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Virtual or Digital Library: Challenges and Opportunities in Indian Universities & Colleges

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ABSTRACT: The idea of libraries has been changed by the Information and Communication Technology. In advanced time every single library is gradually getting digitalization. The advanced assortments, administrations and framework to help long lasting learning, research, insightful correspondence just as safeguarding and protection of our recorded information are involved in the computerized library. The procedure of democratization of data is additionally engaged with it. In this paper the creators are examined the variables that will require the conventional libraries to get digitalization, just as the definition, need, assets of the computerized library, necessities for advanced library and qualities, points of interest and weaknesses of computerized libraries. The paper investigates the beginning and idea of advanced library, its possibilities, segments and mechanical instruments required for its execution. This paper additionally examines the possibilities of computerized library in India and offers suggestions in transit forward.

KEYWORDS: Digital Library, Virtual Library, E-Book, E-Journals, E-Library.

I. INTRODUCTION

We are living in the period of data blasts. This is made conceivable by Internet and World Wide Web innovations. These innovations give chance to practical access to wide scope of data assets and upgrade correspondence and coordinated effort. It empowers libraries to take an interest in helpful endeavours with different libraries and data focuses. Libraries in created nations have since quite a while ago abused the advantages of these advancements using computerized libraries, likewise called virtual libraries. The significance of computerized library lies in the way that it is a device for reporting, safeguarding and spread of authentic, social and scholarly legacy of country and a method for upgrading data arrangement and learning. In creating nation like India, most college libraries don't offer the required strong types of assistance of giving ebb and flow data to learning and examination due to non-usage or under-use of computerized libraries.

College libraries in numerous Indian colleges face troublesome occasions with staffing challenges and arrangement of nearby assets. Most college libraries are in regrettable condition because of insufficient financing [1]. What's more, there is expanding understudy populace without relating bolster offices, for example, homeroom and other physical offices. There is likewise shortage of data assets and absence of legitimate collaboration among libraries and library clients [2]. When contrasted with physical libraries, computerized libraries have higher capacity limit and require less physical space for the capacity of advanced substance. The expense of setting up and keeping up a computerized library is not as much as that of a conventional library by virtue of the way that part of cash is associated with raising structure, purchasing books and paying for staff [3]. Digital library improve the nature of educating and learning in scholarly establishments in India through the arrangement of current assets, for example, digital books, e-diaries, free and authorized databases and furthermore by giving pointers to physical materials through the arrangement of online bibliographic data of library assortments. The library upgrades grant, research and deep rooted learning through the foundation of changeless access to shared computerized recorded assortments and advance the utilization and ease of use of an internationally dispersed system of library assets

Be that as it may, make and keeping up computerized library in India is testing yet inescapable. Regardless of the difficulties to understanding the capability of advanced library in India advances and practices have sufficiently grown so they are inside the scope of instructive organizations. This paper is planned to give data supervisors a dream of what



the advanced library ought to be, the parts of the library and advances required for acknowledgment. It additionally offers suggestions for tackling these issues and endeavours expected to understand the world wide advanced library vision of things to come.

II. CONCEPT OF DIGITAL LIBRARY

The possibility of digital library was advanced by Wells in 1937. Wells advanced the thought 'world cerebrum'. He saw that "both the gathering and dissemination of information on the world at present are incredibly inadequate, most confident line for the improvement of our racial insight lies rather toward making another world organ for assortment, ordering, summing up and arrival of information. These pioneers, who might be visionaries today, yet who plan to turn out to be extremely dynamic coordinators tomorrow, venture a brought together, if not a unified world organ to arrange the psyche of the world [4][5] additionally imagined that human minds and processing machine would be firmly coupled together and upheld by a systems of 'believing focuses' that well join the capacity of present day libraries along with foreseen progresses in data stockpiling and recovery. Introducing a comparative idea of a computerized library, [6] contended scientists to "consider a future framework wherein an individual store every one of his books, records and correspondence and which is automated so it might be talked with surpassing rate and adaptability". Borges [7] in his book *The Library of Babel* depicts a glorious unending library whose racks register every single imaginable assortment. Wells, Licklider, Bush, Borges were supporting a framework extremely near what we may call a digital library. digital Library implies various things to various individuals. From data recovery perspective, it is an enormous database for individuals who take a shot at hypertext innovation, it is one specific utilization of hypertext innovation for those working in wide region data conveyance, it is a use of the web and for bookkeepers, it is another progression in the proceeding with automation of libraries [8].

Digital library has numerous names related with it. It is called digital library, electronic library, network organize, library without dividers or library of things to come. [9] characterize a computerized library as "An association which may be virtual, that completely gathers, oversees and saves for the drawn out rich advanced substance and offers to its client networks specific usefulness on the substance of quantifiable quality and as per arranged strategies".

Daniel [10] post that it is designated "Virtual" in light of the fact that, in a divine being electronic wide territory arranged library, the client appreciate advanced library but has not truly moved. Green [11] considers being library as a composed arrangement of connections to things (Documents, Software, Images, and Databases and so on). Riccio [12] declares that an digital library is a mechanical way that unites the assets of different libraries and data administrations , both inner and outside, in one spot, with the goal that client can discover what they need rapidly and without any problem.

Bradley [13] contends that whatever digital libraries might be called, they are shared endeavours in which data experts and different specialists in explicit branches of knowledge pool their insight and experience to group data on a particular subject.

Basic to every one of these definitions as indicated by Salawu [14], is the way that it is a "Library without dividers", where data assets can be gotten to by remote clients without their physical nearness in the library.

III. PARTS OF A DIGITAL LIBRARY:

Digital Libraries are marginally unique in substance and association. Therefore, it is beyond the realm of imagination to expect to give a total rundown of the considerable number of components that might be found in an digital library. In any case, there are fundamental components which any advanced library ought to contain. These incorporate the accompanying:

S.No.	Component Name	Uses
1	Name	A digital library must have a unique name
2	Website Logo	A logo is a basic component that recognizes a digital library
3	Website Link	A digital library contains connections to different sites and resources.
4	Subject Help	A digital library furnish subject guide which feed clients with more data and foundation in the different specializations secured any branch of knowledge
5	Documents	An digital library contains reports which might be full content, rundown of gatherings, meeting and presentations
6	E Mail	Allows user to initiate interlibrary and documents

7	Mailing List	A mailing list is a gathering of clients with a mutual intrigue whose email addresses are gathered together in electronic rundown that can be utilized to send email to every individual from the rundown [15]
8	Newsgroup	A newsgroup is a discussion group, in which computer users throughout the world participate
9	Reports and Papers	Daily, Weekly and Monthly Reports are required in digital library
10	Support resource	Electronic book, Journals and multimedia materials
11	Bibliographies	Bibliography help user for detailed information
14	E-Learning	Digital libraries should include activities to bring together the data innovation structures of the university and to change the learning procedure through creative innovation

IV. REQUIREMENT FOR DIGITAL LIBRARY

PC and system innovation keeps on advancing throughout the years. The digital library, so as to work successfully, utilizes these advances to unite the data contained in the library and the clients of the data. These comprises of equipment and programming.

A. HARDWARE REQUIREMENTS

Digital library doesn't noticeable all around yet rather "relies upon commonplace terrestrial components" [16]. The computerized library is essentially a system framework and in this way utilizes existing system innovation. Digital library requires a PC going about as a server and a network, as fundamental equipment prerequisite. Alongside PC frameworks, links are fundamental connectors of the library foundation. They are the basic components without this digital library couldn't work. Electrical wiring and media transmission links are basic parts important to associate the client PC in the neighbourhood arranges. The digital library additionally requires printers, computerized camera or frameworks with webcam office for catching pictures just as scanners and digitizing gear for transformation of substance from physical to computerized structure.

B. SOFTWARE REQUIREMENTS

For a digital library to work successfully it requires an assortment of programming for running the framework for storage, the management and access to the library resources. These set-ups of programming are introduced below: Building up an digital library requires a high limit working framework with the ability of introducing and working diverse programming required. The working frameworks considered appropriate for the servers are windows and Linux, etc. Linux is increasingly reasonable and progressively solid yet it is progressively hard to work. Windows is thus more regularly utilized and it has the ability for clients' control, assets the executives and a working adaptability with various programming.

Digital library requires web servers for serving documents. Normal web servers are Microsoft SQL server, Wampserver, SQL server 2000, OpenDlib and so on. For associating the client to the server and the administrations of the digital library, various administrations, for example, FTP and HTTP are utilized.

The substance of digital library is put away in a capacity framework which is fundamentally a database. Mysql, Access and so forth are usually utilized database framework. The substance are just helpful when they are significant sorted out to encourage distinguishing proof and access. This is done portray the materials utilizing fitting metadata and ordering plans. Numerous metadata plans for depicting digital library data exist, for example, MARC, Dublin Core, and FRBR. Dublin centre is all the more by and large utilized as a result of its adaptability and convenience. The substance of a digital library is not restricted to printed materials however incorporate sight and sound materials, for example, recordings, sounds and graphical materials. HTML, XHTML, XML, pdf and so forth are a portion of the norms used to speak to literary materials. Access to interactive media materials is made utilizing sight and sound moderator.

Clients explore through the library assortment to get wanted data. Access to data is accomplished utilizing a program. At the point when explicit data is looked for and requires a hunt through the nearby and outer assets of the library, a web index react to a client question via looking through the rundowns and showing list items. There is additionally a

connection motor, the piece of the web search tool that associates diverse data, and question streamlining agent who contain devices that expansion the productivity of the inquiries went to the advanced library web index.

Access to digital library is not always free. To ensure that, only authorized users access the library and authentication software is used to control access to the library.

V. CHALLENGES IN DIGITAL LIBRARY

Regardless of the eagerness created by the new push in digital libraries a horde of data innovations accessible, generally speaking issues that may hinder appropriate usage of digital library in India. These issues are as follows:

(i) Insufficient Funding

- The achievement of any undertaking is reliant on the inclusion of the partners and sponsorship of subsidizing organizations, for example, government.
- The creation and support of digital library is over the top expensive.
- Expenses are brought about for creation, for progressing arrangement of access and for conservation of the digital data.
- Satisfactory financing, arranging and administrative ability combined with great upkeep culture are basic towards the fruitful execution and activity of the digital library in India.

(ii) Network Services

- Digital library runs on systems.
- To a huge degree, the presence of a college WAN, LAN and Internet association inside the library decides the achievement of Digital library administrations.
- This is a significant challenge to various college and universities in India.
- There is no solid WAN/LAN and Internet association in many colleges.
- This makes inner and outside data access and sharing troublesome.

(iii) Power Flexibility

- The success of digital library can't be guaranteed without the utilization of correspondence and mechanical instruments which can't work without power.
- Regular power generation remains a problem in India.
- Most libraries experience epileptic force flexibly and the expense of running producing plants is restrictive. This hampers efficient working of digital libraries.

(iv) Lack of Technological Resource

- Building and supporting a virtual library requires the best possible mechanical framework which incorporates media transmission, servers, and application platforms and programming applications [17].
- Sophisticated information and s communication technology is essential to make information resources accessible globally,
- This requires arrangement of virtual library administrations, which require broad computerization, networking and digitization [14].
- This antagonistically confines making and running a digital library.

(v) Digitization of Analog Documents

- In order to build a comprehensive resource, library materials in analog structure(e.g books, journals, sound data, manuscripts, photos) must be transform.
- The innovation for computerized change is, best case scenario, developing and regularly powers a library to pick between gambling harm to valuable firsts or creating the most excellent generation.
- The nature of digitized materials is regularly decreased after digitization.
- There is a requirement for progressively refined help hardware for catching careful nature of materials.

(vi) Incapable Search Interfaces

- Various interfaces to data assets make looking in digital library troublesome.
- Centre regulatory administrations like naming shows and access control can rearrange joining by diminishing and normalizing the interfaces between dissimilar data storehouses, yet would themselves be able to be hard to assemble and control.

- (vii) **Interoperability**
- Libraries disseminated the nation over should be amassed into a virtual solidarity.
 - This will empower data to be shared. For this to be accomplished, rules and protocols are required.
- (viii) **Copyright Challenges/ Access Limits**
- Copyright is a significant issue in digital library. Information set on the digital libraries isn't viewed as open just on the grounds that it is accessible around the world; so it isn't free anybody to download.
 - There is limitation, which shift from merchant to seller, on how the data can be utilized.
 - This limitations openness to data in digital libraries.
- (ix) **Data Security**
- Digital library as an Internet based framework is confronted with the issues of data security.
 - Web based frameworks are described by "receptiveness, dynamism, network and hostility" [18].
 - Virus Attacks are a typical event in digital libraries.
 - Most authorized antivirus are costly and most libraries can't bear the cost of them while free antivirus are not amazing enough to monitor library frameworks successfully.
- (x) **Lack of Suitable Technical Support**
- Running a digital library requires the information, aptitudes and capacities of individuals knowledgeable in various controls.
 - Building a fruitful library requires as a matter of first importance a librarian for determination, arranging and overseeing data in the library.
 - In setting up a virtual library, a system master or PC engineer is expected to set up the system.
 - In text change, low-level faculty is required for composing and filtering materials.
 - A PC researcher is required to embrace quality confirmation and may twofold as website admin to refresh the substance of site pages as indicated by the executive's rules.
 - Additionally, the more PCs and innovation devices that are utilized in the digital library, the more prominent the requirement for good specialized help.
 - Such specialized help isn't promptly accessible. There have been numerous instances of frameworks being given to libraries without a subsequent consideration or backing.
 - The first run through the frameworks separate could be the finish of their utilization on the grounds that there is no very much prepared work force to fix them.

VI. DIGITAL LIBRARY OPPORTUNITIES IN INDIA

The primary possibilities of digital libraries are to give assets and administrations past the library physical limits and guaranteeing that client can promptly exploit the library administration from anyplace and whenever. The digital library gives the following open doors in India:

- (i) **E Learning Resources**
- Online training and electronic reference administrations are the significant elements of digital library.
 - Some university give distance learning chance to their understudies.
 - The understudies who study or lead research inside or away from physical grounds can utilize the library office and assets anyplace, whenever as required [19].
 - Digital libraries give assistance administrations, for example, electronic assistance work area that empower clients associate with curators and acquire answers to their inquiries and furthermore get help on the most proficient method to utilize or get to assets.
 - The digital library can likewise offer electronic record conveyance of filtered things from print assortments [20].
- (ii) **Subject Oriented Help Centre**
- Digital library offers the library opportunity to make client bolster focus in explicit orders. The inside comprises of segments kept an eye on by custodians in explicit branches of knowledge.
 - Every expert underpins a user gathering. Users telephone in or send email with issues they experience.
 - Each call or mail gets steered to a fitting expert. Every librarian keeps log of all activity taken.

- These logs are gathered in a database accessible to all bookkeepers in the library and other help curators around the world, who might be counselled for expert guidance if there should arise an occurrence of any trouble that can't be taken care of inside.
- Digital libraries likewise give Selective Dissemination of Information (SDI) and Online Bibliographic Service (OBS) to clients anyplace and whenever.

(iii) Storage Conservation

- Computerized libraries store considerably more data by virtue of the way that it requires almost less space to store the digital contents.
- From the financial point of view, the expense of keeping up a computerized library is a lot of lower, in this manner diminishing the library spending plan.
- The expense of paying for staff, purchasing books, raising a library building or leasing one makes the expense of running a conventional library extremely high.

(iv) Increased Library Cooperation

- Digital library empowers gathering of college libraries to go under an understanding and grant access to their bought in e-books or e-journals to different individuals from the gathering.
- Along these lines, they can set aside a great deal of cash and get advantage of the library collaboration.
- The library likewise allows data sharing among coordinating libraries.

(v) Worldwide Access to Library Resources

- With an digital library, access to data is not, at this point limited to neighbourhood substance of individual libraries.
- A digital library gives worldwide access to data and to numerous users at a time free of their area.

(vi) Upgrade looking for the user

- Digital libraries offer improved access to data assets by utilizing search and recovery offices [21].
- One stage search interface is being given, where clients can look through numerous data stores from a solitary pursuit interface.
- This lessens the time and exertion clients spend in looking for data utilizing customary web indexes.

VII. CONCLUSION AND RECOMMENDATIONS

- The pace of progress in digital library improvement and use in India has quickened enormously. Indian digital libraries have moved from conveying digital contents in CD Rom to conveying contents on the web and afterward to conveying outside online assets, for example, e-books, e-journals and giving access to open access e-resources.
- Digital libraries despite everything face critical difficulties, for example, lacking financing, helpless force gracefully, deficient innovative framework, helpless system availability, digitization issues, copyright limitations and inefficient search interfaces.
- It is suggested that the administration should see the requirement for digital libraries in India and give sufficient sponsorship for the turn of events and utilization of the library.
- Power supply should be addressed as a matter of urgency.
- Digital library interfaces ought to be intended to give simple entry to data in digital libraries.
- The digital library can be incorporated into the learning condition to give scholastic network consistent access to nearby and worldwide data giving the client one stage access to data.
- Digital libraries save extra space and upgrade participation in online platform.
- The library discipline is exceptionally community oriented and has a requirement for sharing resources. This has not been totally conceivable in India because of information irregularity or contrasts in information design which make sharing troublesome.
- It is suggested that the up and coming age of advanced turn of events and sending should concentrate on normalization, giving more noteworthy ease of use to library users, and expanded interoperability among computerized assortments, and more practical decisions for establishments simply starting digitization programs.



- Course management suppliers, reading material publisher and library management should cooperate as more are distributed electronically.
- In future, digital libraries should not only provide information resources for teaching and learning, but should support e-learning by creating and managing e-resources and be embedded into "E-learning Campus and Virtual Campus".

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