

Basic Setup Required for Automation of University Library

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ABSTRACT

Automation of university library is a complex process. There is a minimum need of hardware components, networking system, innovative technologies and Integrated Library Management software are arrange in such a manner to reduce the work load and save the time for both users and staffs of library called basic setup. This basic setup in a library gives operational efficiencies, improve the quality, speed accuracy, effectiveness of services and facilitate wider access to information and knowledge for academic community. This paper focuses on the utilization of different components of automation system and its impact on the work culture of university library.

KEYWORDS: Specification of Computer system, LAN, ILMS, RFID System, and Technologies.

INTRODUCTION

The manual system of library work is gradually replaced by implementing machines and technologies are called automation of library. Minimum needs of basic components which are responsible for complete the process of automation in a library. As per requirement in the library of Computer system with particular specification for separate work of library, well setup of local area networking with good quality of equipments, standard integrated library management software which full fill different standardization developed by international standard organization and smoothly performs technical work of the library in radio frequency identification environment.

SPECIFICATION OF COMPUTER SYSTEM

The numbers of computer systems and its specification depends upon the number of users and collection in the library. But there are minimum needs of computer system for implementing the automation of the library in RFID environment. Two computer systems are required for server system. One is for Integrated Library Management Software (ILMS) and another one is for Radio Frequency Identification System (RFIDS). The ILMS server is responsible for perform function of controlling, storing and disseminating data as per requirement in automation system. RFID server performs function related to middleware and international standardization required for RFID based automation of library.

Basic Setup Required for Automation of University Library

At least two computer systems required for staff station reader that perform smooth circulation of documents among users, registered documents of library in RFID environment. One computer system required for purpose of the Online Public Access Catalogue (OPAC). It helps in search of the library documents, also provide information regarding library documents is available for issuing or not. At least one computer system for work related to office of the library.

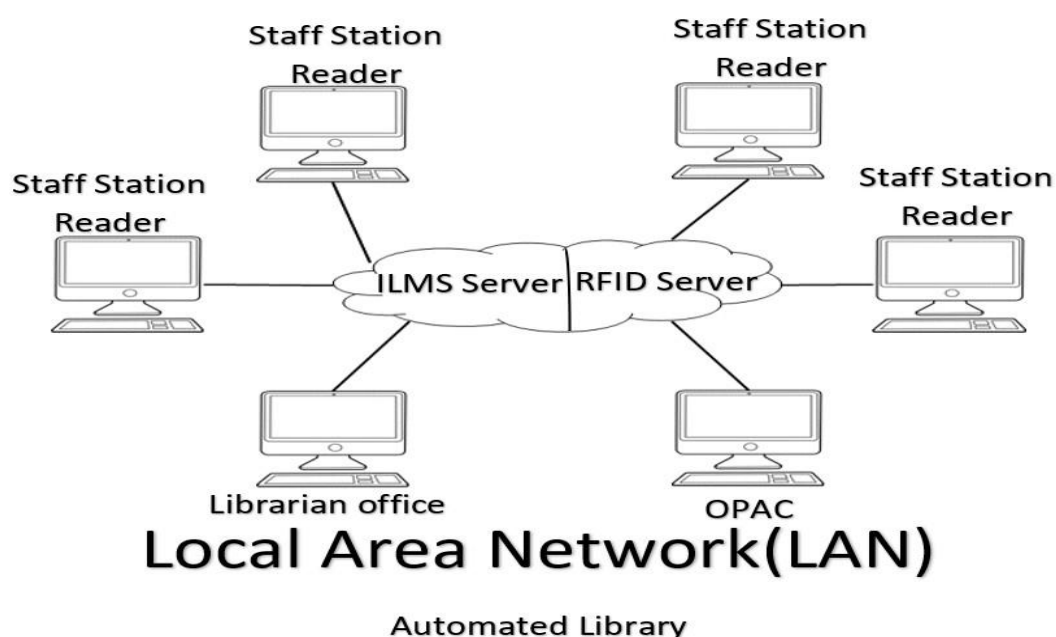
Table 1: Specification of Computer System

Name/ Number	Automation Components	Processor	RAM	Hard Disk	Operating System
1	ILMS (Koha) Server	i7/i9	16-32 GB	SSD 1TB	Ubuntu
2	RFID Server	i7/i9	16-32 GB	SSD 1TB	Ubuntu
3	Staff Station Reader	i7/i9	16-32 GB	SSD 1TB	Microsoft Windows 8/10
4	OPAC	i7/i9	8-16 GB	HDD 500 GB	Microsoft Windows 8/10
5	Library office	i7/i9	8-16 GB	HDD 500 GB	Microsoft Windows 8/10

LAN

A local area network (LAN) is a collection of devices connected together in one physical location, such as a ILMS Server, RFID Server, Staff Station Readers, OPAC Computer System, Computer System of the office of librarian. These all components of automation of library are attached through local area networking smoothly perform all kinds of library work and also save the time of esteemed users.

Fig 1: LAN in Automated Library



ILMS

Now a day's verity of Integrated Library Management Software's utilized in automated libraries at national and international level organization. The name of ILMS is different but work is almost same and its price is also varies with its name. There are some important ILMS are as Libsys, SOUL, Alice, Koha, New Genlib, VTLS, Libsuite, e-Granthalya, Future of Library is Open (FOLIO), Senayan Library Management System (SLiMS), Integrated Library System (InvenioILS), Open Source Automated Library System (OPALS) etc.. Out of them some important ILMS features are mention in table -2.

Table 2: Features of ILMS

Name /No.	ILMS Name	Acquisition	Cataloguing	Circulation	OPAC	Serials	Bibliography Format	Export/Import Data	ISO	Price
1	Koha	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free
2	SOUL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	50,000/-
3	Libsys	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	500000/-
4	VTLS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	800000/-
5	Libsuite	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	450000/-
6	New Genlib	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free
7	Alice	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	400000/-

Out of the above features of ILMS need to be support minimum standards which are mention below:

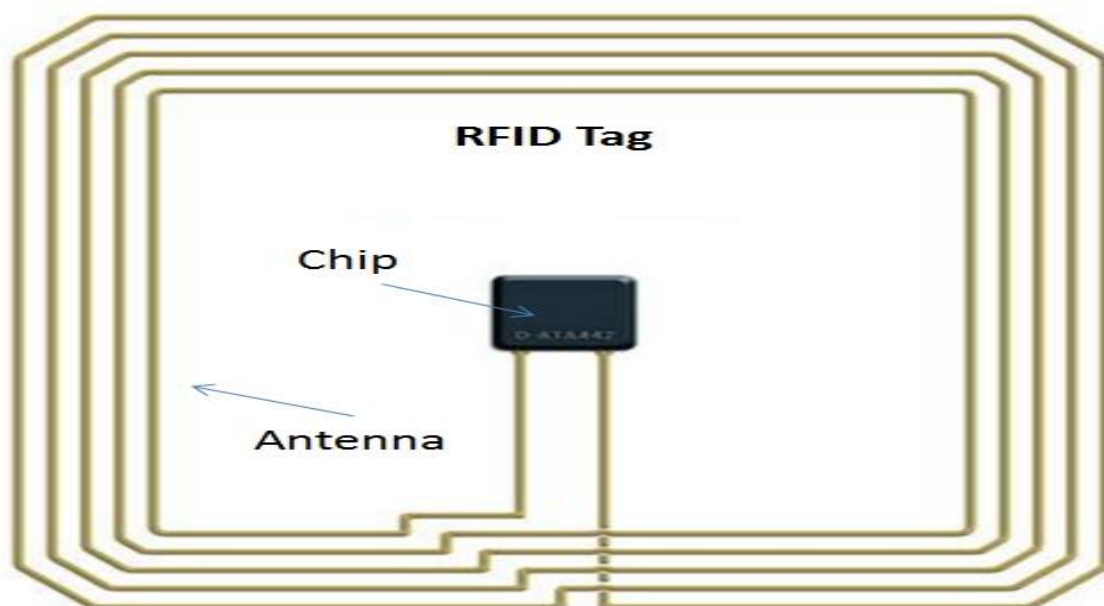
1. ISO-2709: For bibliographic data Import/Export (MARC 21, UNIMARC, CCF/B)
2. Z39.50: Protocol Standard for distributed cataloguing.
3. Z39.71: Standard for holdings statement.
4. BS ISO9735-9:2002: Standard for electronic data interchanges.
5. Z39.83-1: Standard for circulation interchanges part-1.
6. Z39.83-2: Standard for circulation interchanges part-2.
7. ISO/CD 28560-1: Standard for data model and use of radio frequency identifier in library (General requirements & data elements);
8. ISO/CD 28560-2: Standard for data model and use of radio frequency identifier in library (Encoding based on ISO/IEC 15962);
9. ISO/CD 28560-3: Standard for data model and use of radio frequency identifier in library (Fixed Length Encoding).
10. ISO/IEC 10646:2003: Universal Multiple octet character set.
11. UTF8/UTF 16: Standard for Unicode Transformation Format 8bits/16bits.
12. SIP 2: Standard for interface between a library's automated circulation system and library automation devices.

RFID SYSTEM AND TECHNOLOGIES

Radio Frequency Identification System is one of the most important web based technology which is implementing in libraries to replace the manual works into automated mode of works. This automated library perform efficient functions of library and save the time both users and staffs as well as control theft of library documents. In other words it can also called as Radio Frequency Identification (RFID) technologies is a combination of integrated circuit of microchip and radio frequency waves which find and identify the required documents in the library without taking more time.

A tag which controls all activities of library documents based on RFID web technology. RFID tag is a carbonic structure having two parts one is antenna and other is Integrated Micro Circuit (IMC) or chip. The antenna is acting as a communication Medias which transmit and receive signals of radio frequency waves. The Integrated Micro Circuit (IMC) or chip is also acting as a reservoir of information and data about an item of the library. Each chip having four memory bank i.e. EPC, TID, User and Reserved. The RFID tag receives energy from the radio frequency waves generated by the reader. The working pattern of a RFID tag is based on Automatic Identification & Data Capture (AIDC) system in electro-magnetic fields.

Fig 2: Showing Structure of a RFID Tag



On the basis of the reading range of signals of radio frequency waves, RFID tags are of following types

Table 3: Types of RFID Tag

Sl. No.	RFID Frequency	Frequency Band	Distance in Meter
1	Law Frequency (LF)	30 KHz-300KHz	0.5
2	High Frequency (HF)	3 MHz to 30 MHz	1
3	Very High Frequency (VHF)	433 MHz	1-3
4	Ultra High Frequency (UHF)	300 MHz to 3 GHz	3-5
5	Micro Wave Frequency (MWF)	: 2.45 GHz	10

CONCLUSION

On the basis of the above mention views, activities of machines and web technology integration and its output giving a fruit full message for library professionals as well as library users to adopt at least basic set up for library automation system. Automated library system control the issue related to thefts of library documents, save the time, helps in online catalogue search and made easy and smooth circulation system etc.

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