Design and Development of Open Source Platform

by Shijith Kumar

PROJECT PROPOSAL

PART-A

Title of the Project: Design and Development of Open Source Platform for AIISH Digital Repository and Online Public Access Catalogue

Area of Research: Others

1.1 Principal Investigator: Dr.Shijith Kumar C

1.2 Principal Co-investigators: Mr. Nanjunda Swamy, N., Mr. Nidheesh David Kuruvila,   Mr. Lokesh, P

1.3 Collaborating Institution: Nil

1.4 Total Grants required: Rs. 3 lakhs

1.5 Duration of the Project: 12 months

2.0 Project Summary

The All India Institute of Speech and Hearing is one of the early implementers of the Institutional Repository (IR) and Integrated Library Management System (ILMS) among the higher educational Institutions in the country. However, both the solutions were developed on proprietary software platforms with limited functionalities and are being continued even today without any modification or addition of features. On the other hand, the IR and ILMS fields at present are dominated by plenty of freely available open source applications with advanced features and functionalities. This project proposes to design and develop an open source based platform for the Institute IR and Online Public Access Catalogue and migration of the existing collection of resources to the new platform. The new platform will have provision for incorporating a wide range of Institutional resources such as official photographs, videos, teaching learning materials and question papers in addition to the existing postgraduate, doctoral and funded research projects. It is expected to provide a better and advanced research repository service for the user community and facilitate more visibility for the research output of the Institute at global level.

3.0 Introduction

Institutional Repository (IR) also known as digital repository or digital library is a solution for the gathering, preserving and disseminating intellectual output of an educational and research organization whereas an Online Public Access Catalogue (OPAC) is a tool for preserving and retrieving the bibliographic elements of its collection of information resources. The availability of user-friendly software applications and increase in the I.T. literate information user community, have made IRs and OPACs a common place in educational institutions across the world.

3.1 Definition of the Problem

All India Institute of Speech and Hearing (AIISH), the premier institution in the country in the field of communication disorders launched its IR in the year 2009 and introduced the full version of OPAC by installing an Integrated Library management System (ILMS) in 2011. Both the applications were developed by third party using proprietary software tools. Presently, the repository contains nearly 1500 records consisting of postgraduate and doctoral dissertations, and the funded research project reports. The OPAC contains the bibliographic records of 20,000 plus print collection of the Institute library. Both the IR and OPAC are being maintained on payment basis by the third parties who developed them.

Since the installation of the applications, no updation has been done for both the software. Our working experience with the applications and the feedback we have been receiving from our user community strongly suggests a thorough modification in the functionalities and upgradation of both the digital repository and OPAC. However, the upgradation and modification processes require additional expenses from the part of the Institute as per the purchase agreement with the vendors at the time of procurement of the applications. This is not financially feasible considering the fact that the upgradation may be needed frequently. On the other hand, there are plenty of free open source applications for building digital repository and OPAC with advanced features and functionalities which are being freely upgraded frequently. Hence, this project proposes to design and develop an open source platform for the digital repository and OPAC and migration of the existing digital repository collection and the OPAC bibliographic records to the new system.

3.2 Objectives of the Project

The objectives of the project are the following.

1. To systematically evaluate and summarize the drawbacks of the existing the Institutional Repository and Online Public Access Catalogue of the Institute
2. To identify suitable open source software alternatives for Institutional Repository and Online Public Access Catalogue
3. To design and develop an open source platform and migrate the existing collection of digital research reports and bibliographic records to the new platform
4. To improve the content based searching and retrieval system
5. To facilitate discoverability of the IR contents on search engines
6. To expand and enrich the content base of the repository by additionally incorporating the following resources.
   a. Official photographs and videos of the Institute
   b. Teaching learning materials including presentations and guest lectures
   c. Question papers
   d. Syllabus
   e. Any other materials produced at the Institute related to education and research
7. To facilitate content based searching of digital repository.
8. To rectify the errors in the digital repository contents and replace the missing pages and documents
9. To generate a new comprehensive set of metadata for the IR and OPAC according to the prevailing international standards of information retrieval system
10. To develop a comprehensive open access policy for the Institute
11. To provide personalized digital repository and OPAC services to the user community
12. To facilitate interoperability with the related institutional and national repositories across the world.

3.3 Current international and national status of Institutional Repositories and Online Public Access Catalogues

There has been a proliferation in the number of IRs and OPACs both internationally and nationally in the last few years with the emergence of Open Source Software solutions for the development of repositories and online catalogues. According to the Ranking Web of Repositories, totally there are 2297 no. of IRs all over the world and India there are 43 repositories. These repositories differ greatly in content, size, scope and objectives and majority of the IRs operating in India are open source based. (Gohain 2011). The two notable national repositories in India are Sodhganaga, a repository of Indian doctoral theses and Sodhagangotri, a repository of Indian doctoral research in progress both

developed by the INFLIBNET, a constituent of UGC, Govt. of India. National Digital Library is a new repository from India developed at the IIT, Kharagpur as a part of the National Mission on Education through Information and Communication Technology of the Ministry of Human Resource Development, Govt. of India.

3.4 Importance of the Present Project

A review of the current international and national status of the subject revealed the importance of developing Institutional Repositories. Also, majority of the repositires that have been developed in India are on open source platform. Many studies have listed out the features of the open source based repositiers that AIISH digital repository lack. Interpoerabilty among the repositires is a must for taking benefits of the IRs of other organizations which can only be achieved by developing the repository on open source platform. Hence, the present project.

4.0 Work Plan

4.1 Materials and Methods

The following step by step methodology will adopted for the study.

1. Analyzing the performance of the existing IR and OPAC based on a set of criteria and list the drawbacks.
2. Identification of suitable open source alternatives by surveying the literature, evaluation and testing
3. Rectification of content errors of the existing digital collection manually as well with the software applications such as Abby Fine Reader
4. Conversion of the digital collection from the image format to searchable pdf
5. Choosing the appropriate metadata with the help of Doublin Core Metadata Standard
6. Design and development of new platforms using the selected software applications
7. Migration of the digital collection and bibliographic records to the new platform
8. Trial running
9. Finalization of the system

4.2 Hardware and Software system requirement

1. Computer with Intel Core-i 3 or later processor, 4 GB RAM and 2 TB storage capacity
2. Open source software for building Institutional Repository and Integrated Library Management System
3. Apache
4. MySQL
5. Ubuntu-Linux Operating System

6. PHP

4.2 Time Schedule

Sl. No.	Activity	Required Time	
		In Weeks	In Months
1	Overall duration of the Project	52	12
1	Evaluation of the existing system	4	1
2	Selection, evaluation and testing of open source software applications	8	2
3.	Software customization, interface design, programming/coding	8	2
4.	Checking of the existing digital collection for errors and missing of pages	13	3
5.	Creation of metadata elements	26	6
6.	System trial running and finalization	8	2

5.0 Budget Summary

SNo.	Item	Expenditure (Rs.)
1	Salary for Research Officer No. of posts: One Qualifications: M.L.I.Sc. Salary (*as per rule*): (Rs.25000 x 12 months) Justification: A fulltime research officer with Master's degree in Library Science is required for the project to create and upload metadata for the 20,000 plus records	3.00 lakhs
2.	Consumables	Nil
3	Travel	Nil
4.	Other Costs	Nil
	Total	3.0 lakhs

6.0 Implications of the Study

The present project is expected to have the following implications:

1. Save the annual maintenance charge for the IR

2. Help other Institutions in planning and implementing new repositories and OPAC

3. Serve as a model for the Institutions who are planning for migrating from proprietary software based repository platform to open source based.

4. Facilitate more visibility for the research output of the AIISH globally with the hosting of the repository on platform built according to International standard

5. Help the AIISH Library and information centre to provide better e-servce to its user community

6. Facilitate future upgradation of the AIISH repository to a National Repository on Communication Disorders

7. Facilitate future development of an online union catalogue on communication disorders

8. Help in promoting the development and sharing of digital teaching and learning materials in the area of communication disorders

7.0 Utilization of the Study

The existing institutional repository and OPAC of the Institute in use will be replaced by the new system after getting the necessary approval

8.0 Roles and Responsibilities

SNo.	Investigator	Roles and Responsibilities	Signature
1	Dr. Shijith Kumar C	Overall supervision and coordination, Report writing, Presentation, evaluation of the performance of the existing system, designing of new system, development of workflow, interacting with open source community.	
2.	Mr. Nanjunda Swamy, N	Identification of suitable open source software and testing, System development, Error detection, trial running.	
3	Mr. Nidheesh David Kuruvila	Checking all the reports (1500 nos.) and replacing the missing pages by scanning from the print reports. Correcting errors in the content with the help of JRFs. Uploading of reports to the new platform (shared role)	
4	Mr. Lokesh P	Conversion of the reports from image formats to searchable pdf . Metadata creation for all the reports in the repository. Uploading of reports to the new platform (shared role).	
5	Research Officer	Creation of metadata for bibliographic records of the print collection (20,000 records)	

References

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