



E) Expansion of communication network:

60 number of new telephone connections were provided at various locations in RRCAT campus including SCRF, LCW extension and New Cryogenics Building. Approximately 28 telephone connections were shifted to other location as per user requirement. New 4029 model digital phone equipments were provided to officers with SOH designation.

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I.4: Developments in Library & Information Resources at RRCAT

A) Implementation of RFID Based Self Issue and Return System (LSmart-RFID) and Web-Centric Library Management Software (LibSys-7) in RRCAT Library

Library has installed Radio Frequency Identification (RFID) technology based system for issue, return of books (LSmart-RFID) and book stock inventory. The library management software (LibSys-4) is also upgraded to web-centric library automation software (LibSys-7) for improved management of the library functions. This article briefly describes various components of this new setup, implementation approach, new facilities to users and the unique features of the new technology deployed in RRCAT Library.

RFID tags and stickers with RRCAT logo are pasted (affixed) in each book. RRCAT library currently has about 15000 books. Details of the book are encoded on the RFID tags and this encoded information also includes a 'Theft Bit'. An automatic self check-in/check-out system (RFID Kiosk) has been installed near the circulation counter to facilitate self issue and return of books by the users themselves. One Staff Station is also installed to issue and return books by the library staff members.

RFID Security Gate has been installed near the entrance gate of the library which makes buzzing sound if any book passes through the gate without proper issue (theft bit on). Thermal printers are inbuilt in the self check-in & check-out kiosk and staff station, to print check-in and check-out slips. RFID card readers connected to the kiosk and staff stations are interfaced with the Employee ID Cards, so that users can use their already issued employee cards to check-out and check-in library books.

Automatic generation of e-mail has been interfaced, so that system generated e-mails are sent to users email account on issue and return of books. A hand held Wi-Fi based shelf

management system has been installed for stock checking and re-shelving. This facility can also be used to locate specific book on the shelf.

Components of the RFID system:

The system consists of various components: it mainly includes RFID tags (affixed in books), RFID Kiosk, Staff Station, RFID Security Gate, Server/Docking Station, Application Software, and Wi-Fi inventory reader. The system enables automatic identification and uses wireless technology. It uses radio waves to identify the items. A tag has a microchip and an antenna, in the microchip information about a book is stored. The RFID reader has an antenna, transmitter, receiver and decoder that communicate with tag and receives the data, whenever the tag comes in the field of the reader. The application software integrates the reader hardware with the existing library automation software. The software to interface with library management software is installed on the Server/Docking Station and it also acts as a communication gateway.

Self Check-in / Check-out Kiosk

RFID system facilitates the self check-in and check-out service of the library books. Every book (including books in Hindi Library) of library is affixed with RFID tag. Users who want to borrow a book can themselves get the book issued using the facility at the RFID Kiosk (Figure I.4.1) installed near the Circulation Counter. It is an interactive station/kiosk with touch screen. User has to put his/her Identity Card on card reader and book(s) to be issued on RFID reader provided in the kiosk. It reads information pertaining to library member and books and check out is done in a few seconds by choosing appropriate option given on touch screen. Similarly user who wishes to return the books has to simply drop the book through RFID reader in the kiosk and the system automatically records return of book. There is option to have a transactions receipt in printed form and system also sends confirmations by email.

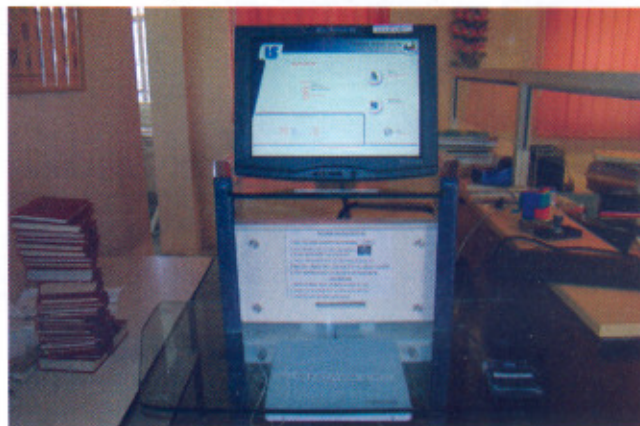


Figure I.4.1: RFID Kiosk for Self Check-in / Check-out



RFID Security Gates

RFID gates (Figure I.4.2) are installed at the entrance of the library. If users try to carry a book through the gate without proper issue, the system will make alert sound (buzz) and also draws attention by blinking red light, thus preventing theft. These RFID Security Gates constantly detect non-deactivated books passing through it. If user brings their own book for reading in library, they can cross the gate without any hassles.



Figure I.4.2: RFID Security Gate

Other Components of RFID System

Library has also deployed a RFID based Inventory Reader facility (Figure I.4.3) to identify/locate misplaced books. This system is also used to verify proper arrangement of books on shelf. The facility can be used very effectively for annual stock taking. This new system was used successfully for Annual Stock Taking 2011.



Figure I.4.3: RFID Inventory Reader

One Staff Station has also been installed to tag new acquisitions and to replace any damaged tags in books.

Library staff can also use the Staff Station for issue and return of books to the users.

Web-Centric LibSys 7

LibSys 7 is advanced version of library automation software of LibSys 4 which was earlier used by Library. It is a web based library management software and integrates seamlessly with RFID system functions. The software has features of Google Web Toolkit (GWT) based Graphical User Interface (GUI) with multitasking and customizable look, Multi-lingual Support, Federated Search with advanced search options, user notification through email and SMS, RSS feeds and integration with Google books and BookFinder, etc. and interactive features like online reviews, ratings, renewals, reservations etc.

Advantages of RFID system and LibSys 7

Integration of RFID system with Web-Centric LibSys-7 has ensured considerable security and facilitates value added services to the user community of RRCAT. It has the capability of making the library management processes more automated and convenient. In the long run RFID applications will lead to significant savings in staff costs and enhance the services of library. It will also provide effective results leading to foolproof security and access control. It will not only be an updated technology for RRCAT Library, but will also ensure proper stock and circulation management accomplishing better library services.

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I.5: Construction & Services

Civil work related to construction of eight numbers of type V-E houses, along with road work, water line and sewer line works, resurfacing of road from main gate to guard house and patrolling road along extended technical area fencing was completed.

Various works including development works in new colony, construction of open air theater, development of a play field in new colony etc. are progressing in full swing.

The patrolling road around newly constructed R C C boundary wall in Sindhora area and construction of R C C boundary wall in Shiram Talawali/Navda Panth areas which are far away from present campus are progressing in full swing.

Construction of buildings for H-ion laboratory and Accelerator test facility laboratory in extended technical area are progressing in full swing.

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