Design Telecommunication Network for Iraqi Universities

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Abstract: *This paper aim to design network for e_library communication for all Iraqi universities and implement software application to control all e-library requirement such as Storing (Book Code, Author Name, Edition, University Name),Searching, Authentication for Admins using Web Design Language PHP and Database Server MySQL. The system can implement for all Iraqi universities to make the information very fast and easy to find the book position.*
If university have soft copy of any book e_library enable user from download of this books by easy method.
Also e_Library contains special books (new edition) of important books expensive. The user can be download this books after make registrations for yearly account with some cost with e_library management. If some users like to give gift of soft copy books to e_library by uploading this books with easy method. For software application, apache server used as web server and MYSQL used as database application server also the web site was design using PHP language. The e_library also has two levels of authentications the first one for managers that will control all requirements for creating admin editing and deleting. The second level for admin or editors that must make data entry for each library in each university this will protect the e_library from attack.

Key Words: *electronic library, database, PHP+SQL.*

1. INTRODUCTION:

In the computer world the term network describes two or more connected computers that can share resources such as data, printer, an interconnection, applications, or a combination of these. Networks exist for one major reason: to share information and resources . Networks can be very simple, such as a small group of computers that share information, or they can be very complex spanning large Regardless of the type of network a certain of maintenance is always required [1].

Database Management Systems (DBMSs) are complex, mission-critical software systems. Today's DBMSs embody decades of academic and industrial research and intense corporate software development. Database systems were among the earliest widely deployed online server systems and, as such, have pioneered design solutions spanning not only data management, but also applications, operating systems, and networked services. The early DBMSs are among the most influential software systems in computer science, and the ideas and implementation issues pioneered for DBMSs are widely copied and reinvented. For a number of reasons, the lessons of database systems architecture are not as broadly known as they should be. First, the applied database systems community is fairly small. Since market forces only support a few competitors at the high end, only a handful of successful DBMS implementations exist. The community of people involved in designing and implementing database systems is tight: many attended the same schools, worked on the same influential research projects, and collaborated on the same commercial products. Second, academic treatment of database systems often ignores architectural issues [2].

2. MATERIALS:

The system requires basic hardware components for network connections among university. Because it is popular these days to connect a corporate network to the internet, by connecting the private network (only authorized users have access to the data) to public network (everyone connected has access to the data) must be introduce the possibility for security. For this reason firewalls are implemented.

A firewall protects a private network from unauthorized users on a public network (internet). Firewall is a mechanism used to monitor and control traffic between the internet and an internet network. Although the function performed by proxy servers and firewalls are related and are starting to appear in combination products.
Firewall can be defined as combination of hardware and software that protects a network from attack by hackers that could gain access through public networks including the internet [3].

3. METHOD:

Another component need in the university network is VSAT (very small aperture terminal). VSAT networks are composed of low cost earth station for use in a wide variety of telecommunications applications. Advantage of satellite communication:

1- Wide area coverage of a country.
2- Wide bandwidth available throughout.
3- Independent of terrestrial infrastructure.
4- Rapid installation of ground network.
5- Uniform services characteristics.
6- Mobile / Wireless communication independent of location[4].

Switch: A switch connects multiple segments of a network together. It makes a direct link between the transmitting device and the receiving device, the switch increase performance because it doesn't suffer from the wasted bandwidth of the extra, transmissions switch operate in data link layer.

Router: A router is a network device that connect multiple, often dissimilar, networks or segment in to an inter network.

Router have access to the network layer address and choose a best address among them, router operate in the physical, data link & network layers of the OSI model.

Web Server and Database Server is a web server operate with PHP using to enter username and password from text in pages and compare it with username and password store in Database Server operate with MySQL.

LAN Network (Local Area Network) is allow businesses to locally share computer files and printers efficiently and make internal communications possible.

4. RESULTS AND DISCUSSION:

The project required software application to control of e-library with web design language PHP and data base server MY SQL.

E-library enable normal user from searching in all Iraqi universities about books and searching in local libraries internet, and enable use download the books from web sites of e-library as a soft copy. The user can log in e-library by first web site is called home page. It consider index to another web sites (pages).

Home page:

The home page Fig.(1)enable user from searching in libraries and up loading books if some users like to give gift to e-library as a soft copy.

Also it enable user sharing users with e-library management from down load new version of books and new edition as a soft copy, but the normal user only down load the books in universities rather than new version, any user that can not have yearly sharing with library, manager only permission to it loading existed books in Iraqi university if soft copy available in that university.

Fig.1 :Home page

e-library gives information about where can get it and gives book name, code name, author name, university, edition, public home & public date by this way user can get any book needed.

That guarantee any user in the world can use the library and benefiting from Iraqi university books because library manager offer English copy and that from (command) in home page convert e-library to English copy Fig (2).

Fig.(2): English home page

Searching options:

E-library gives a chance to the user to search in Iraqi universities from home page, when press "log in" in university library appear page ask if want to search on book in any university then select from list Iraqi universities name with any other option or any information on book that need to search about it like (book name, code book, author name, edition, public home or public date).

Searching result: E-library gives "search result" Fig. (3) as a table even user is not written book name completely, may enter first word or first character from book name then e-library gives list in books name in that university begin in that character or word, in addition to other information like (code book, college name, author name, edition, public home & public date.

Download:

User can down load any book only if copy book name in text and press on “down load command” then appear page fig. (3-5) ask about destination to store book and the name of it and press on “command save” then book is store in form “PDF” on desktop then user can go to desktop and open the book on his computer fig (3.6).

Searching in local libraries in internet:

E-library enable user from searching in local libraries in internet fig (3.7) from home page fig (3.2).

e_library connect link to eight libraries in internet. The user only refers to library name then log in this libraries. The eight libraries are Egypt & U.A.E:

1-Egypt library1: www.eulc.edu.eg/eulc/libraries/default.aspx
2- Egypt library2: www. eulc.edu.eg/eulc/libraries/index.aspx
3-U.A.E library: http://library.uaeu.ac.ae
4-American library: http://library.aus.edu
5-General library1: http://digital.library.upenn.edu/books
6-General library2: www.maliks.com
7- General library3: www.free_ebooks.net
8- General library4: www.trectchbooks.com

Uploading books:

e_library enable user to uploading books from home page Fig.(1). If some users like to give gift of soft copy books to e-library by uploading these books with ease method. The user log in uploading page ask the user where the book is store or in any directory.

e_library easily from options the directory in PC user by command (browse) to open all directory of PC user and then user choose the book, also user must be enter with this book information about this book (University name, collage name, book name, author name, edition, public home & public date), then save command leads to save the book in data base server. e_library management records this book and decides if the book is store in data base server or not.

Example Testing e_Library

1)Searching options in Iraqi universities if the user like to search in mustansirayh university about book load name start with (w) character Fig(3) then click search command to log_in Searching Result.

Fig.(3): Searching options

2)Searching Result two book start with (w) character ,university name is mustansirayh ,collage name is engineering.the first book is Web Application Development with PHP 4 with author name Tobias Ratschiller Till Gerken,book code #4,public home new delhi,public date 2000 Fig(4).

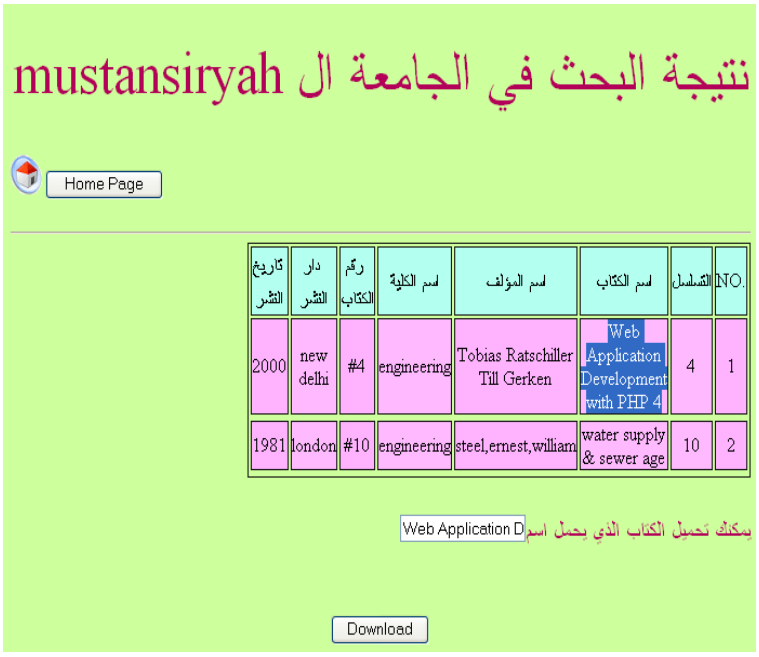

Fig.(4): Result of searching

3) for Download if user like to Download first book then must be copy the book name in Text and click Download command this method leads to page Fig(5) to save destination desktop and book name Web Application Development with PHP 4.

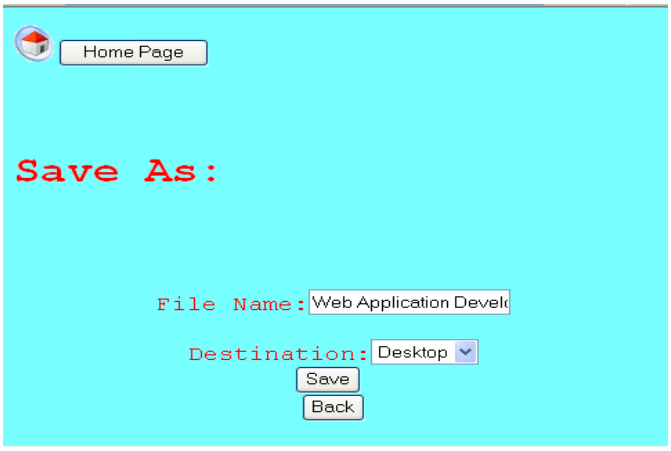

Fig.(5): Result downloading

4)for Searching in Local Libraries in Internet with Fig(6).

Fig.(6): Searching in global library

5. CONCLUSION:

The proposed system integrate the old library system with information technology developments to produce modern e_library system that make the library and all contents under one click, this lead to fast and easiest searching and downloading books, journals etc, the network design required hardware equipments and software applications to controlling the books storing and authentications requirements, for hardware, the design networks divide the system in two level of hardware: (1) Hardware equipments in the Networks Operation Center (NOC) that is assumed in the Al-Mustansiriyah university location that must have web server, database server, switch and router. (2) Hardware that is required in each library for each university that must have minimum internet connection requirements.

REFERENCES:

1. David Groth, 2005, "Network + "3rd edition published .
2. J.M.hevstein, M.stonebraker and J. Hamilton , 2007, "Foundations & trends in data bases" published.
3. Tim parker , 2005 ,"Teach yourself TCP/IP 14 Days" 2nd edition published.
4. Doug lowe , 2005, "Networking for Dummies" 7th edition published.