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2020

## Practice of Security Systems in University Libraries of Assam: A Study

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Nath, Rima Research Scholar and Deka, Dipen Assistant Professor, "Practice of Security Systems in University Libraries of Assam: A Study" (2020). *Library Philosophy and Practice (e-journal)*. 4807. <https://digitalcommons.unl.edu/libphilprac/4807>

## Practice of Security Systems in University Libraries of Assam: A Study

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### Abstract:

**Objective:** The study aimed to find out the implementation and adoption of different security systems in the selected University libraries of Assam. It highlighted the various physical, environmental security systems as well as digital data security systems that were adopted for library security purpose. The study also examined how far these libraries had implemented various electronic security systems like CCTV, RFID, air-conditioner for humidity control, smart card, biometrics, flood detector, fire or smoke sensor etc.

**Methods:** For the study, total six University libraries had been purposively selected by considering the possible availability of various security measures. A structured questionnaire was prepared for collecting relevant information. To collect more information, personal interview including telephonic conversation and direct observation had also been done.

**Results:** Finding showed that the academic libraries efficiently adopted and implemented both traditional or manual and technological or digital data security systems even though they had suffered from some technological or financial constraints. Adoption of an effective security plan was the primary key to secure the library resources from theft. Majority of the libraries had its institutional security plan so that these libraries could follow them accordingly.

**Conclusion:** As time changed, the procedures for securing library resources very much difficult and with technological advancement, the libraries should opt for electronic or digital data security systems. Though the initial investment in such electronic security systems would be high, but in long run, it would provide better results as well as cost-effective for the libraries.

**Keywords:** Academic Libraries, Digital Data Security, Library Collections, Security Systems, Security Plan.

## **1. Introduction:**

Academic Libraries collection contain a diverse range of resources like scholarly journals, books, pamphlets, CD/DVD, microfilms, patents, reports, theses and many more. The Library Security System provides a safe and secure environment not only for library employees but also for library resources and library patrons too. With this aim and with the help of Information and Communication Technology (ICT), the libraries have started implementing and adopting the latest security systems to increase efficiency, productivity, accuracy in library services and maintenance. This simple step of transformation will also enhance user satisfaction. The academic libraries have been plagued with different security issues for a long time. There are difficulties faced by libraries while replacing the materials which are stolen or mutilated as such materials may be out of print or the financial problems to purchase a replacement copy. To illuminate such difficulties, the better way is to embrace the latest technologies regarding security systems. A better implementation and adoption planning of effective security systems in the library increases the protection level of library resources from theft, mutilation, or other forms of library crimes.

Library reading material can be damaged by various factors such as environment, atmospheric hazards, natural calamities, user and staff behaviour, etc. Therefore, valuable resources of the libraries need extra care in terms of security. With the help of ICT, various library security technologies and systems are available in the market which can be used in the libraries. At present, the adoption of a preventive security system is the best policy for avoiding any crime in the libraries. The primary purpose of this study is to determine the approach, opinions, awareness, and advantages of security systems in libraries.

### **1.1 Need for Security Systems in Academic Libraries:**

The security system refers to a system that is designed to detect intrusion – unauthorized entry into a building or other area. Security systems are used in residential, educational, commercial, industrial and military properties for protection against burglary (theft) or property damage, as well as personal protection against intruders.

An electronic alarm system installed at the entrance and exit of a library facilitates to detect the unauthorized removal of library materials (theft). Most security systems use a swing-arm or pair of uprights called a security gate activated by a magnetic strip affixed to each

item, which must be desensitized by circulation staff at the time the item is checked out to avoid triggering the alarm. Some security systems include a counting device for gathering statistics on traffic patterns. (Reitz, 2005)

The preliminary security measures in libraries are stock control, marks of ownership, accessibility and use. Protecting the collection should include ensuring good security to prevent theft. Libraries are archives that must provide remote storage for overflow materials or special cold storage facilities for vulnerable materials such as microfilm, motion picture film, and colour negatives. Whether a library uses open access or closed access, the staff needs to observe readers from time to time to discourage deliberate mutilation or vandalism of library materials. Library collections and other reading materials can be secured by- Physical and Environmental Security Systems; and Digital Data Security Systems.

## **1.2. Types of Security Systems in Academic Libraries:**

### **1.2.1. Traditional or Manual and Electronic or Modern Security Systems:**

The library has various kinds of security systems from its origin. It has various in traditional-manual and modern-electronic systems. Traditional security systems are based on humans, whereas, Modern security systems are made by technological support. This system can help prevent unauthorized removal of collections and feasible monitoring and detection of the user in general reading and reference rooms, as well as shelves areas.

**Table- 1: Traditional and Electronic Security Systems**

<b>Traditional – Manual Security Systems</b>	<b>Electronic- Modern Security Systems</b>
1. Locks & Key system	1. CCTV cameras
2. Installing Grills and Net on Windows	2. Electronic recording
3. Single Door Entry-Exit for Staff & User	3. RFID system
4. Security Guards Employed to Patrol	4. 3M exit detection
5. Observation by Library Staff	5. Alarm systems installed

6. Fire Extinguisher & Security Equipment	6. Moisture sensor
7. ID Cards and Access Authorization	7. Glass break sensor
8. Signature of Every user	8. Fire /smoke sensor
9. Security Clearance procedure	9. Biometrics
	10. Smart Card
	11. Air conditioner for Humidity control
	12. Flood Detector

### 1.2.2. Digital Data Security Systems:

Along with the physical security systems, the security of digital data is also practising with the changing environment in the academic libraries.

**Table- 2: Digital Data Security Systems**

Data/Information Security Measures	Computer Security Measures	Network Security Measures	Software Security Measures	Hardware & Server Security
1. USB drives, Tapes, CDs, DVDs, Disks, Hard drives	1. System Back up	1. Antivirus Software	1. Anti-spyware Security	1. Antivirus software
2. User Identification	2. Computer Viruses	2. Firewall	2. Cleanup Software	2. Authentication systems
3. Passwords	3. Password	3. Local Area Network	3. ID Management software	3. Library server's operating systems
4. User Terminal	4. Data Encryption	4. Server Segregation	4. Multi-user Operating systems	4. The server environmental control
5. Use of Address verification systems	5. Offsite storage	5. Wireless Security	5. User entrance log	5. Regular backups for the data
	6. Computer Locks		6. Web Filtering	

## 2. Objectives of the Study:

The main objectives of the study are as follows-

- i) To identify the different Security Systems for Academic libraries.
- ii) To explore the Security Systems adopted by the surveyed libraries.
- iii) To find out the availability of Library Security Plan.
- iv) To identify the major difficulties in connection with the implementation of Security Systems in the surveyed libraries.

## 3. Review of Literature:

The reasons for losing library material is happened due to theft, mutilation and misplacement. It is a challenging task for the Librarians. Insufficient number of copies, Needed books and journals are not availavle in time, high price of text books, restricted access etc are the primary of couse of theft. In the middle ages, books were protected by curses as there were no electronic security systems. But today electronic security systems like CCTV, RFID can help the libraries to control, minimize, and avoid library material theft and unethical access. **(Jagadish and Sarasvathy, 2016)**. The electronic security equipment component typically provides alarm notification to the appropriate authority, entry control, and site surveillance. The major elements of any electronic security systems include burglar protection, collection security, access control, and video surveillance. To control the problem, the implementations of electronic security measures are very much needed and important. **(Ramamurthy, 2001)**. The trends of using electronic security systems like RFID, electromagnetic security, smart card etc., are to happen only with the application of ICT. The libraries also get the most benefit by adopting such measures in controlling unauthorized access. Different components of RFID technology helps streamline major library processes such as stock taking, circulation, access and book search thereby eliminating manual labour **(Pattnaik and Pattnaik, 2007)**. The use of computer and electronic gadgets are leading the activities like email, cashless transaction, digital libraries, e-lerning etc. With the increase in the sharing of web resorces vulnerable activities also prone to active. The introduction of computer security has been done to promote the confidentiality , intergrity and authentication in to application to prevent the vulnerable activities. **(Al Bastaki., et al , 2012)**. There are two types of security attack – physical and logical. Physical attack comprises hardware security viz, keys, locks, cards and visitors monitoring whereas Logical attack involves the content of digital library system. Weak digital security leads to unauthorised acces of confidential data and loss of integrety of stored data.

(Fox and Noha, 2012). A planned library security planning always has a more advantageous effect reflecting the proper building design and the architectural side designs. At the end of the nineteenth century, the situation regarding library crime was more often cases in the UK. But, the adoption of inventories and definite security policies improved the loss by controlling the accuracy of statistics collected, making for better evidence on theft; tough legal deterrents by authorities. (Ewing, 1994)

Library information security is not simply computer security which relates to securing computer systems against unwanted access and use, but it includes information management, information privacy, and integrity. Information security in the library includes personal security and policies, steps taken for effective backups and the physical integrity of computing facilities. For an effective security mission, the objective of the repository must be understood. Missing or damaged collections cannot be made available for use, but too often staff and management do not recognize the occurrence or the effects of theft and vandalism. It is important to understand that while some damage or loss can be alleviated (for example, a stolen journal might be replaced through purchase, books missing in one library may be loaned from another, or missing pages may be photocopied), other materials may be irreplaceable (if the material is unique, rare, or difficult and expensive to replace). (Brown and Beth, 2007)

#### **4. Methodology:**

For the study, total six University libraries of Assam have been purposively selected by considering the possibility of availability of different security measures. A structured questionnaire is prepared for collecting relevant information. To collect more information, personal interview including telephonic conversation and direct observation has also been done.

#### **5. Scope and Limitations:**

The study reveals only the Traditional or manual, electronic or modern security systems and digital data security systems for University libraries of Assam. It is limited to six University Libraries which includes two Central and four State University Libraries of Assam.

## 6. Results and Discussions:

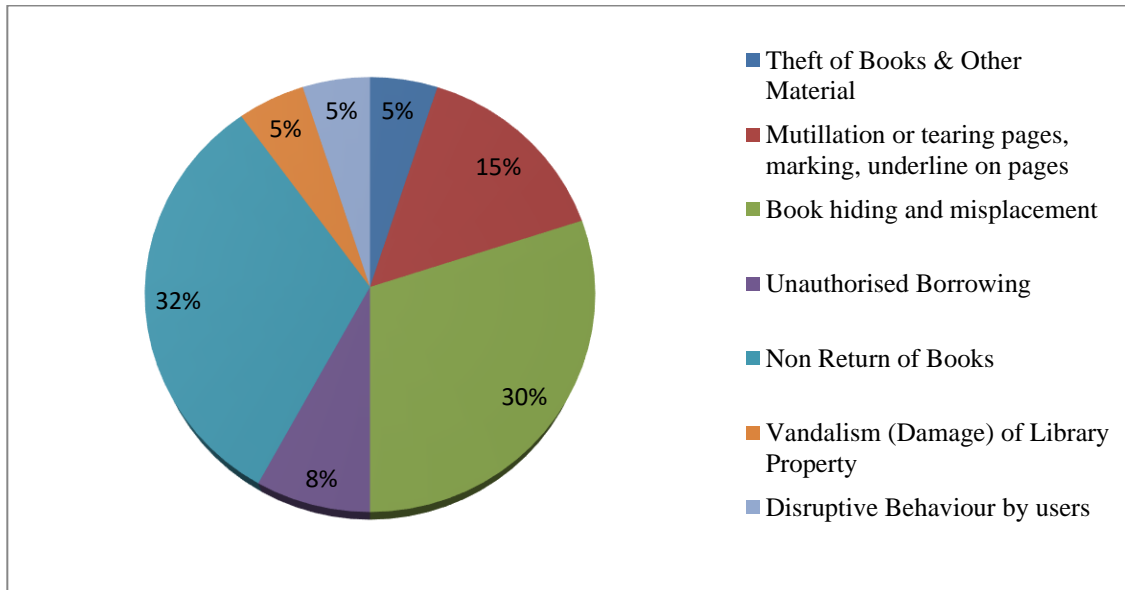
**Table-3: General Information of the University Libraries**

Sl. No.	Name of the University	Nature of the University	Name of the Library	Year of Establishment (Library)
1	Gauhati University (GU)	State	Krishna Kanta Handiqui Library (KKHL)	1948
2	Dibrugarh University (DU)	State	Lakshminath Bezbaroa Library (LNBL)	1967
3	Assam University (AU)	Central	Rabindra Library (RL)	1994
4	Tezpur University (TU)	Central	Central Library (CL)	1994
5	Krishna Kanta State Open University (KKHSOU)	State	Central Library (CL)	2006
6	Bodoland Univrsity (BU)	State	Padmashri Madaram Brahma Central Library (PMBCL)	2009

The library is practicing loss of library materials temporarily or parmanently from its collection. There are various factors involved in the loss of documents like behavioural problem of patron and staff, technical and administrative problems, habitual, architectural,etc. the illegal practices in relation to academic libraries are so common that which needs strenuous efforts to control its spread. The illegal practices in relation to academic libraries are treated as theft of books and other materials mutilation or tearing out pages, book hiding and misplacement, Un-authorized borrowing, non return of books, vandalism of library property and disruptive behavior by the users etc. among these practices, book hiding and misplacement , non return of books are more prevalent in the surveyed libraries.

For the prevention of such illegal practices in the library, librarians should understand the nature, significance and frequency of the illegal practices. Therefore it is necessary to secure the internal and external premises of library buildings. The libraries must adopt and implement suitable security measures so that early detection and handling of the illegal activities and disruptive behaviours can be possible. Fig 1 represents the various illegal activities commonly exists in the surveyed libraries-





**Fig 1: Different Reasons for Illegal Practices Prevalent in the Libraries**

In this 21<sup>st</sup> century, libraries are practicing variety of security measures for smooth running of the library services. These measures can be classified into Traditional-Manual Security System and Digital Data Security System. The tradition systems are upgraded with the adoption of Electronic Security measures like CCTV, RFID, Moisture Sensor, Biometrics etc. Besides the print collection security, the importance of Digital Data Security such as computer security, network security, software/hardware security etc. are also gaining the major importance with the use of Electronic Resources by the libraries and patrons. These measures are more reliable and cost effective for prevention of any theft, loss, vandalism and unauthorised access of library materials. The surveyed university libraries has been also implemented different security measures as shown below tables.

**Table-4: Availability of Traditional - Manual Security Systems**

Sl. No.	Traditional or Manual Security Systems	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	Locks & Key System	--	√	--	√	--	--
2	Installing Grills and Net on Windows	√	√	√	√	√	√

3	Single Door Entry-Exit for Staff & User	√	√	√	√	√	√
4	Security Guards Employed to Patrol	--	--	--	--	--	--
5	Observation by Library Staff	√	√	√	√	√	√
6	Fire Extinguisher & Security Equipment	√	√	√	√	√	√
7	ID Cards and Access Authorization	√	√	√	√	--	√
8	Signature of Every user	√	√	√	√	√	√
9	Security Clearance Procedure	--	--	--	√	--	--
<b>Total Score (9)</b>		<b>6</b>	<b>7</b>	<b>6</b>	<b>8</b>	<b>5</b>	<b>6</b>
		<b>(66.67%)</b>	<b>(77.78%)</b>	<b>(66.67%)</b>	<b>(88.89%)</b>	<b>(55.56%)</b>	<b>(66.67%)</b>

**Table-5: Availability of Electronic or Modern Security Systems**

Sl. No.	Electronic or Modern Security Systems	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	CCTV Cameras	√	√	√	√	√	√
2	Electronic Recording	√	√	√	√	√	√
3	RFID System	--	--	--	--	√	--
4	3M Exit Detection	--	--	--	--	--	--
5	Alarm Systems installed	--	--	--	--	--	--
6	Moisture Sensor	--	--	--	--	--	--
7	Glass Break Sensor	--	--	--	--	--	--
8	Fire /Smoke Sensor	--	√	--	--	--	√
9	Biometrics	--	--	--	--	√	--
10	Smart Card	--	--	--	--	√	--

11	Air Conditioner for Humidity Control	√	√	√	√	√	√
12	Flood Detector	--	--	--	--	--	--
<b>Total Score (12)</b>		<b>3</b> <b>(25%)</b>	<b>4</b> <b>(33.33%)</b>	<b>3</b> <b>(25%)</b>	<b>3</b> <b>(25%)</b>	<b>6</b> <b>(50%)</b>	<b>4</b> <b>(33.33%)</b>

**Table-6: Data/Information Security Measures**

Sl. No.	Data/Information Security Measures	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	USB drives, Tapes, CDs, DVDs, Disks, Hard drives	√	√	√	√	√	√
2	User Identification	√	√	√	√	√	--
3	Passwords	√	√	√	√	√	√
4	User Terminal	√	√	--	√	√	--
5	Use of Address verification systems	√	√	--	√	--	--
<b>Total Score (5)</b>		<b>5</b> <b>(100%)</b>	<b>5</b> <b>(100%)</b>	<b>3</b> <b>(60%)</b>	<b>5</b> <b>(100%)</b>	<b>4</b> <b>(80%)</b>	<b>2</b> <b>(40%)</b>

**Table-7: Computer Security Measures**

Sl. No.	Computer Security Measures	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	System Back up	√	√	√	√	√	√
2	Computer Viruses	√	√	√	√	√	√
3	Password	√	√	√	√	√	√
4	Data Encryption	√	√	--	√	--	--
5	Offsite Storage	√	--	√	√	√	√
6	Computer Locks	√	√	√	√	√	√
<b>Total Score (6)</b>		<b>6</b> <b>(100%)</b>	<b>5</b> <b>(83.33%)</b>	<b>5</b> <b>(83.33%)</b>	<b>6</b> <b>(100%)</b>	<b>5</b> <b>(83.33%)</b>	<b>5</b> <b>(83.33%)</b>

**Table-8: Network Security Measures**

Sl. No.	Network Security Measures	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	Antivirus Software	√	√	√	√	√	√
2	Firewall	√	√	√	√	√	√
3	Local Area Network	√	√	√	√	√	√
4	Server Segregation	--	--	--	√	--	--
5	Wireless Security	--	--	--	--	--	--
<b>Total Score (5)</b>		<b>3</b> <b>(60%)</b>	<b>3</b> <b>(60%)</b>	<b>3</b> <b>(60%)</b>	<b>4</b> <b>(80%)</b>	<b>3</b> <b>(60%)</b>	<b>3</b> <b>(60%)</b>

**Table-9: Software Security Measures**

Sl. No.	Software Security Measures	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	Anti-Spyware Security	√	√	√	√	√	√
2	Cleanup Software	√	√	√	√	--	--
3	ID Management Software	--	--	--	--	--	--
4	Multi-user Operating systems	√	√	√	√	√	√
5	User Entrance Log	√	--	--	√	--	--
6	Web Filtering	--	--	--	√	--	--
<b>Total Score (6)</b>		<b>4</b> <b>(66.67%)</b>	<b>3</b> <b>(50%)</b>	<b>3</b> <b>(50%)</b>	<b>5</b> <b>(83.33%)</b>	<b>2</b> <b>(33.33%)</b>	<b>2</b> <b>(33.33%)</b>

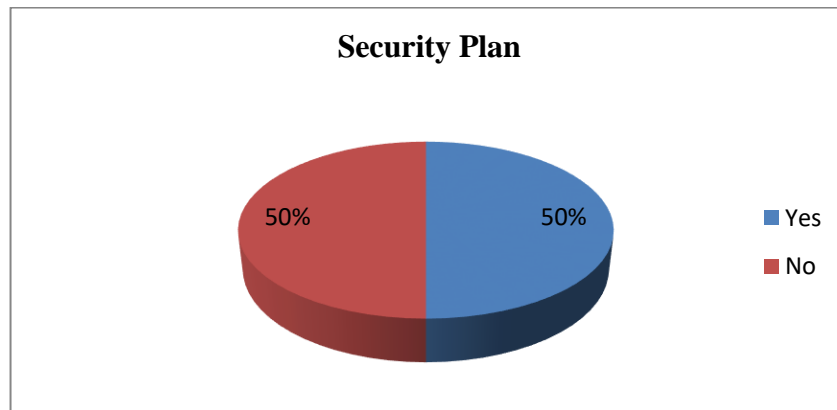
**Table- 10: Hardware & Server Security**

Sl. No.	Hardware & Server Security	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	Antivirus Software	√	√	√	√	√	√
2	Authentication Systems	√	√	√	√	--	--
3	Library Server's Operating systems	√	√	√	√	--	--
4	The server Environmental	√	√	--	--	--	--

Control							
5	Regular Backups for the Data	√	√	√	√	√	√
<b>Total Score (5)</b>		<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>
		<b>(100%)</b>	<b>(100%)</b>	<b>(80%)</b>	<b>(80%)</b>	<b>(40%)</b>	<b>(40%)</b>

## 7. Availability of Library Security Plan:

For library development and proper functioning, there must always be a suitable plan. Security plan can help the library authority to proper utilisation of security measures and update the adoption policies as per requirement. Only few libraries have been implemented separate plan for security measures. In most of the cases security plans are inbuilt with Library Rules and Regulations. Below Fig.-1, shows the availability of security plan of the surveyed library



**Fig.- 2: Availability of Library Security Plan**

## 8. Difficulties for Adoption of Electronic or Modern Security Systems:

**Table- 11: Difficulties regarding Adoption of Security Systems**

Sl. No.	Type of Difficulties	KKHL, GU	LNBL, DU	RL, AU	CL, TU	CL, KKHSOU	PMBCL, BU
1	Technical Difficulties	√	√	√	√	√	√
2	Lack of Adequate Budget provision	√	√	√	√	√	√
3	Lack of interest/awareness of the authority	√	√	√	--	√	√

towards security measures							
4	Lack of interest in Library Personnel	--	--	--	--	--	--
5	Lack of adequate knowledge of staff	√	--	--	--	--	--
6	Lack of proper infrastructure	√	--	√	--	√	√

The findings from the study reveals that University libraries are widely familiar with major security risks that are stealing, loss, vandalism, mutilation of library materilas including illegal activities. Book hiding, misplacement of library materials are so common that library professionals cannot avoid and control without suitable security measures (Fig.-1). Most of the University libraries are much familiar with traditional-manual system comapare to electronic security systems. The employment of CCTV, RFID, 3M Exit technologies can help the professionals to control and fix the security issues. But findings reveals that adoption of electronic security measures is less, compare to physical and environmental control of the library materials (Table-5). Technological securities in terms of computer, hardware, software, digital data etc. are also in preliminary stages (Table 6-10). To control and prevent all these malpractices, libraries should have proper planning towards security purposes. Fifty percent of the University libraries have their own instituional security plan towards security measures (Fig 2). Lack of technical knowledge, proper budget allocation, moral and infrastructural support fom authority etc. some of the primary issues which hindering the libraries for fully adoption and implementation of security systems (Table-11).

## 10. Conclusion:

It is obvious that the major factors for encouraging illegal activities are due to poor security system and criminal nature of individuals. The academic libraries must be acquired modern electronic security gadgets to control and avoid the physical, environmental and technological risks which inversely effect in smooth running of the library services. The financial issues are very much common for libraries of the developing states like Assam. Moreover, a systematic planning and abundance support from the authority may solve this issue to some extent. The implementation of modern security systems are expensive in initial stage but in long run it would work as cost effective in terms of the development of overall library security and services. Therefore, the University libraries of Assam should provide interest on the implementation and utilisation of different security measures for their libraries.

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