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INTEGRATION OF ARTIFICIAL INTELLIGENCE IN LIBRARY MANAGEMENT SYSTEMS: A CASE STUDY OF UNIVERSITIES IN JAMMU AND KASHMIR *A Documentary Analysis*

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Abstract: This study examines how far Artificial Intelligence (AI) has actually been built into the Library Management Systems (LMS) of university libraries in Jammu and Kashmir. Rather than taking AI adoption for granted, the research checks, library by library, which automation and AI features can be verified from public documentary evidence. A descriptive design was used, centred on structured content analysis of the official websites, published facilities pages, institutional circulars, and recent institutional news items of five purposively chosen university libraries: the Allama Iqbal Library (University of Kashmir), Dhanvantri Library (University of Jammu), the Central Library at the Central University of Kashmir, the library of the Central University of Jammu, and the Rumi Library (Islamic University of Science and Technology, Awantipora). For each library, publicly available material was checked against a fixed checklist covering OPAC or integrated library management software, RFID-based self-check facilities, remote or off-campus access, institutional repositories, and any service explicitly branded as AI, such as a chatbot or recommendation engine. The results show that conventional automation is already well established at three of the five libraries: a functioning, documented OPAC or integrated library system (Virtua, LibSys-10, or a Koha-based platform) together with RFID-based self-check is confirmed for the University of Kashmir, the University of Jammu, and IUST, the last of which rolled out RFID as recently as April 2026. Only one library, however, has a genuinely AI-branded service in place: an official circular dated April 27, 2026, confirms that Allama Iqbal Library, University of Kashmir, launched its "AIL Chatbot" on April 23, 2026, inaugurated by the Vice Chancellor and described by the library itself as the first AI-powered chatbot introduced by any university library in Jammu and Kashmir. None of the remaining four libraries had any publicly documented AI-branded facility, whether chatbot or recommendation engine, at the time of writing. For the Central University of Kashmir and Central University of Jammu libraries specifically, even basic OPAC and RFID status could not be verified from official sources — a public-documentation gap that is itself treated here as a substantive finding, distinct from the underlying technology gap. The study concludes that university libraries in the region have made real, verifiable progress on conventional automation, that one institution has now crossed into genuine AI-branded service delivery, and that the rest of the sample has yet to do so; it recommends fuller public disclosure of technology infrastructure alongside continued investment in staff training and AI-specific tools, with the Kashmir University case offered as a regional reference point.

Keywords:- Artificial Intelligence, Library Management System, Academic Libraries, Jammu and Kashmir, Automation, University Libraries.

1. Introduction

Artificial Intelligence (AI) is the branch of computer science concerned with building systems that can carry out tasks normally requiring human intelligence — recognising patterns, understanding natural language, generating recommendations, and supporting decisions. Within information institutions, AI is increasingly applied to resource discovery, cataloguing support, virtual reference, and the personalised recommendation of reading material.

A Library Management System (LMS) is the software backbone through which a library runs its core operations: acquisition, cataloguing, circulation, and the management of members and resources. These systems were traditionally rule-based, but in some institutions they are now being reshaped by AI components capable of automating repetitive work, generating metadata, powering chat-based reference help, and recommending resources based on user behaviour — although, as this study demonstrates, such components remain uncommon in practice even where conventional automation is firmly in place.

Academic libraries sit at the centre of a university's teaching and research mission, and how they take up new technology has a direct effect on the quality of service delivered to students and faculty. A growing body of writing on Indian academic libraries treats AI as a likely catalyst for smart-library development, though actual implementation differs sharply from one institution to another depending on infrastructure, funding, and staff readiness.

University libraries in Jammu and Kashmir have historically gone through distinct phases of automation — first adopting library software packages such as SOUL, KOHA, LibSys, and Virtua, then RFID-based circulation, and more recently digitizing rare collections. Whether these libraries have moved beyond conventional automation into genuine, publicly documented AI-enabled services, however, has not been examined systematically. Given the region's particular infrastructural and connectivity constraints, there is a clear need to establish, from verifiable public evidence, how far AI has actually entered library operations here and what gaps remain — both in the underlying technology and in how it is communicated to the public.

2. Problem Statement

Whether Artificial Intelligence is genuinely in use at the university libraries of Jammu and Kashmir, as distinct from conventional automation, has not been established through systematic, verifiable evidence. Much of the existing literature on AI in Indian academic libraries draws on self-reported survey data or general claims that are difficult to check independently. This study addresses that gap by testing the specific, publicly documented technology status of a sample of regional university libraries against a structured checklist, distinguishing clearly between confirmed automation, confirmed AI-branded services, and information that is simply not publicly available.

3. Objectives of the Study

- To identify, from official library websites and institutional records, which automation and AI-related features are publicly documented at the sampled university libraries in Jammu and Kashmir.
- To compare how far documented automation and AI adoption extends across the sampled university libraries.
- To assess the specific service benefits linked to the automation and AI-related tools that are documented.
- To identify gaps — in actual technology adoption and in the public documentation of it — that limit the visibility and assessment of AI readiness in these libraries.
- To put forward practical recommendations for strengthening both AI adoption and the public disclosure of library technology in the region.

4. Research Questions

- Which AI-related and automation tools are publicly and verifiably documented at the sampled university libraries in Jammu and Kashmir?
- How far does documented technology adoption vary across these libraries?
- What specific service benefits are linked to the technologies that are documented?
- What gaps — in technology adoption, in public documentation, or in both — stand in the way of further progress toward AI-enabled library services in the region?

5. Literature Review

Scholarly interest in AI within academic libraries has grown steadily in India over the past few years. Kalbande et al. (2024), surveying 259 library and information science professionals across the country, found broadly positive views of AI integration; respondents largely agreed that AI could narrow performance gaps between librarians without breeding complacency, and the study also picked up a widespread willingness among librarians to learn AI-related skills even though current exposure to such tools remains uneven.

Kavitha and Senthilkumar (2025) took a similar view, arguing that AI adoption in Indian academic libraries marks an important step toward meeting users' changing needs, and put forward a structured framework for folding AI into existing library systems. They cautioned, however, that successful integration hinges on adequate information-technology infrastructure and connectivity, both of which vary considerably across Indian institutions.

Pawar (2024) examined the practical uses and challenges of AI in academic libraries and found that, while AI shows real promise for reference services, circulation, and classification, Indian libraries still face obstacles around cost, staff readiness, and institutional backing — concerns echoed by Barsha and Munshi (2023) in their broader look at AI implementation in the libraries of developing countries.

On automation specifically within Jammu and Kashmir, Malhan (2005) documented the state of library automation at the region's university libraries some years ago, setting an early benchmark against which later progress can be measured. More recent work by the Department of Library and Information Science, University of Jammu (2018) tracked the spread of library software packages — SOUL 2.0, KOHA, and Alice for Windows — across university libraries in the Jammu region, and found a gradual, uneven shift from manual to automated operations. A separate case study of RFID technology at the Allama Iqbal Library, University of Kashmir, traced the phased rollout of RFID-based circulation and self-service, showing how automation in the region has generally advanced one technology at a time rather than through an integrated AI strategy.

Read together, this literature points to two broad patterns relevant here. First, Indian academic libraries, including those in Jammu and Kashmir, have steadily advanced their automation over the last two decades, moving from manual registers to software-based circulation and, in some cases, RFID-based self-service. Second, the jump from automation to genuinely AI-enabled, publicly documented services — chatbots, recommendation engines, AI-assisted cataloguing — remains at an early stage nationally, and had not previously been checked specifically for Jammu and Kashmir against verifiable public evidence rather than self-reported claims. This study sets out to close that particular gap.

6. Research Methodology

6.1 Research Design

This study uses a descriptive design built around structured content analysis of documentary sources rather than a self-administered questionnaire. This choice reflects the fact that official library websites, published facilities pages, and institutional press releases are each institution's own public record of the services it currently provides; checking these sources directly against a fixed set of criteria yields a verifiable, citable assessment of what is actually documented, rather than one built on general impressions or unverified secondary claims.

6.2 Population and Sample

The population for this study is university libraries operating in the Jammu and Kashmir region. Through purposive sampling, five libraries were selected to represent a mix of central and state universities across the region's divisions:

- University of Kashmir, Srinagar (Allama Iqbal Library)
- University of Jammu, Jammu (Dhanvantri Library)
- Central University of Kashmir (Central Library)
- Central University of Jammu (University Library)
- Islamic University of Science and Technology (IUST), Awantipora (Rumi Library)

6.3 Data Collection Method

Data were gathered through a structured documentary review of each library's official website and, where available, recent institutional news coverage. A checklist was drawn up beforehand, listing the specific automation- and AI-related parameters checked for each library (see Table 1). For each parameter, the library's status was recorded as Documented or Not documented, based strictly on what an identifiable, citable public source could confirm at the time of writing. A status of "Not documented" means only that no public confirmation was found; it is not a claim that the facility is definitely absent, since some libraries may simply not publish full details of their technology infrastructure. This distinction matters in its own right, because a library's failure to publicly document its facilities is itself relevant to transparency, and to prospective researchers, students, and funding bodies.

This documentary approach was judged the most defensible option for the present study: it yields a citable, independently verifiable record of what each institution has itself published about its services, and it avoids attributing particular technological capabilities to a named institution without a traceable public source.

6.4 Documentation Checklist (Instrument)

The following parameters formed the core checklist applied to each library's public sources:

- Presence of an OPAC or integrated library management software package
- Presence of an RFID-based self-check facility
- Availability of remote or off-campus access to e-resources
- Presence of an institutional or digital repository
- Availability of a library chatbot or AI-branded virtual reference assistant
- Evidence of an AI-based recommendation engine for library resources

7. Data Analysis

Table 1 sets out the documentation status recorded for each of the five sampled university libraries. "Yes" means the facility is confirmed by an identifiable public source; "No" means no such confirmation could be found, not that the facility is necessarily absent.

Facility / Feature	KU	JU	CUK	CUJ	IUST
OPAC / integrated library management software	Yes	Yes	No	No	Yes
RFID-based self-check facility	Yes	Yes	No	No	Yes
Remote / off-campus e-resource access	Yes	Yes	No	No	Yes
Institutional / digital repository	No	Yes	No	Yes	Yes
Library chatbot / virtual reference assistant	Yes	No	No	No	No
AI-based recommendation engine	No	No	No	No	No

Where confirmed, the specific systems in place are: an OPAC running on Virtua library management software at Allama Iqbal Library (University of Kashmir); an integrated OPAC on LibSys-10 at Dhanvantri Library (University of Jammu); and a Web OPAC at Rumi Library (IUST). RFID-based self-check is documented at all three of these libraries, IUST's system having gone live as recently as April 2026 according to institutional press coverage. On AI-branded services specifically, an official circular from Allama Iqbal Library dated April 27, 2026, confirms that the library launched an "AIL Chatbot" on April 23, 2026, inaugurated by the University's Vice Chancellor; the circular describes this as the first AI-powered chatbot introduced by any university library in Jammu and Kashmir, and among the first five such services launched by any library in India.

Table 2 restates the same data as the share of sampled libraries for which each facility was confirmed from a public source.

Facility / Feature	Libraries with Documented Presence (out of 5)	Percentage
OPAC / integrated library management software	3	60%
RFID-based self-check facility	3	60%
Remote / off-campus e-resource access	3	60%
Institutional / digital repository	3	60%
Library chatbot / virtual reference assistant	1	20%
AI-based recommendation engine	0	0%

Table 3 sets out the documentation-gap findings for each library individually, which help explain the pattern seen in Tables 1 and 2.

Library	OPAC Status Documented?	RFID Status Documented?	Notes
Allama Iqbal Library, University of Kashmir	Yes	Yes	Detailed facilities page; richest public documentation in the sample; official circular (Apr. 27, 2026) additionally confirms an AI-powered chatbot launched Apr. 23, 2026
Dhanvantri Library, University of Jammu	Yes	Yes	Confirmed via official site and an independently published 2025 user study
Central Library, Central University of Kashmir	No	No	No dedicated official library website could be located; general university pages do not list technology infrastructure
Library, Central University of Jammu	Partial	No	Official page describes the collection and Shodhganga membership but not OPAC or RFID status explicitly
Rumi Library, IUST, Awantipora	Yes	Yes	RFID confirmed through an institutional press release dated April 2026

Taken as a whole, the documentary evidence shows conventional automation — an OPAC or integrated library management system, and RFID-based self-check — confirmed for three of the five libraries (60% each): the University of Kashmir, the University of Jammu, and IUST. On AI-branded services, only Allama Iqbal Library, University of Kashmir, has a publicly documented chatbot (20% of the sample); no library in the sample has a documented AI-based recommendation engine. For the Central University of Kashmir and Central University of Jammu libraries, the lack of confirming information is itself significant: neither library's official pages describe OPAC or RFID status in enough detail to confirm or rule out these facilities, which limits how far their technology readiness can be judged from public sources alone.

8. Results and Discussion

The documentary record indicates that conventional automation is reasonably well established among the libraries in this sample that publish detailed facilities information, and that one institution has now moved decisively into genuinely AI-branded service delivery. Allama Iqbal Library, University of Kashmir, combines the most detailed public documentation with the most advanced confirmed technology profile in the sample: it documents an OPAC (via Virtua library management software), RFID-based self-check kiosks, remote access, and a mobile application, and, as of April 2026, an AI-powered chatbot. An official library circular dated April 27, 2026, records that the “AIL Chatbot” was formally inaugurated by the Vice Chancellor on April 23, 2026, gives users round-the-clock, text-based access to information on library resources, services, and facilities, and is described by the library as the first AI-powered chatbot introduced by any university library in Jammu and Kashmir, and among the first five such services launched by any library in India. Dhanvantri Library, University of Jammu, is similarly well documented on the automation side — confirmed RFID, an integrated OPAC on LibSys-10, and remote e-resource access via EZproxy, corroborated by an independently published 2025 user study of the library — though no AI-branded service is documented there. Rumi Library, IUST, shows the most recently documented automation progress: an institutional press release from April 2026 confirms the rollout of an EM-RFID self-check system, alongside an existing Web OPAC and ONOS-based remote access, again without any documented AI-branded service.

By contrast, the official pages of the Central University of Kashmir and Central University of Jammu libraries do not give enough detail to confirm whether OPAC or RFID facilities exist, even though both institutions plausibly run some form of library software given their scale of operation. This is best read as a gap in public documentation rather than a confirmed absence of technology, and it is a meaningful finding on its own terms: it suggests that at least some university libraries in the region under-communicate their technology infrastructure, limiting transparency for prospective students, researchers, and evaluators alike.

Where automation is documented, it appears to deliver the benefits generally associated with such tools in the literature: IUST’s own announcement describes RFID-based self-check as cutting waiting time and improving security and inventory management, while integrated OPAC systems support faster, catalogue-wide search across formats. These documented benefits line up with the literature reviewed earlier, which similarly links automation and AI tools to gains in the speed and convenience of core library services.

At the same time, the fact that only one of the five sampled libraries has moved to a documented, AI-branded, user-facing service is a striking finding in its own right. It suggests that whatever informal interest in AI exists among library professionals in the region — reflected, for instance, in a recent public lecture on “Information Literacy in an AI Environment” hosted by Dhanvantri Library — this interest has, at most institutions sampled, not yet turned into a publicly documented AI service, even where conventional automation is otherwise well established. Allama Iqbal Library’s own framing of its chatbot as the first such service among university libraries in Jammu and Kashmir supports this reading: the library itself treats the development as a genuine regional first rather than one instance of a broader trend. This fits closely with Kavitha and Senthilkumar’s (2025) point that successful AI integration depends on infrastructure and connectivity that remain uneven across Indian institutions, and with Kalbande et al.’s (2024) finding of a gap between librarians’ willingness to learn AI skills and their current exposure to such tools; this study adds a specific, citable confirmation that the gap is visible in the public record of most — though, as of April 2026, no longer all — university libraries in Jammu and Kashmir.

9. Conclusion

This study set out to establish, from verifiable public evidence, how far Artificial Intelligence has genuinely been built into the library management systems of university libraries in Jammu and Kashmir. The documentary evidence gathered across five sampled libraries shows conventional automation — an OPAC or integrated library management system and RFID-based self-check — confirmed for three of the five, with IUST’s Rumi Library having implemented RFID as recently as April 2026. On genuinely AI-branded services, Allama Iqbal Library, University of Kashmir, stands as a confirmed early adopter, having launched an AI-powered chatbot on April 23, 2026, which the library describes as the first such service among university libraries in Jammu and Kashmir; no other library in the sample has any publicly documented AI-branded, user-facing service such as a chatbot or recommendation engine. For two of the five libraries, even basic automation status could not be confirmed from official sources, pointing to a public-documentation gap that limits any external assessment of their technology readiness. University libraries in Jammu and Kashmir have therefore made real, verifiable progress in conventional automation; one institution has now shown that genuine AI-branded service delivery is achievable in the regional context; and the remaining sampled libraries have yet to follow suit. Closing this gap will call for further investment in AI-specific tools, guided by the Kashmir University precedent, together with clearer public communication of the technology libraries already have in place.

10. Recommendations

- Libraries should publish clear, regularly updated facilities pages that explicitly set out their automation and technology infrastructure; two of the five libraries sampled currently offer too little public information to assess their technology status, which limits transparency for students, researchers, and funding bodies.
- Universities should budget specifically for AI-branded library tools — discovery layers with recommendation features, library chatbots, and the like — rather than treating AI as an implicit extension of existing automation budgets; Allama Iqbal Library’s 2026 chatbot launch shows this is achievable within the region, and the remaining four sampled libraries currently document no equivalent service.
- Structured, AI-focused training programmes should be organised for librarians and library staff, building on the interest in AI already reflected in recent institutional events such as information-literacy lectures on AI.

- A phased AI adoption roadmap — building on the automation and RFID infrastructure already documented at the University of Kashmir, the University of Jammu, and IUST, and drawing on Allama Iqbal Library's chatbot implementation as an in-region model — would let the remaining libraries move toward chatbots and recommendation systems step by step rather than all at once.
- Regional universities should consider consortium-based procurement or resource-sharing for AI tools, and should agree on a shared standard for publicly documenting library technology infrastructure.

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