

## Use of Free Tools for Automation of Small and Medium Library

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### ABSTRACT

*It is imperative to mechanize library administrations and utilize open-source programming to accomplish productivity and adequacy while likewise limiting expenses. The robotization of the library is helpful to both the staff and the clients of the library since it reduces how much pressure the staff has at work and further develops how much data can be given to clients from a distance sooner rather than later. The essential goal of this assessment paper depended on the writing was to show the meaning of involving open-source programming in the computerization of libraries. To achieve this goal, the paper was separated into subheadings that, all together, featured the meaning of the library mechanization, illustrated the main variables to consider while choosing library programming talked about the characteristics of open-source programming that make it appropriate for library robotization, and listed and momentarily examined the different open-source programming programs that are accessible for the coordinated library of the executives. The article likewise remembers suggestions for the significant factors that ought to be addressed to achieve effective computerization of library administrations utilizing open-source programming. These proposals address the principal factors that ought to be focused on.*

**KEYWORDS:** Open Source Software, Library automation System, Digital Library, Content Management System.

### 1. INTRODUCTION

Libraries have understood the need to move from disconnected frameworks to coordinated frameworks and arranged tasks, utilizing data and correspondence innovation in securing, listing, flow, serials the executives, and so forth . Late changes in data taking care of have constrained libraries to mechanize to further develop client support. Computerization is "the utilization of machines or advancements to streamline efficiency in the development of products and conveyance of administrations," as per Lubanski (2012). Mechanization involves modernizing human-performed work, as indicated by Aina (2004). Consequently, library mechanization includes utilizing ICT to robotize manual library capabilities like obtaining, inventorying, dissemination, serials organization, and so on. Library robotization includes equipment and programming. This makes it urgent to think about library robotization with library programming. Library programming might be exclusive (membership-based) or open source.

## ***Use of Free Tools for Automation of Small and Medium Library***

A long time before Open Source Programming, it was generally acknowledged that a couple of libraries could bear the cost of programming. The significant expense of programming, equipment, and staff and client preparation made libraries squander years arranging and getting ready for administration robotization. Through the Open Source Programming Drive, different programming might be gotten for not many dollars. Open Source Programming has made the change from "customary" to "innovation-based" library benefits simple and savvy, so libraries are taking on it in their specialized administrations, digitization cycles, and general library board, as per Ukachi (2012). Open Source Programming (OSS) is PC programming made by software engineers and made available to people in general with source codes, diminished copyright limitations, and the capacity to be adjusted by clients to address their issues. Successful and free, these products are generally gotten. This implies that OSS is killing boundaries like exclusive programming's significant expense and library monetary limitations that recently restricted library robotization to all-around subsidized foundations. OSS further develops library computerization, which further develops library administration conveyance.

While libraries in well-off nations are quickly taking on OSS for library robotization, those in unfortunate ones are as yet careful about its proficiency and adequacy. Distinguishing the adequacy of OSS prompts the inquiry: What makes them uncommon in library computerization programming? Following the previously mentioned, this study plans to show the significance of OSS in library computerization. Explicit objectives are to:

- ❖ Talk about the need for library mechanization
- ❖ Recognize key variables in programming choice
- ❖ Distinguish OSS characteristics that make them reasonable for library computerization programming.

List and momentarily survey accessible OSS for incorporated library the board.

### **A. Need of library automation**

- A downpour of data.
- To meet different client approaches and necessities.
- The library has requirements like space, time, and HR.
- The housekeeping activity is copied.
- to effectively get data and to suitably deal with it.
- The quantity of clients is developing quickly.
- How correspondence innovation has formed our advanced world.
- Suitability for systems administration and sharing assets.

### **B. Advantage of library Automation**

- People participate in this action that depends on gadgets. The utilization of computerization makes work a lot simpler.
- The framework is not difficult to rapidly utilize and looks for data.
- The availability of information
- It helps in addressing client questions and giving library administrations.
- Individuals from the library staff and clients of the WebPAC or OPAC might really take a look at the material's status.
- Library work that is normalized.

- Unwavering quality in undertakings and brief spread of data.
- Ensure that library work isn't copied.
- It supports the development of library representatives and HR.
- Simple arrangement of prepared work force and great assistance is conceivable.
- It's valuable for sharing assets and checking stock.
- This procedure assists you with saving time.
- PC based correspondence

**C. Disadvantage of library automation**

- The system is extensive and unpredictable.
- It requests a great deal of time and exertion.
- The beginning phase causes more uses, and continuous staff preparing is vital for it.
- Issues with security
- Its activity is totally dependent on power sources.
- The cost of its upkeep is significant.
- Unenlightened clients

**II. OPEN SOURCE LIBRARY AUTOMATION SOFTWARE**

The expression "open source programming" portrays a piece of programming whose source code is uninhibitedly open to everybody keen on making changes to or involving the program another way. It allows clients to change the product as they see fit and to make the code that upgrades the application. This technique helps deliver more savvy, adaptable, and dependable programming. Download it from the Web for nothing. Thus, OSS is very significant for libraries in agricultural countries like India. When contrasted with exclusive or shut-source programming, open-source programming is particular.

Tim O'Rally was the person who previously authored the expression "Open Source Programming" and began the development that was started by Richard Stallman's vision of free programming.

Inverse to restrictive arrangements is the plan idea of an open framework. The fundamental reason is that associations like libraries might offer types of assistance that incorporate the results of a few providers by consolidating their own parts. Therefore, it is genuinely exceptional for libraries to consolidate open-source items made by different libraries with incorporated library frameworks from significant makers. This permits libraries to all the more likely fulfill the necessities of their clients and inside activities.

The Four Crucial Opportunities of Free Programming are pushed for by the Free Programming Establishment:

- This product gives you the adaptability to run it for anything you like.
- You may likewise analyze its inward operations and change it to perform what you need.
- or everything falls into place, you should approach the code's unique source.
- you might spread duplicates to help your neighbors
- You are allowed to share your tweaked variants.

### **A. Definition**

Open source programming permits clients to study, alter, upgrade it, and rearrange it in the changed or unmodified structure under a permit (like the public space). It is normally delivered openly and cooperatively.

Open Source Drive (<http://www.opensource.org/>) states that autonomous friend audit and quick source code advancement improve programming solidness and quality. A program's permit should permit free perusing, rearrangement, change, and use to be open source.

Open source suggests a few things. (1999, Chudnov):

Engineers team up across institutional and public lines to construct and keep up with Open-source programming using web-based correspondences and advancement apparatuses.

Items are generally "free" under a permit that permits clients to utilize, change, and reallocate applications and source code for however long they are authorized;

Effective applications are assembled quicker and more responsively to customers since open source programs are allowed to utilize and survey;

Open source engineers have a great time seeing their thoughts acknowledged yet are driven by quality, not benefit;

Each and every individual who fabricates or utilizes open-source programming claims its licensed innovation, not just the organization or association that delivered or sold it.

### **B. The Ten Commandments**

The Open Source Drive (OSI) assigned eight open-source programming prerequisites. A product permit is an 'OSI Guaranteed Permit' on the off chance that it meets the accompanying 'Ten Rules.'

1. **Free Redistribution:** The permit doesn't keep anyone from selling or offering the product as a component of a total programming dispersion including applications from a few sources. The offer of the permit should not request sovereignty or other expenses.
2. **Source Code:** The product should give source code and empower gathering and circulation. In the event that an item doesn't give a source code, there should be a widely discussed method for getting it for a fair generation cost, in a perfect world free on the web.
3. **Derived Works:** The permit should empower changes and subordinate attempts to be conveyed under similar terms as the first program.
4. **Integrity of the Author's Source Code:** Assuming the permit empowers "fix records" with the source code to alter the program at construct time, it might deny source code spread in an adjusted structure. The permit should permit changed source code programming dissemination.
5. **No Discrimination against Persons or Groups:** Nobody might be oppressed by the permit.
6. **No Discrimination against Fields of Endeavor:** The permit will not restrict programming use to a specific field.
7. **Distribution of License:** The privileges related to the product should apply to all redistributors without additional licenses.
8. **License Must not be Specific to a Product:** The program's privileges shouldn't depend on its product circulation.

9. **The License must not restrict Other Software:** The permit can't restrict other programming provided close by the authorized program. The permit should not need open-source programming for any remaining applications on similar media.
10. **The License must be Technology-Neutral:** This permit can't be founded on a particular innovation or point of interaction.

### **III. KOHA**

Koha is the principal open-source library mechanization programming. Katapo Correspondence Ltd. in New Zealand made it in 1999 for the Horowhenua Library Trust and sent it in January 2000. It is kept up with by programming organizations and library innovation laborers around the world. A worldwide local area of clients teams up to achieve their mechanical targets, directing its development.

Index, OPAC, dissemination, part organization, and buys involve the Koha ILS. Libraries, individual authorities, non-benefits, places of worship, schools, and enterprises use Koha. Koha requires the accompanying settings to use. It needs a Linux server, apache, MySQL, Perl, Root, and some order line and information base organization abilities. In 2001, Paul Poulain added multilingual help to Koha. Koha is open in English, French, Chinese, and Arabic. Koha support firm LibLime was established in 2005 in Ohio. MARC21, UNIMARC, Duplicate Recording, and Z39.50 are upheld. It upholds Linux, MacOSx, FreeBSD, Solaris, and Windows. It upholds MySQL and PostgreSQL is better, is underlying Perl, uses Apache web server, and was made on Linux. XHTML-CSS OPAC interface. Koha-3.x backings MySQL/PostgreSQL and Zebra full-text search.

#### **Main Features**

- Complete acquisitions module with financial plans, book cash, providers, and money rates. Simple buys for little libraries.
- **Circulation:** a total course framework with library-explicit limitations.
- **An OPAC:** the Koha public face. This contains Amazon, Google Books, and other redesigned material, with every one of the standard elements.
- **Flexible reporting:** You might question all data set information utilizing a revealing motor.
- **Customizable item types:** You choose how to arrange your things. Koha can likewise deal with camera and PC inventories because of its adaptability. Capacity to arrange website pages as articles or connections to records.
- **Barcode scanning:** Koha utilizes an internet browser, in this way any PC scanner works.
- **Barcode printing:** Standardized identifications and spine marks might be printed utilizing Koha.
- **User management:** To give single sign-on, Koha incorporates LDAP, Range, Dynamic Index, and SAML to oversee clients.
- Koha's full text ordering motor empowers speedy and successful metadata look.
- Upholds normal library guidelines like as MARC21, UNIMARC, Z39.50, SRU/SW, SIP2, and others.
- Emailed mechanized late notices or SMS. Koha may likewise inform borrowers of forthcoming due dates. Koha might email issue slips as opposed to printing them at course.
- Koha upholds consortia, multi-branch, and single-branch modes.
- Koha has been converted into different dialects, including Te Reo Māori.

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- Koha highlights a disconnected flow module.
- Koha is viable with SIP2 agreeable self-really look at hardware.
- Faceted inquiry with classified results for better route.

### **IV. NEWGENLIB**

NewGenLib robotizes libraries. Proficient altruistic trusts Kesavan Organization of Data and Information The executives (KIIKM) and programming improvement business Verus Arrangements Pvt Ltd (VSPL) in Hyderabad, India, worked together on it for quite a long time. It was made in Walk 2005. It was private library programming until January 9, 2008, when it became open source under GNU GPL v3. It might deal with a library's housekeeping, like book and material buying, index data set age and upkeep, and possessions course. Libraries might plan their organization utilizing NewGenLib. The Host library introduces the program on its public area server and designs extra libraries as Partner libraries. NewGenLib chips away at Linux and Windows. Is viable Global metadata and interoperability guidelines: MARC-21, MARC-XML, z39.50, SRU/W, OAI-PMH

#### **Main Features**

- The useful parts are altogether online. Utilizes Java Web Start.
- Meets global metadata and interoperability norms: MARC-21, MARC-XML, z39.50, SRU/W, OAI-PMH.
- -Operating system rationalist, accessible for Windows and Linux, and for the most part utilizing open source parts.
- Extendable to oblige a few dialects and permit information info, stockpiling, and recovery in any Unicode 3.0 language.
- z39.50 United Search Client
- Upholds various clients, security levels, and computerized connections to metadata.
- Organizing: Progressive and Circulated
- Versatile, controllable, and successful
- Coordinated email/texting into program capabilities - Configurable structure letters utilizing XML-based Open Office layouts
- Involves set-up boundaries for speedy program customization, for example, deciding benefactor freedoms.

### **V. EVERGREEN**

The Evergreen Undertaking makes an open-source consortia-quality ILS used by north of 1000 libraries around the world. Libraries utilize Evergreen to oversee back-of-house activities like flow (checkouts and checking), securing, and asset dividing between gatherings of libraries.

The Georgia Public Library Framework (GPLS) sent off the Evergreen Undertaking in September 2006 to help PINES. Equinox Programming upholds, creates, moves, and different administrations for evergreen libraries.

#### **Main features**

- Evergreen is a metadata web crawler
- Evergreen is an exchange handling motor
- Evergreen is a web application - Evergreen is based on Open SRF, a versatile, strong message-passing structure.

- View record data and accessibility
- View exchange history
- View current check-outs and reestablishments
- View reservations and abrogations
- View current look at solicitations and undoings

## **VI. GREENSTONE**

Greenstone programming makes and appropriates advanced library assortments. Data might be coordinated and distributed on the web or Disc ROM in another manner. The New Zealand Advanced Library Task at the College of Waikato made and scattered Greenstone is close to UNESCO and the Human Data NGO. The GNU Overall population Permit oversees this multilingual, open-source programming. Greenstone programming enables clients at colleges, libraries, and other public assistance foundations to foster computerized libraries. The entire Greenstone connection point and documentation are in English, French, Spanish, Russian, and Kazakh. Numerous extra dialects have Greenstone interfaces.

### **Main Features**

- XML Organized Metadata using DC
- Support for picture, video, and text assortment
- Simultaneous and dynamic substance improvement
- Multilingual assortment creation
- Compact assortment, promptly dispersed through Cd ROM.

## **VII. D-SPACE**

Particular advanced resource the board or content administration framework D-Space. It sorts out and appropriates advanced documents and makes, records, and searches metadata to find and recover them. It upholds long-haul safeguarding of archive computerized content. Advanced conservation is one more objective of D-space. Starting around 2002, the HP-MIT Coalition's item has been conveyed and underway at the north of 1528 foundations around the world, including colleges, universities, social associations, and exploration organizations. The BSD permit allows clients to change and extend the program.

### **Main Features**

- **Institutional Repository:** D-Space meets significant foundations' transdisciplinary and hierarchical requests.
- **Document Formats:** Upholds text, photographs, sound, and video
- **Access Control:** Supporters might confine assortment and thing access in D-Space.
- **Digital Preservation:** D-Space stores and oversees computerized products in a protected, expertly oversaw storehouse with reinforcement, reflecting, media reviving, and calamity recuperation.
- **Search and Retrieval:** D-Space entries utilize a certified Dublin Center metadata construction to portray everything.

## **VIII. FEDORA**

Computerized object archive the board programming Fedora is adaptable extensible. Cornell College scholastics made Fedora as a Kahn and Wilensky System enlivened design for putting away, sorting out, and getting to computerized material as Computerized Items. Fedora determines deliberations for characterizing advanced things, laying out associations, and appending "ways of behaving" to them. Center store administrations from Fedora are online with distinct APIs. Fedora additionally offers search, OAI-PMH, informing, managerial clients, and that's only the tip of the iceberg. The Fedora archive programming upholds RDF and semantic triple stockpiling advancements, particularly Mulgara RDF. Fedora's computerized conservation capacities keep advanced stuff enduring. The Fedora Vault Undertaking people group is the FEDORA Hall. This people group shares needs, use cases, and drives. The Fedora Hall people group effectively makes apparatuses, applications, and utilities for Fedora. The people group might get to a large number of these undertakings as open source.

### **Main Features**

- **Web Services:** Fedora store framework interfaces comprise of three open APIs available as web administrations: Programming interface M, Programming interface A, and Programming interface A-Light.
- **Datastreams:** A vault's items might incorporate material and data (datastreams) from the inside or outside. Fedora stores support all Emulate types.
- **XML Submission and Storage:** XML records that broaden the Metadata Encoding and Transmission Standard (METS) construction hold computerized things.
- **OAI Metadata Harvesting Provider:** Fedora metadata is accessible by means of OAI Convention for Metadata Reaping, v2.0.
- **Parameterized Behaviors:** Object ways of behaving empower client provided decisions at dispersal time.
- **Versioning:** Albeit not totally carried out in discharge 1.1, the Fedora store framework upholds advanced article and part forming.
- **Access Control and Authentication:** IP address-based admittance control is simple in Delivery 1.1. IP range limit is given in Administration and Access APIs.

## **IX. JOOMLA**

Joomla is a monstrosly solid open-source CMS. It is a free, open-source content distributing framework for building profoundly intuitive multilingual Sites including on the web networks, media, gateways, web journals, and Web based business applications rapidly. Joomla is a free, open-source CMS. All inclusiveness permits customization. Bloggers frequently used WordPress. You can blog with Joomla, yet this is normal. Pages might be laid out by picking a format. Browse many free or paid layouts for proficient plan. Additional items add usefulness. Numerous Joomla augmentations are free, but others need installment. You can develop it without any preparation on the off chance that you can't find anything reasonable. Joomla is open source, consequently you might employ a web engineer to refresh page format code and appreciate adaptability.

Furthermore, Joomla has a decent local area. The more dynamic clients answer questions quickest. Get some information about your circumstances and get a speedy reaction. Our people group serious areas of strength is useful.



Joomla has gifted designers who further develop it without fail. Continuously prepared for critical thinking. The new designers' site on Joomla.org has a few free additional items, parts, modules, and formats to make Joomla more proficient. Business or custom expansions, modules, parts, and layouts are accessible. Joomla is easy to use and updateable. Indeed, even amateurs might utilize Joomla. Easy to utilize, yet has many elements if necessary. Joomla introduces with a single tick. Design in minutes. Shopping baskets, Gatherings, Schedules and Occasions, Promotion serving instruments, Search, Google Guides, Business and Individuals, Registries, Arranged Advertisements, People group Gateway Devices, Reservations, Mechanized Reinforcement, Bulletins, Surveys Tests, Web journals and News, Picture Displays and Portfolio Apparatuses, Task board and Groupware, and A lot More are Joomla expansions.

### **Main Features**

- Client The board
- Media Administrator
- Flag The executives
- Contact The executives
- Surveys
- Web Connection The executives
- Content Administration
- Partnership and Newsfeed The executives
- Layout The executives
- Strong Extensibility

## **X. DRUPAL**

The open-source Drupal stage major areas of strength for fabricates, sites. For what reason is it awesome? It's used around the world. Drupal allows clients to alter their sites without specialized abilities and matches your organization's interaction. Pages ought to be dynamic, not normal for paper. Drupal scales as your requirements change. High-level hunt, auto-labeling, and internationalization let buyers unexpectedly investigate your site material. Introducing Drupal in different dialects lets heads and clients see destinations in their local language. Drupal might be tweaked for your substance, clients, and association highlights to sparkle. Drupal's tremendous designer local area offers support, security, testing, and documentation: no seller required. Drupal is normally referenced when website architecture progresses. Drupal people group individuals further develop Drupal.

### **Main Features**

- Administrate
- Construct
- Work together
- Interface
- Plan and Show
- Sort out and Find

## **XI. WORDPRESS**

Lately, WordPress has developed from writing for a blog stage to a useful substance the board framework. WordPress' numerous free modules are a significant advantage. Truly, WordPress modules can deal with each

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component of web architecture, association, and Web optimization. These modules improve the UI. WordPress has acquired fame with numerous modules. Numerous people battle to pick modules to ease errands. For their purposes, a huge WordPress people group can exhort on WordPress utilization.

### **Main Features**

- Guidelines consistence
- No revamping
- WordPress pages
- Cross-blog specialized devices
- Full client enlistment
- Secret key safeguarded posts
- Shrewd text designing
- Different scholars

### **CONCLUSION**

To accomplish the greatest productivity with little consumption, libraries ought to robotize their activities and utilize open-source programming. Because of this technique, library workers have less weight at work, while library benefactors benefit from working on remote admittance to quick, exact data. This article has framed the central issues to remember while picking library programming and takes care of what makes open-source programming (OSS) great for library computerization. What's more, the article gives a short outline of the few OSS choices for the coordinated library of the executives. If you have any desire to robotize your library's administrations with open-source programming, there are a couple of things you want to ensure are set up first. These incorporate considering client necessities, having the important foundation (equipment, programming, organization), having the help of programming engineers, having an accessible client bunch for the product, and having equipped staff.

### **REFERENCES**

- [1] O'Reilly, Tim, (1999) .Hardware, Software and Infoware, in Open Sources, edited by Chris DiBona, Sam Ockman and Mark Stone, O'Reilly and Sons: Sebastapol,
- [2] Cervone, Frank (2003). The Open Source Option [online] Available from:  
<http://libraryjournal.reviewsnews.com/index.asp?layout=articlePrint&articleID=CA304084&publication=libraryjournal> (Accessed on August 27, 2003)
- [3] Chawner, Brenda (2003). Open Source Software and LibrariesBibliographies (Version 0.5) [online] Available from: [http://www.vuw.ac.nz/staff/brenda\\_chawner/biblio.html](http://www.vuw.ac.nz/staff/brenda_chawner/biblio.html) (accessed on July 23, 2003)
- [4] Chudnov, Daniel (1999). Open Source Library Systems: Getting Started[online] Available from: <http://www.oss4lib.org/readings/oss4lib-gettingstarted.php> (accessed on July 23, 2003)
- [5] Balas, Janet L. (2004) . Considering open source software. Computers in Libraries. 24 (8) , 36-39.Retrieved February 10, 2008, from Web site: <http://www.infotoday.com/cilmag/sep04/balas.shtml>
- [6] Bretthauer, David (2002). Open Source Software: A History. ITAL: Information Technology and Libraries. 21 (1), 3-11. Retrieved January 21, 2008, from Web site:  
<http://www.ala.org/ala/lita/litapublications/ital/2101bretthauer.cfm>
- [7] Ferraro, Joshua. (2006). Why Your Library Needs Open Source. Retrieved February 9, 2008, from Website:

<http://liblime.com/c/welcome.html>

- [8] Free Software Foundations software directory. <http://www.fsf.org/>
- [9] Hebert, Eric. How Open Source Software Can Improve Our Library. Retrieved January 15, 2008, from WEB site: <http://www.degreetutor.com/library/managingexpenses/open-source-library>
- [10] Mackenzie, Adarian (2001) . Open Source Software: When is a Tool? What is a Commodity? *Sciences Culture*, 10 (4) , 541-552.
- [11] Open source software. Wikipedia. Retrieved February 5, 2008, from Web site: <http://en.wikipedia.org/>
- [12] UNESCO Free & Open-Source Software Portal. Retrieved February 5, 2011, from Web site: <http://www.unesco.org/>
- [13] Stamelos, I. (2002). Code quality analysis in open-source software development. *Info Systems J*, 12, 43-60
- [14] Dudoit, S. (2003). Open-source software for the analysis of microarray data. *Microarrays in Cancer*, 45-51.
- [15] Samoladas, I. (2004). Open source software development should strive for even greater code maintainability
- [16] Project Homepage: Retrieved February 14, 2013, from Website: <http://www.koha.org>
- [17] Koha Wiki. Retrieved February 15, 2013, from Website: <http://www.saas.nsw.edu.au/wiki/index.php?page=KohaProject>
- [18] Koha Labs. Retrieved February 25, 2013, from Website: <http://www.kohalabs.com/>
- [19] GNU Operating System. Retrieved February 5, 2010, from Web site: <http://www.gnu.org/>
- [20] Content management systems. Retrieved April 20, 2012. from Website: <http://searchsoa.techtarget.com/definition/content-management-system>
- [21] Jan Pascal. (2009) .Advantages of Joomla Content Management System. Retrieved April 20, 2013, from Website: <http://ezinearticles.com/?Advantages-of-JoomlaContent-Management-System&id=3854563>
- [22] ©2005-2010 Open Source Matters, Inc, Features Overview. Retrieved April 20, 2013, from Website: <http://www.Joomla.org/core-features.html>
- [23] Joomla tribune first Joomla online news paper, Reasons to choose Joomla. Retrieved April 20, 2012, from Website: <http://www.Joomlatribune.com/Joomlaarticles/reasons-to-choose-Joomla.html>
- [24] Drupal.org, Drupal CMS Features. Retrieved April 20, 2013, from Website: <http://Drupal.org/features>
- [25] WordPress Features. Retrieved April 20, 2013, from Website: <http://WordPress.org/about/features>
- [26] Greenstone.org. Retrieved April 20, 2013, from Website: <http://www.greenstone.org>
- [27] DSpace.org. Retrieved April 20, 2013, from Website: <http://www.dspace.org>.
- [28] Lubanski, M. (2012) Building Clouds: building hybrid clouds that can support any device from anywhere. Available: <http://blogs.technet.com/b/privatecloud/archive/2012/10/22/what-is-automation-by-michaellubanski.aspx>. (September 10, 2013)
- [29] Aina, L. O. (2004). *Library and Information Science Text for Africa*. Ibadan: Third World Information Services limited
- [30] Ukachi, Ngozi. B. (2012) “Awareness, Availability and Utilization of Open Sources Software in Nigerian Libraries: the way forward. *International Research Journal of Library, Information and Archival Studies*. 2 (1), pp.001-009. Available: <http://interesjournals.org/IRJLIAS/Contents/2012%20content/January.htm>. (January 27, 2013)