The Relevance of Geospatial Data as a Prerequisite in Obtaining Knowledge and Information in Digital Libraries

[1]Ibrahim. Sufiyan, [2]I. D. Salisu

[1]*Federal polytechnic Nasarawa, Department of Surveying and Geoinformatics*
[2]*Federal Polytechnic Nasarawa, Department of Library Science Technology*

Abstract: *The new ideas of the students to obtain information at door-steps are relevant in our modern world as a global village. Geospatial data of individual student can help in developing areas of interest for easier placement on carrier opportunities. Library served as a repository of knowledge where people search for information. This study focuses on the how easy to locate student's interest and the discipline area related to their studies using GIS. Geographic information system is concerned with the ability to capture, store, manipulate, analyze, process and display georeferenced data for geospatial analysis. We are also concern with digital library information retrieval to update learning facilities in Federal polytechnic Nasarawa The steps involved in transforming into library digitally depend on the capabilities of accurate data. However, with the advent of web GIS, ArcGIS, Online, and Internet network, the students nowadays were facing tremendous challenges. The acquisitions of ICT become necessary to all Nigerian institutions in other to meet the current trend in education.*

Key work: *Geospatial data, Digital Library, Information, GIS Online*

I. Introduction

Geographic information system GIS is the combination of skilled procedure, computer hardware, software, spatial and descriptive data, analytical methods. GIS is the recent technology that The method of GIS is the capabilities of transforming visual spatial data base on the computerized method for presentation of data. Smith (2001) emphasized on the students interaction on computer fundamentals as oppose to analog, cartographic techniques as well as visualization of attribute and spatial data such as maps are available using technology of GIS. The analysis using point pattern to estimate student responds in library is possible .all section of libraries can be monitor digital. The use of library security by visual cameras is paramount in as a GIS tool to monitor safety of people and library properties. All corners and section of library most have visual aids for full coverage and assessment.

According to Hill at el (2000) The Alexandria Digital Library (ADL) is one of the six digital library projects. ADL's collection and services focus on information containing georeferences: maps, images, data sets, text, and other information sources with links to geographic locations. During this study period, three different user interfaces were developed and tested by user groups. User feedback was collected through various formal and informal approaches and the results fed back into the design and implementation cycle. Libraries should be well equipped digitally to meet the requirement and standard of all users particularly in the developing nations so that information can be accessed easily

Most of the libraries surveyed, studied and funded under the Digital Library Federation (DLF) and the council on Library and Information Resource (CLIR). DLF member libraries are focusing their digital library programs. The study began with a survey questionnaire circulated to the academic libraries that were members of the DLF in January 2001. 21 institutions responded. Extensive interviews were conducted with key staff members at six DLF member libraries, the California Digital Library (CDL), Harvard University, Indiana University, New York University (NYU), the University of Michigan, and the University of Virginia. Greenstein at el (2002)

Libraries in all over the world are undergoing a digital renaissance as major publishers have firmly committed themselves to the concept of making e-Books available. Today, we look at some of the biggest trends facing libraries in Canada, US and United Kingdom.

A recent report by the Library Journal has stated that 95% of all US libraries have an e-book collection .of about 89% in both 2013 and 2012, when researchers thought that adoption had for good. The average number of e-books carried was 20,244 by each library, but that of course was skewed toward large libraries. Medium sized libraries statistically had around 10,434 titles. Over 10 different libraries in the US and Canada had over one million digital loans in 2014, with two libraries lending out two million e-Books. This number will likely double in 2015, as companies like 3M Cloud Library and Baker and Taylor begin to gain further traction. e-Books are doing quite well in the US, but over in the UK a sustainable model is still trying to be established by the government, libraries and major publishers. In May 2013 the UK government funded a review looking

into the viability of allowing customers to borrow eBook, without all of the drama. The Sieghart Review said publishers should not limit the supply of e-books in the same way that physical book loans are controlled, including the lending of each digital copy to one reader at a time, securely removing eBooks after lending and having digital books "deteriorate after a number of loans".

A pilot project was initiated in four UK libraries in March 2014 that augmented the digital loaning period for up to 21 days and included a number of front-list titles, including bestsellers that just came out. The essence of the pilot is to carry out real-time, real-world research into the impact of eBook lending in public libraries on authors, publishers and on the library service so that a suitable and sustainable model. It is been around six months since the pilot was first initiated and there has been some interesting findings. All four participating authorities have seen a significant increase in e-lending, with longer loan periods leading to more titles being borrowed. The project has also found the increase in e-lending is not decreasing physical lending or footfall to libraries. The digital based libraries can be able to store, organize and present information resource with reference to spatial attributes data using geographic information system Chuanming (2004). Geographic information system provides interface for accurate visualization for many libraries collections. This is because there are wide ranges of GIS digital data to evaluate performance, disambiguating place names and others Smith at el (2001) A Digital Library (also referred to as digital library or digital repository) is a special library with a focused collection of digital objects that can include text, visual material, audio material, video material, stored as electronic media formats (as opposed to print, microform, or other media)

II.   New Trend In Digital Library Production

This new trend were widely used in the modern libraries such as the e-Book, e-learning Audiobooks, digital newspapers and magazine, 3M and many more should be available to enhance conducive environment for learning. Most of these developments encourage student in digital era to increase input in their educational pursuit. In 2007 a paltry 3,073 audiobook titles were produced and this figure rose exponentially to over 12O000 published in 2011. In 2013 many industry experts proclaimed that over 20,000 audiobooks were now available and in 2014 over 35,000 were released by major publishers and companies like Audible. The global audiobook industry is currently worth 2.6 billion dollars and part of the reason why we have seen a dramatic increase in profitability is due to digital. In a recent New York Times piece, they said "In the first eight months of 2014, sales were up 28% over the same period last year, far outstripping the growth of e-books, which rose 6%" Digital audiobooks are finally starting to find their stride thanks to libraries embracing them in a big way. There are a number of major players providing audio services to libraries, 3M Cloud Library, Baker & Taylor, Hoopla and Overdrive. For the most part, these are the exact same companies that provide the libraries e-Book portfolio. Many of the top audiobook distributors lean on 3rd parties for a full catalog of content. 3M and Baker and Taylor both get their audio editions from Findaway World, which is current market leader in production. Findaway has a catalog of over 50,000 titles and maintains production studios, narrators and crew in New York.

Overdrive has their own internal solution, where they approach publishers directly and don't do business with companies such as Audible or Findaway Right now we're two weeks into the "real world" of Audio, but customers really seem to like our solution. The company has a catalog of 13,000 titles with 1,000 added each month. Hoopla deals with over 100 libraries in the US and charges no licensing fees with setting up the system, which is quite appealing to the average library. How does Hoopla make money? The company has employed the Pay Per Use model, which only charges the library when a specific title is checked out by a patron. The San Francisco Public Library said they are are predicting that in 2015 more companies will embrace the Hoopla model, which will lower costs for libraries and get more content in-front of the patrons. In 2015 digital audiobooks will gain further traction in libraries due to tapes and CD's no longer being economically viable. Overdrive, the current leader in audiobook sales for libraries are developing a HTML5 based streaming solution that will allow patrons to listen to audiobooks without the need of the Overdrive Media Console. This will be tremendously beneficial to users who employ alternative operating systems on their mobile devices, such as Firefox OS, Blackberry or Tizen. Thousands of libraries are starting to embrace digital newspapers and magazine content. They are doing this because not only are the latest issues available but also back issues. One of the ways this type of content is really shining is attributed to libraries installing tablets and e-readers in their different branches. One example of this is the San Francisco Public Library system unveiling their new e-news center at their main branch and has since expanded it to Chinatown and North Beach. The premise is to draw attention to the virtues of reading digital magazines and newspapers on a bunch of Apple iPads. The actual content is provided by Vancouver based PressReader, who is quickly becoming a force to be reckoned with in the library sector. Pressreader might very well be the largest company involved in distributing newspaper and magazine titles to libraries, but the limited competition is prompting new entrants to enter the market. EBSCO Information Services introduced Flipster in October. It allows library patrons to browse the latest issues of high quality digital versions of popular magazines on iOS. Not only are libraries leaning on 3rd parties to provide their digital newspapers and magazines, but some are actually digitizing it themselves. The Brooklyn Public

Library system recently announced a new initiative to digitize backlist newspaper archives in order to make them available to the public via their online portal. This initiative, which will make all copies of the original Brooklyn newspaper, The Brooklyn Daily Eagle, available digitally. The original content was stored on microfilm from the Library of Congress.

III. Methodology

Development Of Digital Library Software

The major new approach in recent time is the selection of appropriate methods of developing new software such as FEDORA (Flexible and Extendable Digital Object Repository Architecture), under development at Cornell University. The goal here is to create a repository system in which our data are self-aware objects. While new GIS software (notably ArcInfo 8) has begun to deploy an object-oriented data model, we hope to develop such a model not just for GIS data, but also for electronic texts, images, and numerical data sets
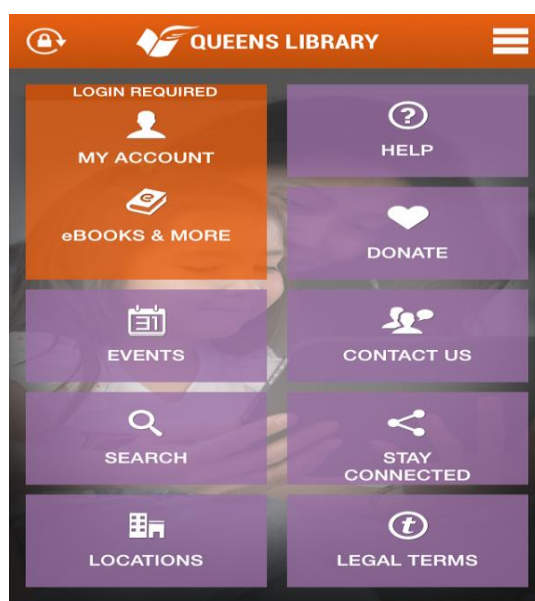

The Queens Library system in New York has developed their own proprietary app for Android and iOS. It offers library patrons seamless search and access to audiobooks from Acoustik, magazines from Zinio, and eBooks from OverDrive and Baker & Taylor's Axis 360 platform. Other features include location, mapping, and contact information for each branch, a catalog search, an ISBN barcode scanning function that enables users to scan books in retail environments to see if titles are available at their library, an events schedule that enables registration, an "ask a librarian" live chat service, a contact information form, and even a text-to-donate option. Since the apps launch in July they had 5,400 installations on iOS and more than 3,300 on **Android**. This has prompted Queens to start marketing the app creation service to smaller branches with little to no IT investment. One app to rule them all, this will be big in 2015. One of the big trends in 2014 was new libraries forgoing books altogether and embracing digital 100%. The first library to do this was the Bibliotech in Austin and Omaha announced plans to construct one in 2015. In 2015 more libraries will begin to offer their e-Book collections to residents living outside that particular county or city. Charging non-residents $50 to $75 a year will help offset that libraries digital investment and provide an alternative revenue stream to invest in better catalog. In early 2014 Overdrive and Smashwords signed a new agreement to get 200,000 indie titles available to the library. Right now on the backend collection managers are finding it hard to select and purchase quality content. Look for this to change in 2015, I heard its going to be more refined. I have also heard rumors that other self-publishing companies such as LULU and maybe even Kindle Direct Publishing to get involved in this space. PLA 2012 is now a couple days past, but the conference report wouldn't be complete without mentioning 3M. 3M was at the show to demo all sorts of library tech, including checkout equipment, scanners, and the 3M Cloud Library. They're making a big push into library ebooks and their presentations always drew a crowd. From external appearances the Cloud Library operates much like OverDrive. The interfaces might be slicker, but the Cloud Library was clearly conceived to be a direct competitor to OverDrive.

The above e-Book software is used to display available e-Book in a given library. It is design to so that the user can borrow books, these books can be read using the Blio reader, which is available for your iPad, smartphone, or PC. There are a few steps to get set up and you can find the (this will require you to login to the

library site). On most eBook library site, you can browse all titles on the "Magic Wall," browse by subject, or search for specific titles. On the page for each book you will find summaries, excerpts, reviews, and recommendations for similar books. You can even write your own reviews! You can have two books checked out at the same time with a two week check-out limit. If you don't need a book for that long you can adjust the check out period by adding a book to your checkout list and using the slider to choose the appropriate number of days for check out. Aside from GIS software like arcGIS, Web base GIS are also used in this study. The digital library has to do with internet connection with the additional client server or database. New standard e-libraries have to develop a database so that it will allow accommodate all users with define ID. The greenstone digital software are most the new method adopted in most libraries.

IV.   Greenstone Digital Library Software

Invenio
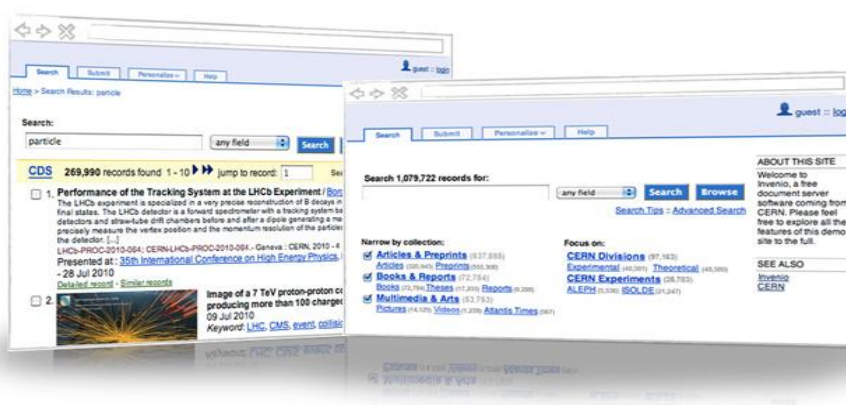
Invenio is a free software suite enabling you to run your own digital library or document repository on the web. The technology offered by the software covers all aspects of digital library management from document ingestion through classification, indexing, and curation to dissemination. Invenio complies with standards such as the Open Archives Initiative metadata harvesting protocol (OAI-PMH) and uses MARC 21 as its underlying bibliographic format. The flexibility and performance of Invenio make it a comprehensive solution for management of document repositories of moderate to large sizes (several millions of records). Invenio has been originally developed at CERN to run the CERN document server, managing over 1,000,000 bibliographic records in high-energy physics since 2002, covering articles, books, journals, photos, videos, and more. Invenio is being co-developed by an international collaboration comprising institutes such as CERN, DESY, EPFL, FNAL, SLAC and is being used by about thirty scientific institutions worldwide.

V.   Academic Library Software

Today software for academic uses are produced and widely distributed for the purpose of research and development. These includes
EOS Web Academic
EOS Web Enterprise
EOS Web Express
EOS Web Essential

EOS International's EOS.Web Academic is leading the way to cost-effective, feature-rich solutions for many colleges and universities. With over 130 academic library installations, EOS' scalable, cloud-based software includes a comprehensive suite of modules designed to enhance student, faculty, research professionals, and librarian productivity. Our state-of-the-art products are the best value in the industry. Using the recent cloud-base technology or optional location server network, EOS.Web Digital is a complete suite of software specifically designed for digital libraries. Other important value added modules in EOS.Web Digital consist of electronic Resource Management, Electronic Content Management, Content Aggregator, Reference Tracking, IP Authentication, Classification Management and Knowledge Builder.

Alfresco (software),

Biblical software ,Cambridge Imaging Systems, Digital Commons, DSpace, EPrints, EXo Platform, Expanded Books, Fedora Commons

Greenstone (software)
International Image Interoperability Framework, IntraText, Invenio, Islandora, Knowledge Tree, Logos Bible Software, Olive Tree Bible Software,

OPUS (software)
Pleade, SABDA, SimpleDL, SobekCM

VI. Discussion

Digital Software For Library Loan (Check-Incheck-Out)
You can process loan/return transactions in the following ways:
1. Manually by selecting the item title and the borrower name from the list boxes
2. Manually by typing in the first letter of the item title and the borrower name (library system will try to select correct items based on your entry)
3. Manually by typing in the barcode of the item and the borrower (you can type in barcode numbers and the library system selects the item and the borrower based on your entry)
4. Automatically using barcode scanner and barcode labels.

Simple-Checking (Self Checking)
We have students, volunteer beginner librarians that process loans/returns for the library. How can I allow them to process loans/returns in a very simple way? Our answer: Library Simple-Checking/Self-Checking Module:
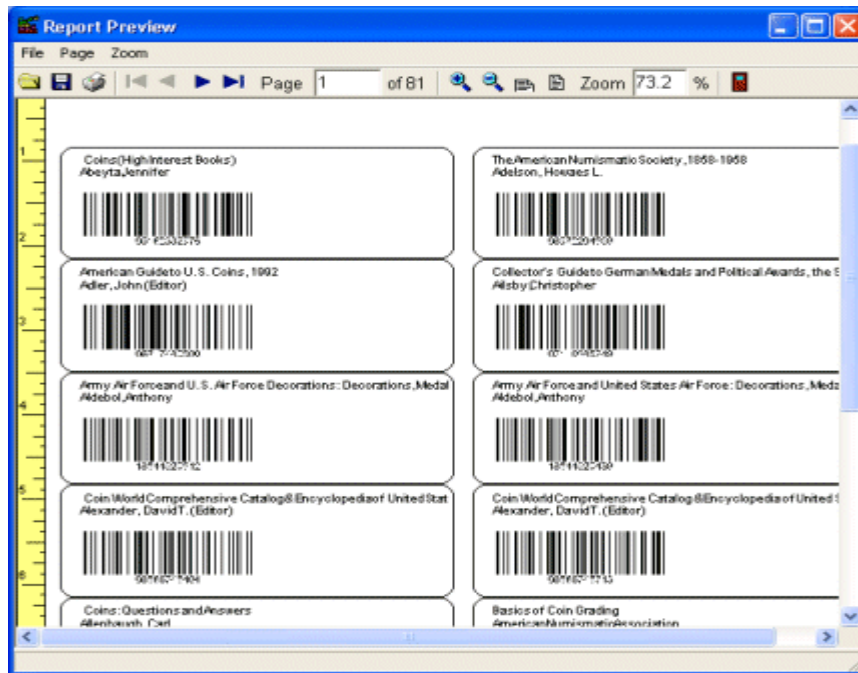

Catalog items by ISBN number, UPC code (auto cataloging, web search)
Easily and quickly catalog your books, cds, and videos (type ISBN numbers, scan ISBN barcodes, type UPC codes, scan UPC codes).
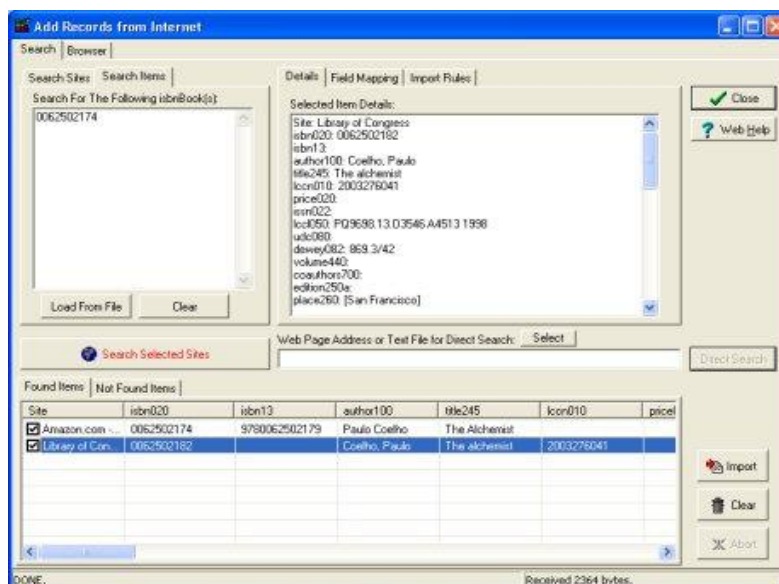
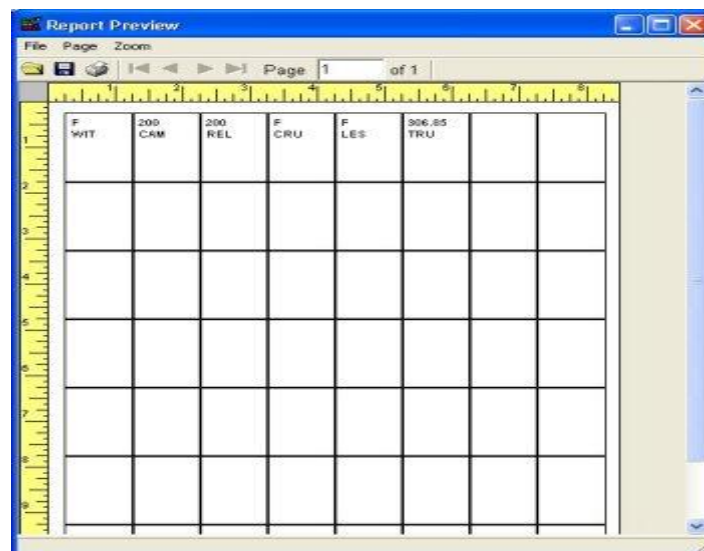How to find items on the web and catalog them automatically?

Print barcode labels
Print Label Wizard lets you print selected fields on any label.

Print spine labels with call numbers
Print Label Wizard lets you print spine labels on many different label formats.

How to print spine labels?

Categorized Due Date period
How to define categorized due date period?

Loan Manager
In Loan Manager window you can:
- display/print list of overdue items
- display/print list of outstanding items
- display/print overdue/outstanding items by selected borrower
- email/print overdue notices

Reservation Manager


Member/Patron Id Cards

Fine processing (optional)
**Database Designer**

You can start using Small Library Solution with the data templates included in the software. If the templates already created are not exactly what you are looking for you can easily modify or create a new one with the Designer. Quickly define or modify structures for your Small Library or Renting Facility with Designer.

Library Software: create payments database.
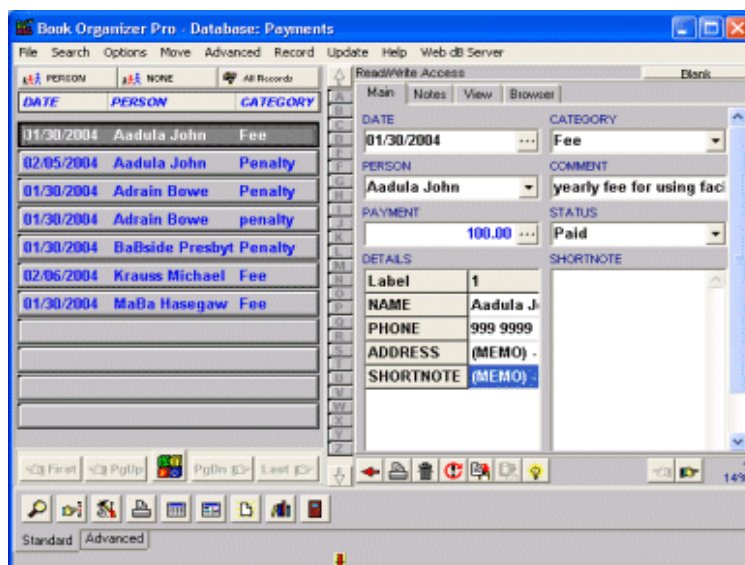
Library Software: create member database with picture field (layout designer)
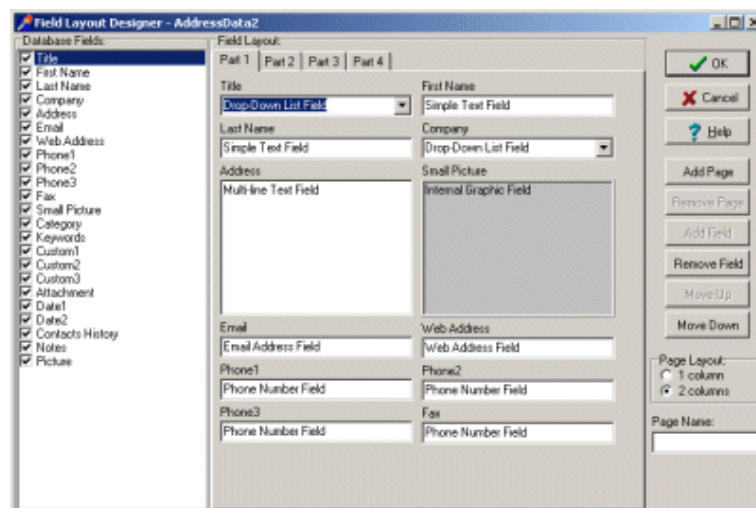
You can use application for all your library database needs. There is no limit on the number of databases or records that you would like to use in our library system. If you decide that you would like to add a library asset tracking database you can easily do it. In addition to the Library Software solution you can download and use free of charge any software solution listed in our solution center. Our library extension suggestions are: asset organizer, request organizer, todo organizer, event organizer.

VII.   Recommendation

Libraries in all institutions of learning should be converted to digital for easy access of information and data. The introduction of Geographic Information System (GIS) has created a tremendous a achievement in terms of provision of user friendliness, and development of library interface. Presently, most libraries that are digital attracts more user because of the accessibility. Therefore all schools libraries both secondary and tertiary institutions most has access to GIS data especially arcGIS Online, maps and e-books, All libraries staff should be trained at regular interval so that they will up-to-date for the smooth running of the libraries There is also need to establish e-learning system so that both lecturers, teachers and students will be in the database. Through that all learning activities promoted.

VIII.   Conclusion

Library is mean to be the store house of learning activities. The application of GIS made it possible for the users to access information of all sort. Now that things are transformed into digital, students and other users of library found it easier to utilize their studies at all time. The search of documents, files as well as softcopies information are mostly available in different libraries website. Software developers are designing more library software aside from 3M, Alfresco, Greenstone Inveno, OPUS and FEDORA. The recent emphases is how to make teaching-learning easier and affordable to the users.

References

[1].   Smith, David A, & Crane, Gregory. (2001). Disambiguating geographic names in a historical digital library Research and Advanced Technology for Digital Libraries (pp. 127-136): Springer.
[2].   Dragicevic, Suzana. (2004). The potential of Web-based GIS. Journal of Geographical Systems, 6(2), 79-81.
[3].   Greenstein, Daniel, & Thorin, Suzanne E. (2002). The Digital Library: A Biography. Strategies and Tools for the Digital Library: ERIC.
[4].   Rishe, Naphtali, Chen, Shu-Ching, Prabakar, Nagarajan, Weiss, Mark Allen, Sun, Wei, Selivonenko, Andriy, & Davis-Chu, D. (2001). TERRAFLY: A High-Performance Web-based Digital Library System for Spatial Data Access. Paper presented at the ICDE Demo Sessions.
[5].   Hill, Linda L, Carver, Larry, Larsgaard, Mary, Dolin, Ron, Smith, Terence R, Frew, James, & Rae, Mary‑Anna. (2000). Alexandria digital library: user evaluation studies and system design. Journal of the American Society for Information Science, 51(3), 246-259.
[6].   Chuanming, Yu. (2004). GIS-based Digital Library: Principle and Its Application [J]. Information Studies: Theory & Application, 6, 025.