

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

12-7-2019

Designing Geographic Map Enabled Search Interface in Koha OPAC

Sukumar Mandal

Department of Library and Information Science, The University of Burdwan,
sukumar.mandal5@gmail.com

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>



Part of the [Library and Information Science Commons](#)

Mandal, Sukumar, "Designing Geographic Map Enabled Search Interface in Koha OPAC" (2019). *Library Philosophy and Practice (e-journal)*. 3732.

<https://digitalcommons.unl.edu/libphilprac/3732>

Designing Geographic Map Enabled Search Interface in Koha OPAC

Dr. Sukumar Mandal

Assistant Professor, Department of Library and Information Science

The University of Burdwan, West Bengal, India

E-Mail: sukumar.mandal5@gmail.com

Abstract

Geographic map is an inevitable and indispensable in the geographic environment. It consists of lot of features in global environment. This concept is being applied in bibliographic search environment. Koha is a popular open source software in integrated library management and retrieval system. It is based on LAMP architecture in open source environment. Generally Koha gives the bibliographic search facilities of different facets such as author, title, subject, and other related areas. But this paper has discussed the map based search facilities in Koha OPAC in geographic search environment. Users can easily be identified the documents relating to different countries and this can be achieved by a single click on the map option in cluster. This is very user-friendly where users have easily search their relevant documents in a little bit of time. This can saved the time of the reader. This interface is developed by using the open source online tool geobatch and Koha ILS software for easy integration and provides better user centric search interface in modern library environment.

Keywords: Geographic search, Map, Koha, OPAC, and bibliographic search

Introduction

Geographic search is one of the important aspects in integrated library management and retrieval system. Generally users could have access the library resources on the basis of author, title, and subject. Conventional library OPAC are only of circumscribed use for map searches. If bibliographic information such as the denomination or author is not known at the outset, carrying out a text-predicated search for cartographic material can be an intricate and time-consuming process. Even the exordium of incipient filter concepts in recent years has done nothing to fundamentally transmute this unsatisfactory situation (Oehrli...et.al, 2011). Libraries are using the Koha software for retrieval of information among the users by general bibliographic format. Most of the libraries have been suffering in map based search facilities on the basis of different geographic regions. Users have do not know the county or region information about the author and publisher from the bibliographic information. But this research paper has successfully solved this problem for library users. Users can easily access the region wise search using the Google Map in Koha OPAC. This integrated geographic search interface is very user-friendly and helpful to the library users. Geographical coordinates which designate the location and spatial extent of a map precisely and It can be allocated to a particular point on earth are unique and fixed. Compiling of bibliographic metadata is possible by using this techniques. This integrated framework is very much effective to every libraries those are using the Koha library management software. Library users can easily be identified the countries and local regions using this geographic search interface. Modern libraries are providing this new geographic based services to the

users in an integrated library environment. The process and methodology are also very simple for designing this integrated framework using online geographic tools and Koha integrated library system software.

Objectives

The essential objectives of this paper are explained as below:

- (i) To know the practical approach and application of geographic search tools and techniques in library resources.
- (ii) To provide the integration of geographic world map in Koha OPAC for displaying the bibliographic data.
- (iii) To explore the geographic search facilities in Koha OPAC for library users.
- (iv) To identify the number of library collections on the basis of geographic area wise.

Review of Related Literature

The objective of this paper is to explore the new innovative interface in geographic subject headings by using Google Maps of search navigation to access bibliographic records in library (Vandenburg, 2008). This paper is to examine the characteristics of electronic databases providing access to library news and applications of open source tools and some techniques to various library settings in developing the search interface to retrieval of bibliographic information among the library users (Smith, 1982). Development of bibliographic records and import metadata using Z39.50 server for interoperability and crosswalk in integrated library management and retrieval system for museum and library boundaries in two sectors such as taxonomies and geographic search information (Caplan & Haas, 2004). Highlights the Online Public Access Catalogues of Italian possibility to search them cumulatively using the MetaOPAC Azalai Italiano for library Scholars all over the world in the field of historical resources (De Robbio...[et.al], 2010). Search trees has been represent in this facets control system which responses and determine appropriate subject searching methods to user queries match the catalog's controlled vocabulary and produce retrievals into online bibliographic systems (Markey Drabenstott, & Vizine-Goetz, 1990). The purpose of this paper is to explore motivations for libraries to build location aware services on map as location specific data delivered to location aware mobile devices just in tim, and structured metadata (Powell...[et.al], 2010). The new interface is designed for search trees and its tested in this section for subject searching of operational online catalogs with useful retrievals to the most difficult user queries (Drabenstott, 1996). This article emphasis the past, evaluates current developments and speculates upon future uses of automated procedures in map collections of automated retrieval and description of mapping (Perkins, 1991). The main aim of this paper is to explores an understanding of the issues surrounding the cataloguing of maps in archives and libraries using metadata formats such as MARC21, EAD and Dublin Core, RDF which shows how particular library map data can be stored coordinates (Beamer, 2009). It Provides a bibliographic and publication of reference works guide on African American studies for those wishing to identify and use research tools for studying African American literature (Moll, 2002). Maggie III is an integrated system which enabled and supports many functional activities such as online public access catalog, cataloging interface, bibliographic maintenance, circulation, electronic mail, and community information databases and acquisitions and serials modules (Dowlin, 1986). In 2015 Mandal has discussed the knowledge organization system is possible using MultiTes for college libraries under the University of

Burdwan and Mandal 2016 again explores the search indexing tools are very useful in library automation for the library users and professionals. Mandal 2017 has represents the development of an integrated framework in domain specific cluster for libraries to achieving the functional tasks and activities. In 2017 he also discussed the development of an integrated ISO framework for libraries functions and activities and in 2019 Mandal has designing the YouTube access interface for users to access the education related videos and lectures for eLearning environment.

From the above literature review it has been shows that the most of the papers were prepared on the basis of bibliographic framework in an integrated library management system. The authors have been discussed the application of different domain specific software in library environment for the retrieval of information among the users. But only two or three papers have been discussed the Google Map application in library metadata in geographic search facilities. Koha is a well known and popular library management software which helps to provides easy integration and searching the geographic search in World Map both in Koha OPAC and librarian interface. So this is the literature or research gap identified in this paper and after that designing and developing the integrated geographic map search interfaces using open source tool and technique which described in Methodology and demonstration section.

Methodology

Geographic search interface of Koha can be made on the basis of Google Map. There are many tools and techniques available in the Web environment. This paper have been selected only two software such as Geobatch and Easy Map Maker in the field of geospatial search environment. All the tasks have been made in an online repository. On the otherhand data entry of Koha can be made in an offline environment. But it is also support in an online environment for creation of geographic search based facilities. Data entry is required in respect of different items types such as books, journals, conference proceedings, and etc on the basis of different countries and corresponding cities. Need to report generation after completing or finishing the data entry in Koha. Report generation is also an important task in Koha (version 19.05) by using the SQL syntax which shown in the Figure-1 and it can be exported in CSV format because its fully support in generating the maps of different countries and cities. Then edit this CSV file as per the requirement of GIS search in Koha bibliographic data and in this circumstances designing and configuring as biblionumber, title, country, and city. In this way any library can be add or delete other fields relating to bibliographic data available in Koha. Import this CSV file into this online map repository and here click on the save map option and write some fields such as title, description, and email. This will be send three options by email such as public interface, admin or edit interface, and iframe interface. Copy the iframe code from the admin section and it will be put on opaccredit section under the system preferences in Koha OPAC modules shown in the Figure-2 then save the Koha system preferences. Finally the GIS interface of Koha is appear in the bottom section of Koha OPAC.

```
SELECT
biblionumber,
CONCAT('<a href=\"http://localhost:8002/cgi-bin/koha/opac-detail.pl?biblionumber=0',biblionumber,'\>',title,'</a>') AS Title
FROM biblio
ORDER BY biblionumber
```

Figure-1: SQL Report Syntax in Koha biblionumber

```
opaccredits (modified)
Include the following HTML in the footer of all pages in the OPAC:
1 <div id="sfcmhud27rl22f8jcyf8blyx64b2q4cqc"></div>
2 <script type="text/javascript" src="https://counter10.wheredoyoucomefrom.ovh/private/counter.js?c=mhud27rl22f8jcyf8blyx64b2q4cqc&down=async" async>
</script>
3 <noscript><a href="https://www.freecounterstat.com" title="free website counter"></a></noscript><p>
4
5
6 <iframe width="100%" height="600" frameborder="0" scrolling="no" marginheight="0" marginwidth="0"
7 src="https://www.easymapmaker.com/map/9a02c799180e0f0b92dcd1ad7efa6a9"/>
8 </iframe>
9
10
```

Figure-2: Configuration of opaccredit section in Koha OPAC

Finally this geographic search interface will appear in Koha OPAC. In Koha OPAC map can be displayed in four ways such as street, terrain, satellite, and hybrid. This has been shown in the Figure-3 as drop down menu. The beauty of this interface is that the users have easily select from the drop down menu as per the library requirement. This is the world wise geographic map represents in the form of number on the basis of continents, countries, and cities. How many collections are available in Koha on a particular country this can be achieved by using this geographic search interface. Here all the collections have been shown under the country of India and the respective states and cities.

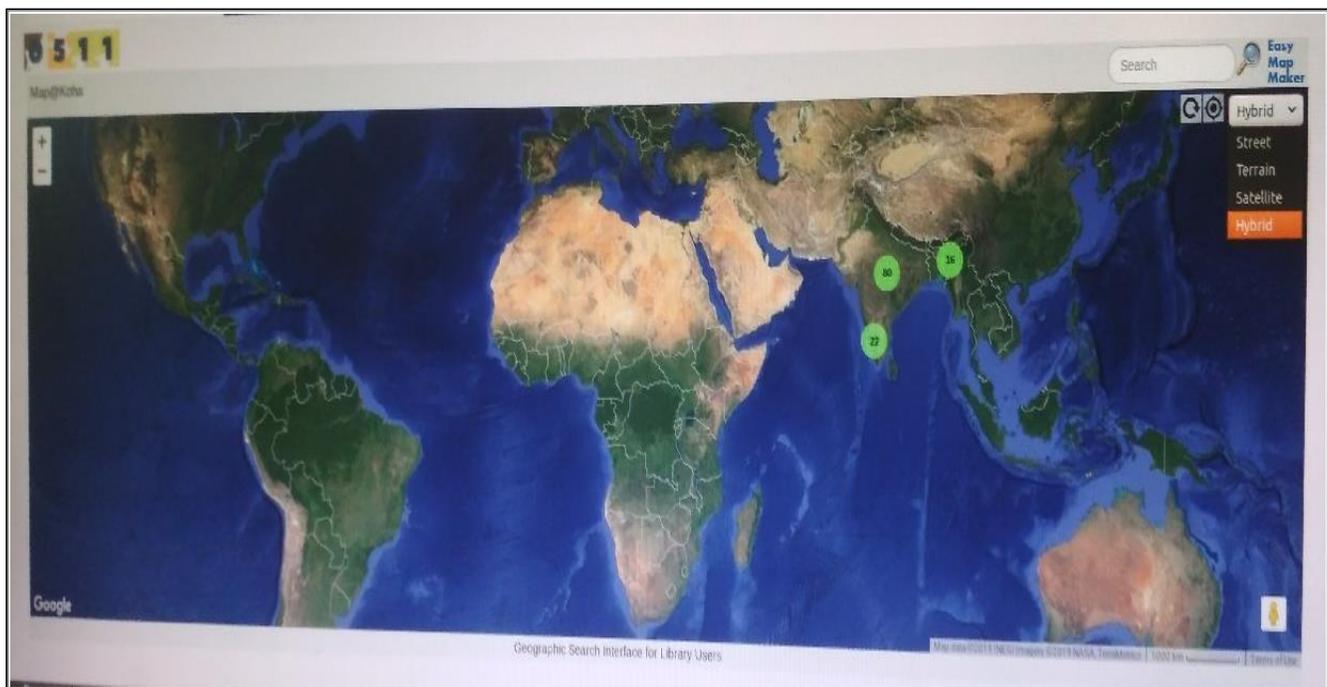


Figure-3: Geographic Map Interface in Koha OPAC

Total number of collections of bibliographic data and their published locations can be identified by using this integrated geographic search interface. State and city wise search interface is shown in the Figure-4 for easy access and to know the locations and number of collections of library resources available in Koha.

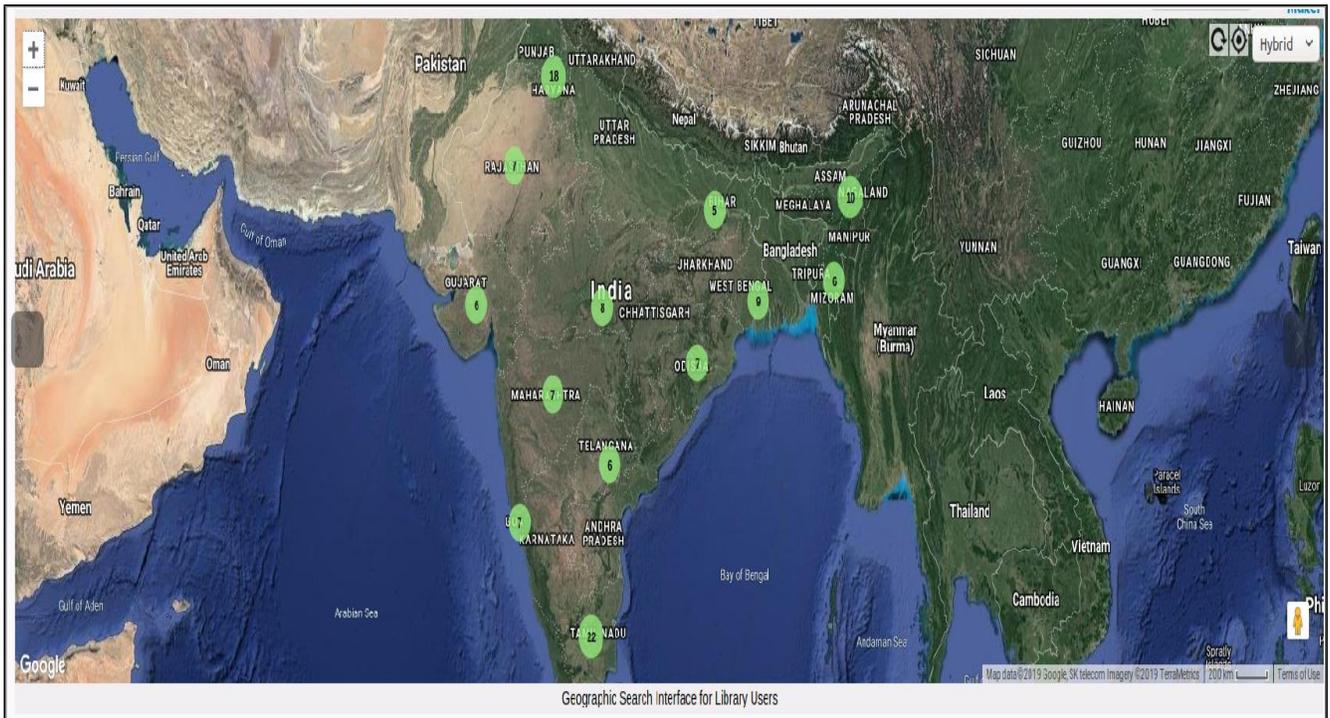


Figure-4: Geographic Map Interface in Koha OPAC

When open on individual city or state wise collection it will appear in an another window as number format (e.g. 1 to 9). Bibliographic title and biblionumber can be displayed in the next window which has been shown in the Figure-5. This is known as popup window in geographic search environment.

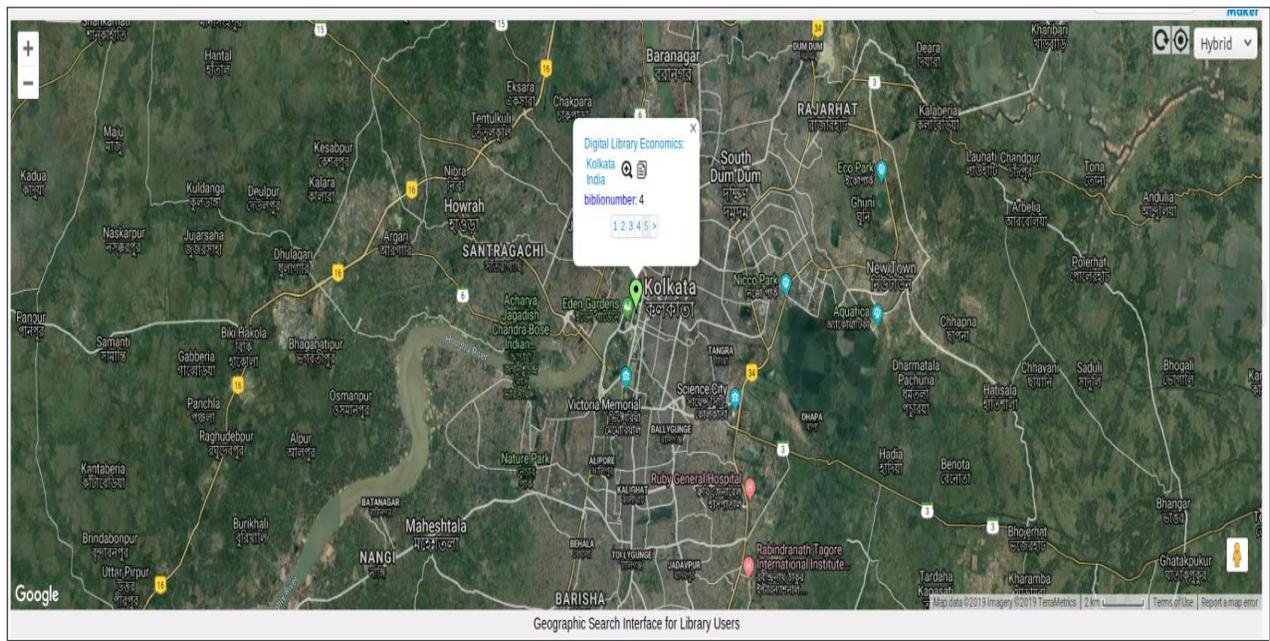


Figure-5: Geographic search window as Bibliographic title and biblionumber

This is the new and innovative interface for library users. It is appear by click on title in an above figure. The bibliographic data is being open in Koha OPAC in Figure-6. This integrated geographic interface is very helpful in discovery level services.

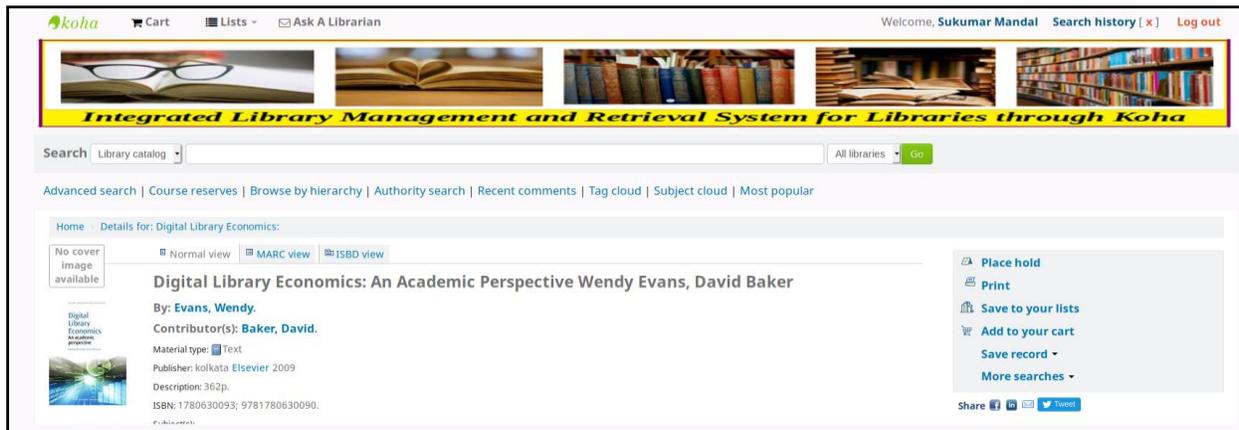


Figure-6: Bibliographic data in Koha OPAC

Conclusion

Geographical search interface is achieved by using this integrated framework. This bibliographic framework is very much conducive and effective of each and every sphere of library automation activities. This is very helpful to the users because they could have easily searching the library resources from this map based interfaces in Koha OPAC. How many documents are available in a library of any country that can be display in map cluster having also consists of bibliographic parameters such as author, title, subject, publisher, edition, place of publisher, and other facets also. Apart from this it is also provides satellite map based search interface and its very interesting and innovative to the users. So this interface is very helpful to each library in our modern society. The objectives of library cataloguing is preparing and maintenance of library catalogue in a library to provide better library services among the users and library professionals. The following important demonstration are as follows:

- (i) Library users could have search the geographic location of a book.
- (ii) Google and Sattelite map based search facilities are possible using this interface.
- (iii) It is provides bibliographic search facilities in 1 to 9 tab for large number of data.
- (iv) It is possible to search the local areas and regions as same as Google Map (e.g West Bengal, Kolkata, Hooghly, Burdwan, Bolpur and etc.).
- (v) Bibliographic clusters can be display in map interfaces (in Figure-4).
- (vi) It is provides country or region based report generation.
- (vii) It is fully support the embede source code for generating the Google Map in Koha OPAC.
- (viii) Geographic search is also possible by using the android mobile because Koha fully support the Mobile script.
- (ix) Facited navigation and facet counts can be made by using this framework.
- (x) It is very attractive and user-friendly.

References

- Beamer, A. (2009). Map metadata: essential elements for search and storage. *Program: electronic library and information systems*, 43 (1), 18-35. Retrieved from <https://doi.org/10.1108/00330330910934084> (Accessed on June 22, 2019)
- Caplan, P. and Haas, S. (2004). Metadata rematrixed: merging museum and library boundaries. *Library Hi Tech*, 22 (3), 263-269. Retrieved from <https://doi.org/10.1108/07378830410560053> (Accessed on March 8, 2019)
- De Robbio, A., Barazia, C., Rossi, P. and Mezzetto, M. (2010). The MetaOPAC Azalai Italiano (MAI): geography and evolution of Italian online catalogues. *Library Management*, 31 (1/2), 94-109. Retrieved from <https://doi.org/10.1108/01435121011013430> (Accessed on January 15, 2019)
- Dowlin, K. (1986). MAGGIE III: The Prototypical Library System. *Library Hi Tech*, 4 (4), 7-21. Retrieved from <https://doi.org/10.1108/eb047661> (Accessed on January 17, 2019)
- Drabenstott, K. (1996). Enhancing a new design for subject access to online catalogs. *Library Hi Tech*, 14 (1), 87-108. Retrieved from <https://doi.org/10.1108/eb047986> (Accessed on January 6, 2019)
- Mandal, Sukumar (2015). MultiTes: A knowledge organization thesaurus construction tool for college libraries under the University of Burdwan. *International Research Journal of Interdisciplinary and Multidisciplinary Studies (IRJIMS)*, 1(8), 63–79. (Accessed on April 23, 2019)
- Mandal, Sukumar (2016). Use of search indexing tools in library automation: A comparative analysis. *International Research Journal of Multidisciplinary Studies*, 2(6), 1–13. (Accessed on November 2, 2019)
- Mandal, Sukumar (2017). Development of domain specific cluster: An integrated framework for college libraries under the University of Burdwan. *Library Philosophy and Practice (Peer Review e-Journal)*. <https://doi.org/10.17821/srels/2017/v54i5/105947>. (Accessed on October 25, 2019)
- Mandal, Sukumar (2019). Designing of YouTube Access Interface for Institutional Digital Repository. *SRELS Journal of Information Management*, 56(4), 188-192. DOI: 10.17821/srels/2019/v56i4/141793. (Accessed on September 12, 2019)
- Mandal, Sukumar (2017). Development of an Integrated ISO Framework for College Libraries' Functions and Activities. *SRELS Journal of Information Management*, 54(5), 267-270. DOI: 10.17821/srels/2017/v54i5/105947. (Accessed on June 2, 2019)
- Markey Drabenstott, K. and Vizine-Goetz, D. (1990). Search trees for subject searching in online catalogs. *Library Hi Tech*, 8 (3), 7-20. Retrieved from <https://doi.org/10.1108/eb047793> (Accessed on April 10, 2019)
- Moll, K. (2002). Reference works on African American literature: a bibliographic guide. *Collection Building*, 21 (3), 85-112. Retrieved from <https://doi.org/10.1108/01604950210434533> (Accessed on April 2, 2019)
- Oehrli, M, Petr, P, Susanne, Z & Rosi, S (2011). MapRank: Geographical Search for Cartographic Materials in Libraries. *D-Lib Magazine*, 17 (9/10), doi:10.1045/september2011-oehrli. (Accessed on Nov 2, 2019)
- Powell, J., Mane, K., Marks Collins, L., Martinez, M. and McMahan, T. (2010), "The Geographic Awareness Tool: techniques for geo-encoding digital library content", *Library Hi Tech News*, Vol. 27 No. 9/10, pp. 5-9. Retrieved from <https://doi.org/10.1108/07419051011110586> (Accessed on February 5, 2019)
- Perkins, C. (1991). The automation of map library routines: problems and potential. *Program: electronic library and information systems*, 25 (3), 223-240. Retrieved from <https://doi.org/10.1108/eb047085> (Accessed on May 18, 2019)

- Smith, S. (1982). Online News Retrieval Systems: Evaluations and Library Applications. *Reference Services Review*, 10 (4), 47-60. Retrieved from <https://doi.org/10.1108/eb048775> (Accessed on January 15, 2019)
- Vandenburg, M. (2008). Using Google Maps as an interface for the library catalogue. *Library Hi Tech*, 26 (1), 33-40. Retrieved from <https://doi.org/10.1108/07378830810857780> (Accessed on January 15, 2019)