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Library Automation System

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ABSTRACT

Automation is the process of using the machinery for easily working and saving human power and time. The impact of automation has changed the library systems into an automated one in its operations and functions. The users need not search shelf by shelf to find out a book. Rather they can check for their books simply sitting in front of the desktop or mobile phones. This paper focuses on the automation of the library, its requirements, and modules in this web application. Library Automation which started in late 70's in few special libraries have now reached in most of the university libraries. There are several reasons for Library Automation. Through Library Automation a considerable saving in effort, time and resources which are needed in the manual process is achieved.

Keywords: *Automation, Circulation, Web application, MARC.*

1. INTRODUCTION

Automation is the technology concerned with the design and development of process and system that minimize the necessity of human intervention in operation. According to Oxford English Dictionary automation is defined as "application of automatic control to any branch of industry or science by extension, the use of electronic mechanical devices to replace human labor". The library automation plays a vital role in today's automated system and it is very important in all educational institutions which are a hotspot for all teaching and learning activities where teachers, students, and research persons can bring the best out of themselves. Computers are used in our day-to-day life in all activities and help the end users with the ease of using it. The main purpose of the library and library staff is to spread knowledge and information rather than storing, collecting, sorting, retrieving, cataloging and circulating. Here we are going to focus a web application that is developed to automate the department library. This work is done as a mini project for VI semesters. This web application consists of only one portal which is automatically split separately for users and admin based on the credentials they provide. It has facilities like blocking a particular book, view or downloading the soft copy, checking the current status of the book, sending a notification to the user based on the timestamp, requesting for the extension of the book, etc

2. RELATED WORKS

The beginning of the library automation system is in 1930-1960. In 1930's IBM developed an automation system using punch cards for the book circulation."A punch card, punch card, IBM card, or Hollerith card is a piece of stiff paper that contains digital information represented by the presence or absence of holes in predefined positions". In 1950's evolved the information and document centers in America. In 1960's systems like IC, KWIC, MARC-I, MARC-II were developed. The MARC stands for Machine Readable Cataloging standards are set of digital formats for the description of item cataloged by libraries, such as books [1]. After 1970's many library networks have established in India. In 1990 CDS/ISIS software package is introduced first in India. And NISSAT organized many library training programs after introducing CDS/ISIS in library activities. Other industries like BHEL, SAIL, ICRISAT, INSDOC, NIC, DESIDOC and INFLIBNET also developed different library packages. The paper includes how library automation activities developed in India, Library packages available in India, its different features of this software [2].The current status of computer application in six areas that are circulation control, cataloguing, cataloguing maintenance and production, reference service, acquisition and serial control [3]. Libraries have debated that is there any place of computers in the library, they realize today that for immediate practical advantage computer and ICT is necessary [4]. Surveys are conducted to find how many libraries are under automation and how the library staffs are trained to use the automated library system. 83.7% libraries responded in the survey [5].

3. NEED OF AUTOMATION

- To obtain increased operational efficiencies.
- To improve the quality, speed, and effectiveness of services.
- To improve access the resources on other networks and systems, including the web.
- To improve the management of their physical and financial resources.
- To facilitate wider dissemination of their information products and services.
- Enable their participation in resource-sharing library networks Objectives of Library.

4. PROJECT OBJECTIVE

The main purpose of this library automation system is to receive input and generate the output in an easy way. It helps library staff to reduce mistakes that always happen during the manual method and helps students to check for the availability of the particular book, their soft copies, can also view the status history of the book, block the book for predefined time, send extension request to the system, receive notification from the system etc. This system must be loaded with the book title, author name, publisher details and the soft copies of the books in the library at the initial stage itself. The request of the user for the book extension is approved or denied by checking some criteria like book availability and needs for the book.

5. PROPOSED SYSTEM

This system is primarily developed for automating the department library. This system has a domain-based search. It consists of two different categories of users one is the user i.e, students, staff or research persons and the other is the admin i.e, the librarian or any staff who has the authority to sign in as a librarian. Both will be provided with a predefined user name and password for login validation. Based on the username and password entered the system identifies whether it is a user or an admin and then displays the portal respectively. The main technology used in this library automation system is the ruby on rails. Ruby on Rails or Rails is a server-side web application framework written in Ruby under the MIT License Rails is a model-View-Controller (MVC) framework providing default structure for a database, a web service, and web pages. It encourages and facilitates the use of web standards such as JSON or XML for data transfer, and HTML, CSS, and JavaScript for display and user interfacing. There is two different view in the application one is the user view and the other i the admin view. In the user view only the domain names, books details, and the status can be viewed. But in the admin interface, he can even add, edit and delete the contents of the software. There are various different modules in the system and they are explained below.

A. Domain Module

The domain module is also considered as the dashboard of the application in which various domain under a particular department is displayed since it is a department library automation project. If the User selects any one of the domains there comes the book names under the particular domain and the count of the book that is currently available in the library, selecting any one of the books will give us the complete detail of that book.

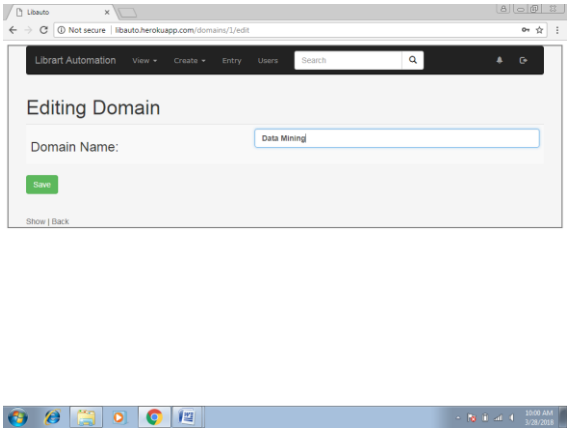

Fig 1.Domain Module

B. Book Blocking Module

In the book details page, there is a button for blocking that book for a time period of 24 hours. Once when the button for blocking is clicked then a pop-up for confirmation appears if you clicked on ok then the book will be blocked for you and you can take the book within 24 hours else the book will be unlocked automatically.

C. Soft Copy

In the book details page lies the soft copy (PDF) of the book. The user is allowed to view or download the book based on their requirement. This will primarily help the students when the book is not available at the time in the library and for the users who prefer soft copies than hard copy. This application is useful for both the types of users who visit the library.

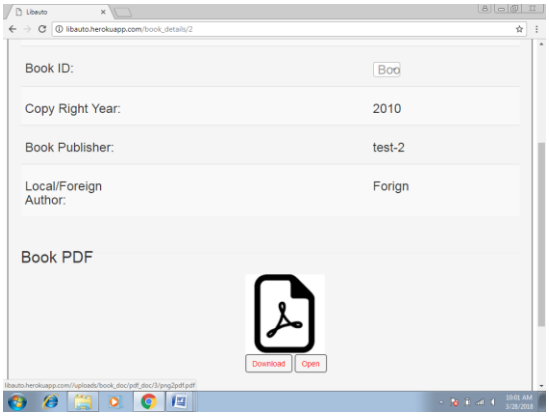

Fig 2.Soft Copy Module

D. Status Module

The status module that appears in both user and the admin portal helps to see the history of circulation of the book, the user who took the book, the date of the book issue and the date that is expected to return the book. It also provides a feature for the user to request for the extension of the due date. The application checks for various possibilities with some criteria and then decides whether to accept the user's request or to deny it. These works are done automatically without the need of the admin. This saves a lot of man power and assists them in a well-defined way.

E. Domain Based Search

This web application saves our type by allowing the domain based search since it is a department library automation system it would be more appropriate when a domain-based search is enabled. All the domains available in a department created by the admin and then books are added to the domain based on the domain to which that particular book belongs to.

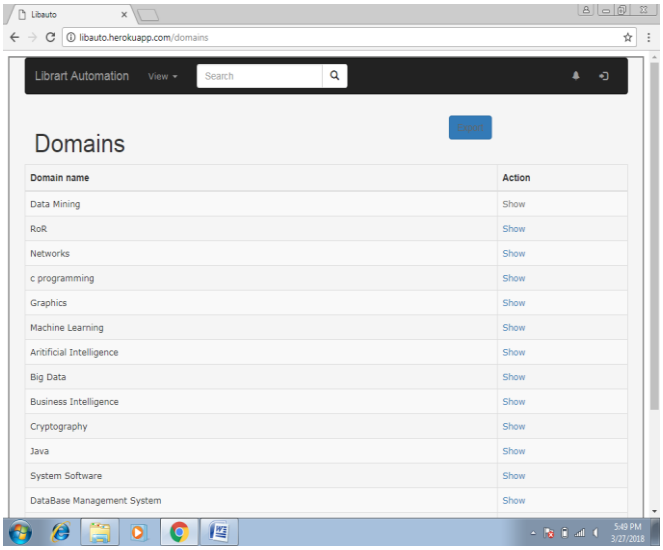

Fig 3.Domain Based Search Module

F. Report Generation

There is a button on the view side of the portal for the report generation process by clicking on the report button one can download the current page and then use it either as a soft copy or as a hard copy by printing it.

6. ADVANTAGES OF THE PROPOSED SYSTEM

- Online search service
- Inter-Library Loan
- Circulation
- Intranet access
- Internet Access
- Online Public Access Catalogue

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