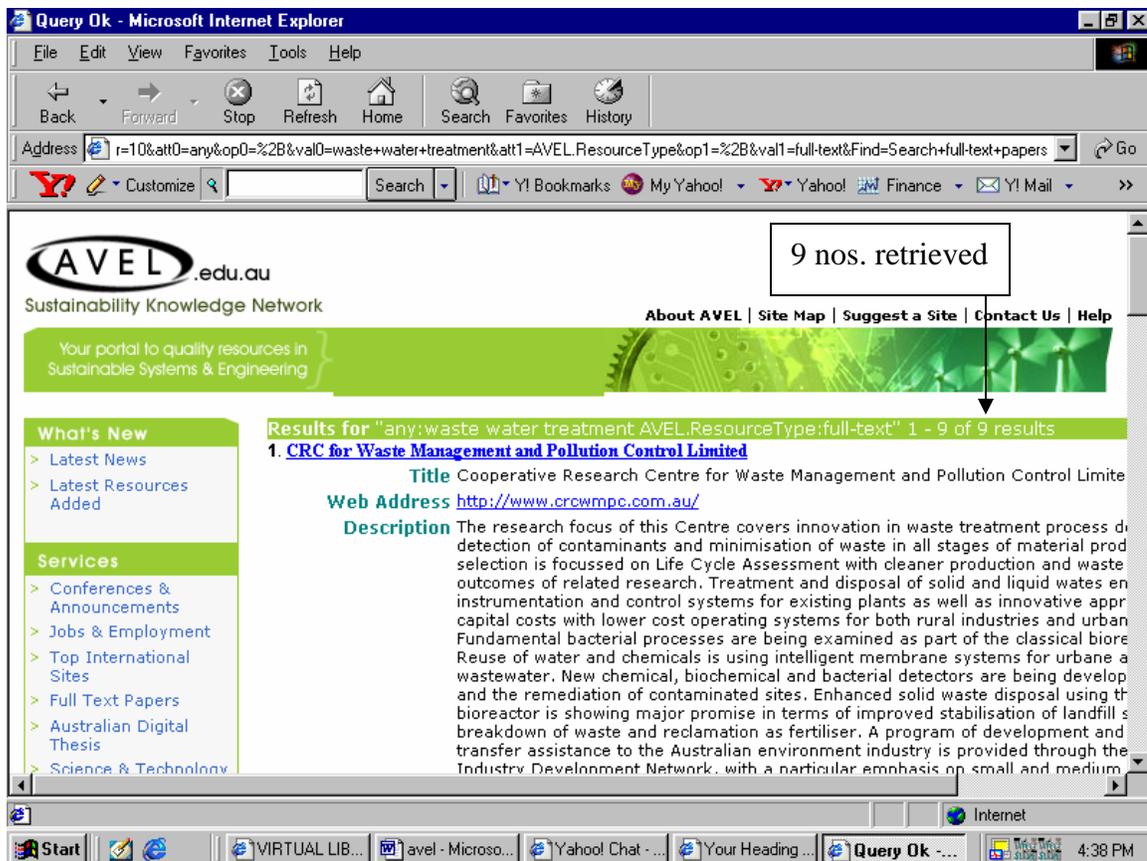
16

Fig. 12

5.6 Other Virtual Libraries

All the virtual libraries on Applied Science ands Technology can not be described in a single paper, but among the other virtual libraries following libraries are the most important sources to the academics of Applied Science and Technology.

- Science Virtual Library: http://vlib/Science.html
- Engineering Virtual Library: http://vlib/Engineering.html
- Environmental Virtual Library: http://vlib/Engineering.html

6 Earthquake Information
  (http://www.geocities.com/ghosh_svrec/eqi.html)

In this section following links on earthquake are linked from where the users can get up-to-date information like Earthquake News, Earthquake warning and prediction Research, Earthquake report on different earthquake allover the world.

- US Geological Survey's Earthquake Information
- Earthquake News
- Quakeline Database
- Earthquake Image Information System
- Earthquake warning and Prediction Centre and many other sites on earthquake

7. Conclusion

The challenge of the libraries in India are facing with is not a paperless society but to maintain, nurture and optimize the resources of the libraries with the help of new technology. Mutual exchange of information and resource sharing will be the objective of our professional ethics and it has to be nourished in future for growth and healthy development of our library and information center. It is the duty of the library and information and information service professionals to find out a which of the sources are useful to their users and to integrate their resources and to provide better service to the users. There is no doubt that these type of competition of the website of freely available online information resources will be more relevant and effective to save the space, time, money and manpower of any library and information center.

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