A Study on Availability Content Analysis Accessibility of Prototype Web Portal for Engineering Sciences

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Abstract

The present study is to analyze the development, execution and content analysis of web portal information for Engineering. This study deals with the performance of engineering web portal service from the users' point of view. There is a need to assess the extent of requirements of development, execution and content analysis of prototype web portal information. Further, there is no union catalogue of any other location tools to locate the serial holdings of the Engineering information which are essential for research scholars, faculty members, scientists and students. Since no research has been conducted in this area, it was decided to undertake a study on the subject web portal to share the Meta data within a single domain for particular field, occupation or industry.

Keywords

Web Portal; Engineering Sciences; Prototype Design
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INTRODUCTION

Information, in its most restricted technical sense, is a sequence of symbols that can be interpreted as a message. Information can be recorded as signs, or transmitted as signals. Information is any kind of event that affects the state of a dynamic system that can interpret the information. Conceptually, information is the message being conveyed. Therefore, in a general sense, information is "*Knowledge communicated or received concerning a particular fact or circumstance*", or rather, information is an answer to a question. The information sciences have continually distinguished between information and knowledge. Generally, "information" and "knowledge" are distinguished along three axis: 1) multiplicity-- Information is piecemeal, fragmented, particular. Knowledge is structured, coherent and universal. 2) the temporal-- information is timely, transitory, even ephemeral. Knowledge is enduring and temporally expansive. 3) the spatial-- information is a flow across spaces. Knowledge is a stock, specifically located, yet spatially expansive. In summary, information is conceived of as a process, whereas Knowledge is a state.

ENGINEERING

The concept of engineering has existed since ancient times as humans devised fundamental inventions such as the pulley, lever, and wheel. Each of these inventions is consistent with the modern definition of engineering, exploiting basic mechanical principles to develop useful tools and objects. In Asia, engineering had a separate but very similar development, with more and more sophisticated techniques of construction, hydraulics, and metallurgy helping to create advanced civilizations such as the Mongol empire, whose large, beautiful cities impressed Marco Polo in the 13th century. The term engineering itself has a much more recent etymology, deriving from the word engineer, which itself dates back to 1325, when an engine'er (literally, one who operates an engine) originally referred to "a constructor of military engines." In this context, now obsolete, an "engine" referred to a military machine, i. e., a mechanical contraption used in war (for example, a catapult). The word "engine" itself is of even older origin, ultimately deriving from the Latin ingenium (c. 1250), meaning "innate quality, especially mental power, hence a clever invention." Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by

study, experience, and practice is applied with Judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind.

ENGINEERING SCIENCES

Engineering Sciences is the part of the technological field that requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities; it lies in the occupational spectrum between the craftsman and the engineer at the end of the spectrum closest to the engineer.

ENGINEERING FUNCTIONS

Problem solving is common to all engineering work. The problem may involve quantitative or qualitative factors; it may be physical or economic; it may require abstract mathematics or common sense. Of great importance is the process of creative synthesis or design, putting ideas together to create a new and optimum solution.Although engineering problems vary in scope and complexity, the same general approach is applicable. First comes an analysis of the situation and a preliminary decision on a plan of attack. In line with this plan, the problem is reduced to a more categorical question that can be clearly stated. The stated question is then answered by deductive reasoning from known principles or by creative synthesis, as in a new design. The answer or design is always checked for accuracy and adequacy. Finally, the results for the simplified problem are interpreted in terms of the original problem and reported in an appropriate form.

In order of decreasing emphasis on science, the major functions of all engineering branches are the following:

- ***Research*:** Using mathematical and scientific concepts, experimental techniques, and inductive reasoning, the research engineer seeks new principles and processes.
- ***Development*:** Development engineers apply the results of research to useful purposes. Creative application of new knowledge may result in a working model of a new electrical circuit, a chemical process, or an industrial machine.
- ***Design*:** In designing a structure or a product, the engineer selects methods, specifies materials, and determines shapes to satisfy technical requirements and to meet performance specifications.
- ***Construction*:** The construction engineer is responsible for preparing the site, determining procedures that will economically and safely yield the desired quality, directing the placement of materials, and organizing the personnel and equipment.
- ***Production*:** Plant layout and equipment selection are the responsibility of the production engineer, who chooses processes and tools, integrates the flow of materials and components, and provides for testing and inspection.
- ***Operation*:** The operating engineer controls machines, plants, and organizations providing power, transportation, and communication; determines procedures; and supervises personnel to obtain reliable and economic operation of complex equipment.
- ***Management and other functions:*** In some countries and industries, engineers analyze customers' requirements, recommend units to satisfy needs economically, and resolve related problems.

WEB PORTAL

A web portal is most often one specially designed web page which brings information together from diverse sources in a uniform way. Usually, each information source gets its dedicated area on the page for displaying information (a portlet); Often, the user can configure which ones to display. Variants of portals include mashups and intranet "dashboards" for executives and managers. The extent to which content is displayed in a "uniform way" may depend on the intended user and the intended purpose, as well as the diversity of the content. Very often design emphasis is on a certain "metaphor" for configuring and customizing the presentation of the content and the chosen implementation framework and/or code libraries. In addition, the role of the user in an organization may determine which content can be added to the portal or deleted from the portal configuration.

A portal may use a search engine API to permit users to search intranet content as opposed to extranet content by restricting which domains may be searched. Apart from this common search engines feature, web portals may offer other services such as e-mail, news, stock quotes, information from databases and even entertainment content. Portals provide a way for enterprises and organizations to provide a consistent look and feel with access control and procedures for multiple applications and

databases, which otherwise would have been different web entities at various URLs. The features available may be restricted by whether access is by an authorized and authenticated user (employee, member) or an anonymous site visitor.Examples of early public web portals were AOL, Excite, Netvibes, iGoogle, MSN, Naver, Lycos, Indiatimes, Rediff, and Yahoo!.

THE IMPORTANCE OF WEB PORTALS

Web portal design is basically the most beneficial access point for the user of the web as they can easily go from one page to another navigating the information of their choices. All the portals have the information stored into links to various topics such as news, business, sports, entertainment, finance, travel and much more. Yahoo!, Google, AOL are popular portals on the internet. However, these portals can be called as personal portals as they store user's history data, profile information, emails and so on. But there are other kinds of portals too!

NEED FOR AN ENGINEERING PORTAL

In order to access information, students, researchers as well as faculty members keep shuttling between e-books, e-journals, patents, theses, e-database, and so on. To give a bird's eye view of various resources in the field of Engineering, a single window service was conceptualized in the form of an Engineering portal. It aims to provide information related to Engineering, through a single user interface and to access a wide variety of electronic resources in the field subscribed by the Engineering institution and also other scholarly information sources that are available in full text on the web. Searching and filtering the sources available on the web and then judging what would prove useful to Engineering students is of course a very tedious job.

STATEMENT OF THE PROBLEM

The present study is to analyze the development, execution and content analysis of web portal information for Engineering. This study deals with the performance of engineering web portal service from the users' point of view. There is a need to assess the extent of requirements of development, execution and content analysis of prototype web portal information. Further, there is no union catalogue of any other location tools to locate the serial holdings of the Engineering information which are essential for research scholars, faculty members, scientists and students. Since no research has been conducted in this area, it was decided to undertake a study on the subject web portal to share the Meta data within a single domain for particular field, occupation or industry.

OBJECTIVES OF THE STUDY

The main aim of the Engineering portal is to fulfil the information requirements of the faculty members, researchers and students for engineering institutions in Tamilnadu. As such, its objectives are:

1. To identify the purpose of the using web portal of Engineering Sciences.
2. To analyze the value added web services of Engineering Sciences
3. To analyze the sites that currently use Engineering portals
4. To Study the availability, accessibility and utilization of Web portal Information in Engineering Sciences
5. To collect the major web resources useful in the field of Engineering Sciences.
6. To develop the execution and content analysis of a web portal for sharing the Engineering database
7. To know the problems faced by teachers, research scholars and students that currently use Engineering Sciences web portals.
8. To Study the perception about satisfaction and the reliability of the user in the field of Engineering Sciences.

Answering these objective questions contributes to a better understanding of Web Services and Web Portals. Helping the designers to better develop the appropriate tool for the user.

SCOPE AND METHODOLOGY

The present research is focusing on creation of Engineering Sciences portal in Engineering using HTML web designing tool. The scope of this research is limited mainly to Engineering Sciences offered in engineering institutions. Engineering is a major branch of study in the subjects Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemical Engineering, ECE, Computer Engineering, Aeronautical Engineering, Biochemical Engineering and Marine Engineering. So, the information is more and more available both in terms of printed and online materials. For the convenience of the research, we consider the curriculum structure of the Engineering Sciences as a limitation to surf the information. For designing the Engineering Sciences

portal, we collected some relevant sources of information according to the syllabus offered by the Engineering institutions. Those collected information is organized in single portal which is designed using HTML web building software.

OPERATIONAL DEFINITIONS

The definitions of the key terms employed in this thesis are given below:

Engineering Sciences: Engineering Sciences is the part of the technological field that requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities; it lies in the occupational spectrum between the craftsman and the engineer at the end of the spectrum closest to the engineer.

Apache: The apache HTTP server project is a collaborative software development effort aimed at creating a robust, commercial-grade, featureful, and freely-available sources code implementation of an HTTP (WEP) server.

Command Menu: Command menu is one which, if selected, results in the execution of a given operation connected with the task function. The command menu is generally domain independent and it indicates the action alternatives during an interaction with the system.

Content Menu: Content menu is one which, if selected, enables the user to access the contents of the system. These are tailor-made menu and are dependent on web domain.

Hyperlink: An element in an electronic document that links to another place in some documents or in an entirely different one which supports linking graphics, sound and video elements in addition to the text elements.

Internet Explorer: Internet explorer is a free internet browser from Microsoft Corporation which works across many different computer platforms. Regardless of the website we visited, internet explorer can display the most complex web pages.

MySQL: It is a multithreaded, multi-user, SQL Database Management System (DBMS). MySQL AB makes MySQL available as a free software under the general public license (GPL).

PHP: In web programming, PHP is a script language and interpreter which is freely available and used primarily on Linux web servers. PHP is originally derived from Personal Home Page tools, now stands for PHP: Hypertext Preprocessor, which the PHP FAQ describes as a "recursive acronym."

HTML: Short form of Hypertext Markup Language, HTML is what web designers and developers write when they create web pages. HTML isn't really a programming language as it is missing many of the standard features associated with programming languages. It is a way to describe how things should appear in a web browser. With it one can make sections of text bold or make the typeface bigger.

Purists believe that HTML shouldn't be used to specify content layout. They feel that the content should flow freely and fill the screen in whatever way best suits the end-user. However, in practice, most web designers do attempt to control layout, feeling that expressing their message in a specific and controlled manner is a worthwhile pursuit. To build features such as forums, shopping carts, and registration forms require technologies other than HTML. It is best to think of HTML as the glue that binds all this functionality into something that a web browser can interpret and display for the end-user.

Prototype: An original, full-scale, and usually working model of new product or new version of an existing product.

Serial Crisis: The serial price inflation that has severely afflicted academic libraries is known as "serial crisis".

Server: A computer device on a network that manages network resources. It stores files; and provides services to the client machines.

Web Portal: It is originally a general purpose Web site offering a wide variety of resources and services and links to other Web sites. However, the term is increasingly applied to Web sites that offer such services only within a particular industry, occupation, or field.

Development of Web Portal: After creating the databases and deciding the hardware and software requirements, the prototype portal design process commenced. The web portal has been named as ENGINEERING which stands for engineering and its branches.

LIMITATIONS

The study provides information about engineering sciences portal available worldwide. However, only selected portals are presented. The faculty, researcher and students of Engineering sciences have been taken in to account for the study purpose. Other subjects are not taken in to contemplation. Moreover, the information sources included in the Engineering sciences portal is not exhaustive.

HOME PAGE OF THE MODEL ENGINEERING SCIENCES PORTAL

In the home page we have given links to all aspects of Engineering Sciences subject as mentioned above in the content of the portal section. Here we provide hyper link to all the headings and sub headings just by clicking. It will navigate the user from broader to specific information on Engineering Sciences discipline.



Figure 1: Home page – Engineering Sciences Portal

The Engineering Sciences Information Gateway an information gateway which provides access to the selected electronic sources (websites, databases, pdf's etc). Sources are selected based on scope, usefulness and quality. A catalogue that can be browsed or searched provides descriptive information about the selected sources, including keywords, abstract, etc.

Engineering Sciences Portal - overview

The Engineering Sciences Web portal provides access to web based information services for Engineering discipline and scientists working in Engineering Sciences. The web portal aims to facilitate easy access to information, data, software and services available locally as well as remotely through the Internet. Engineering technologists who work in research and development build or set up equipment, prepare and conduct experiments, collect data, calculate or record results, and help engineers or scientists in other ways, such as making prototype versions of newly designed equipment. They also assist in design work, often using computer-aided design (CAD) equipment. Most engineering technologists specialize in certain areas, learning skills and working in the same disciplines as engineers. Occupational titles, therefore, tend to reflect those of engineers.



Figure 2. Engineering Sciences portal- overview

Objectives of the Engineering Sciences portal

The knowledge of what information is relevant to the researcher or regulator is programmed into a grammar base so that the matrix can find it and they can use it more quickly without wasting time reading through other information that is not relevant to the research objective.

The main aim of the Engineering Sciences portal is to fulfil information requirements of the faculty members, researchers and students in the Department of Engineering Sciences and also its allied departments at institutions where Engineering Sciences is a branch.



Figure 3. Engineering Sciences Portal - Objectives

E-Books

An electronic book popularly known as, e-book or digital book is a book-length publication in digital form, consisting of text, images, or both, produced and, published through electronic machine and readable on computers or other electronic devices. Sometimes the equivalent of a conventional printed book, e-books can also be born digital.

In this page an attempt has been made to provide links to all free access for Engineering Sciences books. Just by clicking the heading of the appropriate books, the user can navigate the original document which is available in their database.

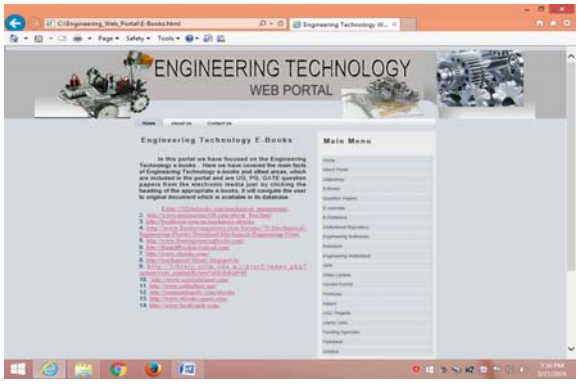


Figure 4. Engineering Sciences – e-books

Contact us

This option to users search and retrieval features and any other Engineering Sciences information requirements of any of the users can be contact of the location menu.

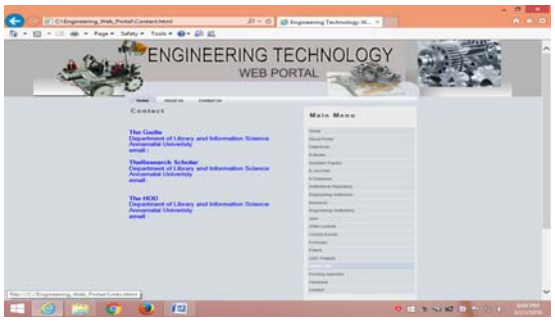


Figure 5. Engineering Sciences portal - contact us

On completion of the task of design and development of web prototype portal for Engineering Sciences focus on the functional and features of the system, we have stepped into the final and formal evaluation of the Engineering Sciences web portal for expected performance.

CONCLUSION

In the age of information explosion, when everybody is talking of information overload, satisfying users' information needs in a simple, personalized and efficient way has became a challenge for the library and information centers. Just subscribing to online sources does not serve the purpose, until and unless the users are informed about them so that such resources are fully utilized. The budget at the disposal of libraries is limited and the demand for information by the researchers is increasing, whereas the time at their disposal is limited. Hence, such portals are important as they are user friendly and provide information through a single window. It is extremely useful for researchers as they can find all the information related to their discipline at one place. The present research has attempted to design and develop the Engineering, a prototype web portal to share the selected web resources in Engineering. The engineering web portal has been designed and evaluated for its performance among the target group and the major finding of the research are highlighted in this chapter.

This research is an outcome of the researcher; and the Engineering prototype portal will be of great use and benefit to the Engineering students, research scholars, faculty members and scientists, research and developing in the field of Engineering. **In this chapter,** we surveyed main engineering platforms and current Engineering Web portals and described the requirements for distributed Engineering applications. We then discussed the problem of defining an Engineering Sciences Web portal for designing and running engineering applications on the grid that can be thought of as a virtual laboratory joining remote Engineering resources. We proposed the proteus environment that combines a Web-based graphical user interface and an ontology dictionary. It allows Engineering experts to use and compose applications and data sources concentrating on the application logic instead of technical details.

BIBLIOGRAPHY

[1]. Abbas, J., Norris, C. & Soloway, E. (2002) Middle school children's use of the ARTEMIS digital library. In Proceedings of the 2nd ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL 2002), July 13–17, 2002, Portland, Oregon (pp. 98–105). New York: ACM Press. Retrieved May 21, 2005, from http://portal.acm.org/ citation.cfm?id=544239&jmp= abstract&dl= guide&dl= guide.

[2]. Blom, A. 1980 'n Teoretiese model vir die bestudering van die inligtingbehoeftes van wetenskaplikes (A theoretical model of the information needs of scientists). Johannesburg: Rand Afrikaans University. (D Phil dissertation)

[3]. Christoffel, M., & Schmitt, B. (2002) Accessing libraries as easy as a game. Paper presented at the Second International Workshop on Visual Interfaces to Digital Libraries, July 18, Portland, Oregon. Retrieved May 21, 2005, from http://vw.indiana.edu/visual02/ slides - christoffel.pdf.

[4]. Dharani kumar.P, Gayathri.KN (2011) "Designing and development of biochemistry subject portal using bluevoda web building software: a practical approach" 8th International CALIBER- 2011, Goa, March 02-04-2011.

[5]. Fox, S., Manduca, C. and Iverson, E. (2005) "Building educational portals atop digital libraries", D-Lib Magazine, Vol. 11 No. 1, available at: www.dlib.org/dlib/january05/fox/01fox.html.

[6]. Hawryszkiewycz,I.T.(2002) "Customizable Knowledge Portals for Teaching" Informing Science and IT Education Conferenc, pp. 705713, 2002.

[7]. Nagarajan,M (2012) "Design and development of web prototype portal for bioinformatics" Ph.D thesis, annamalai University, India.

[8]. Vijayaselvi. P (2015) "A Study on the Design, content analysis and accessibility of prototype web portal for Engineering Sciences. Ph.D thesis, annamalai University, India.