



PRASHIKSHAN: AN INDUSTRY-ACADEMIA INTERFACE

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Abstract: Prashikshan is a digital platform designed to improve the internship ecosystem in higher education institutions by creating a structured connection between students, faculty, and industry partners. With the implementation of NEP 2020, internships have become an essential part of the academic curriculum, yet most institutions still depend on manual processes, unverified internship sources, and paper-based documentation. These challenges often result in poor monitoring, lack of transparency, and issues such as fake internship records and inefficient communication. The proposed system provides a centralized solution where students can access verified internship opportunities, maintain digital logbooks, and track their progress in real time. Faculty members can monitor activities, evaluate performance, and manage academic credits efficiently, while industry partners can provide structured feedback and supervise interns through a dedicated interface. The platform also supports offline synchronization to ensure accessibility for students in low-connectivity areas.

By integrating automation, verification mechanisms, and real-time monitoring, Prashikshan enhances transparency, reduces administrative workload, and improves the overall quality of internship experiences. The system aims to create a reliable and scalable internship management framework that supports both academic learning and industry readiness.

Keywords: Internship Management; Academia-Industry Interface; NEP 2020; Digital Platform; Logbook System; Faculty Monitoring; Industry Collaboration; Employability

INTRODUCTION

The transition from academic learning to real-world employment remains a major challenge in higher education systems, particularly in developing countries like India. With the introduction of the National Education Policy (NEP) 2020, internships, fieldwork, and experiential learning have become essential components of undergraduate education. These initiatives are intended to help students gain practical exposure, develop industry-relevant skills, and improve employability. However, despite this policy shift, the implementation of structured and effective internship programs across institutions is still inconsistent.

In the current system, students often depend on informal sources such as social media, personal networks, or unverified websites to find internship opportunities. This leads to issues such as irrelevant placements, lack of authenticity, and in many cases, exploitation or fake certification. At the same time, colleges rely heavily on manual processes for tracking student progress, verifying internship completion, and evaluating performance. Paper-based logbooks, irregular reporting, and lack of real-time monitoring make it difficult for faculty to ensure the quality and credibility of internships.

Another major limitation is the weak connection between academic institutions and industry partners. Many colleges, especially those in remote or semi-urban areas, lack proper collaboration frameworks with industries. As a result, industries hesitate to onboard interns due to the absence of structured communication and verification mechanisms. This creates a fragmented ecosystem where students,

institutions, and industry stakeholders operate independently without proper coordination.

To address these challenges, there is a need for a unified digital solution that can streamline the entire internship lifecycle. Prashikshan is proposed as an integrated Academia-Industry Interface platform designed to bring all stakeholders onto a single system. The platform enables students to access verified this.

I. RELATED WORK

The problem of managing internships and bridging the gap between academic learning and industry requirements has been explored through various systems and platforms. These approaches can be broadly categorized as follows:

A. Traditional Manual Systems

Many institutions rely on paper-based logbooks, offline communication, and periodic reporting for managing internships. While widely used, these methods are error-prone, slow, and difficult to scale.

B. Online Internship and Job Portals

Platforms such as Internshala, LinkedIn, and other recruitment portals provide students with access to a wide range of internship opportunities. However, they lack academic integration features such as credit management and institutional monitoring aligned with NEP 2020.

C. Digital Internship Tracking Systems

Some research-based systems focus on managing student reporting features. These systems often lack real-

time analytics and NEP 2020 compliance.

D. Integrated Academia–Industry Platforms

Recent advancements have led to the development of platforms that attempt to connect students, institutions, and industry partners using web and mobile technologies. Despite this, many still operate in isolated environments with limited scalability and weak verification mechanisms.

To overcome these limitations, Prashikshan introduces a unified and structured platform integrating all stakeholders into a single ecosystem, with verified internship opportunities, digital logbooks, real-time monitoring, automated report generation, and NEP-compliant evaluation.

II. PROBLEM STATEMENT

The transition from academic learning to practical industry exposure remains a significant challenge in higher education institutions. Despite the introduction of NEP 2020, which emphasizes internships and experiential learning as essential curriculum components, most institutions struggle to implement structured and effective internship programs.

The existing internship ecosystem is largely fragmented and inefficient. Students often rely on informal sources such as social media platforms, personal networks, and unverified websites find opportunities. This lack of a centralized system results in mismatched roles, limited learning outcomes, and exposure to fraudulent or non-functional organizations. The absence of a reliable verification mechanism makes it difficult for institutions to ensure the authenticity of internship providers.

From an institutional perspective, internship management is still heavily dependent on manual processes. Paper-based logbooks, handwritten reports, and offline communication create challenges in monitoring student progress and evaluating performance. Faculty members face significant administrative burdens in tracking activities, verifying documents, and ensuring compliance with academic requirements, often leading to inconsistent evaluation and reduced accountability.

Another critical issue is the weak collaboration between academia and industry. Many institutions lack structured communication channels or formal partnerships with industry stakeholders. Industry partners are often hesitant to engage due to the absence of standardized systems for communication, monitoring, and evaluation.

Furthermore, the current system does not adequately support NEP-compliant documentation and evaluation processes. Requirements such as daily logbooks, mentor feedback, performance assessment, and credit allocation are difficult to manage manually, resulting in incomplete or inaccurate records. Students in remote or low-connectivity areas face additional challenges in accessing opportunities and maintaining proper documentation. This lack of a centralized system results in mismatched roles, limited learning outcomes, and exposure to fraudulent or non-functional organizations. The absence of a reliable verification mechanism makes it difficult for institutions to ensure the authenticity of internship providers.

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III. PROPOSED SOLUTION AND SYSTEM ARCHITECTURE

To address the challenges identified in the existing internship ecosystem, Prashikshan is designed as a centralized digital platform that integrates students, faculty members, and industry partners into a unified and structured environment. The system aims to streamline the entire internship lifecycle—from opportunity discovery to evaluation and credit allocation—while ensuring transparency, accountability, and efficiency.

A. System Overview

Prashikshan functions as an Academia–Industry Interface platform where all stakeholders interact through a common system. The platform eliminates reliance on informal sources and manual processes by providing verified internship opportunities, digital documentation, and real-time monitoring. All activities are recorded, traceable, and aligned with academic requirements. The system is divided into three primary modules:

- **Student Module:** Allows students to create profiles, browse verified internship opportunities, apply directly through the platform, and maintain digital logbooks with offline support for low-connectivity environments.
- **Faculty Module:** Enables academic mentors to monitor student progress in real time, verify internship details, review logbook entries, provide feedback, evaluate performance, and manage academic credits.
- **Industry Module:** Allows industry partners to register, post verified internship opportunities, manage applicants, assign tasks, monitor performance, and provide structured evaluations

through a dedicated dashboard.

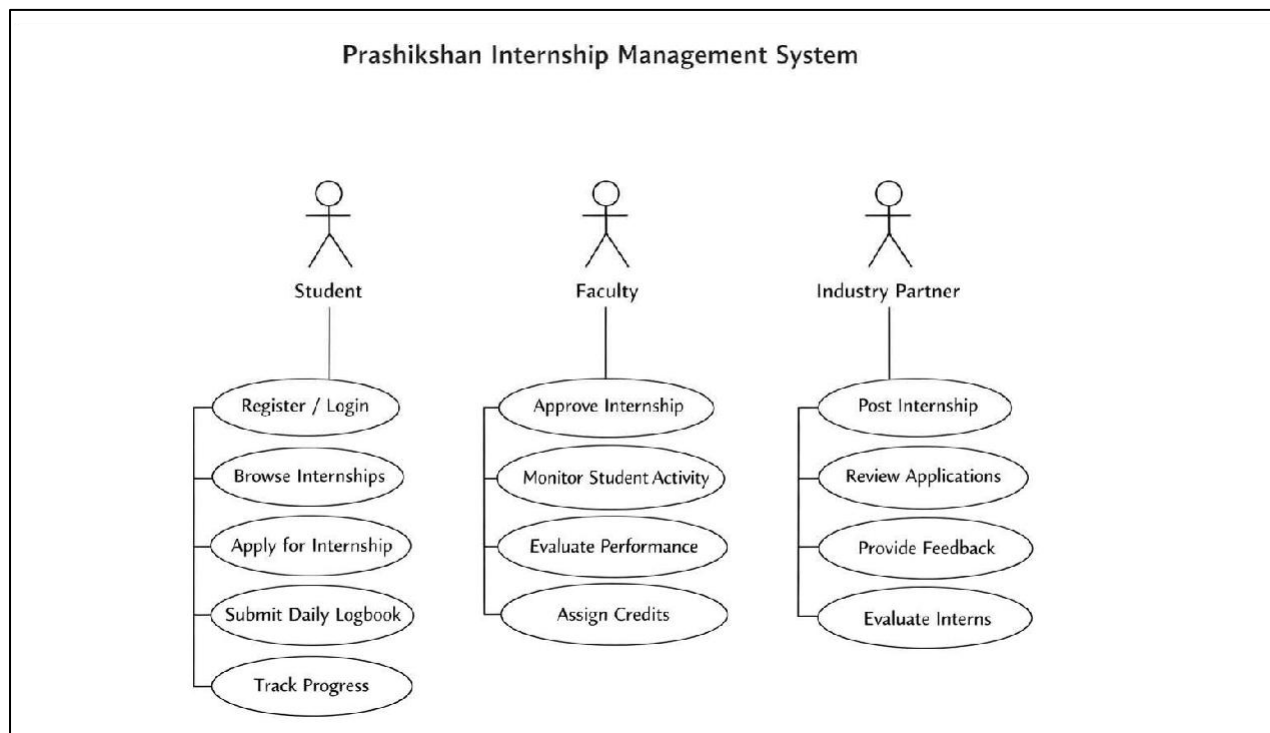


Fig. 1. Use Case Diagram — Prashikshan Internship Management System

B. System Architecture

The database design ensures data consistency, integrity, and efficient querying. Relationships between entities are defined. The system follows a client-server architecture, ensuring efficient communication between users and backend services. The frontend interfaces are designed to be responsive and accessible across web and mobile platforms, while the backend handles business logic, authentication, and data processing. Figure 2 presents the complete system architecture of Prashikshan.

Frontend Layer

The frontend is responsible for user interaction and interface rendering. It is developed using **React.js** for web applications and **Flutter/React Native** for mobile applications, enabling cross-platform compatibility. The interface is designed to be user-friendly and responsive, ensuring accessibility across different devices. It allows users (students, faculty, and industry partners) to perform actions such as registration, internship application, logbook updates, and performance tracking in real time.

Backend Layer

The backend is implemented using **Node.js with Express**, which handles all server-side operations and business logic. It provides **RESTful APIs** for communication between the frontend and database. The backend manages authentication, authorization, request processing, and data validation.

Database Layer

The system uses **PostgreSQL** as the primary relational database for storing structured data. It maintains records related to students, internships, applications, logbooks, and evaluations. through structured schemas, supporting reliable data retrieval and management.

Cloud Deployment and Infrastructure

The application is deployed on **cloud infrastructure (such as AWS)** to ensure scalability, availability, and high performance. Cloud services enable load balancing, auto-scaling, and secure data storage. This allows the system to handle multiple users simultaneously and ensures continuous availability with minimal downtime.

Data Flow and Communication

The system follows a structured data flow where user requests are sent from the frontend to the backend through API calls. The backend processes these requests, interacts with the database, and returns appropriate responses to the frontend. This ensures real-time updates and smooth synchronization between all modules. Secure communication protocols are used to protect data transmission.

Security and Access Control

Security is a critical aspect of the system architecture. Authentication mechanisms such as token-based authentication (e.g., JWT) are used to verify user identity. Role-based access control ensures that

students, faculty, and industry partners can only access authorized functionalities. Data validation and encryption techniques are applied to maintain system security and prevent unauthorized access.

C. Data Flow and Design

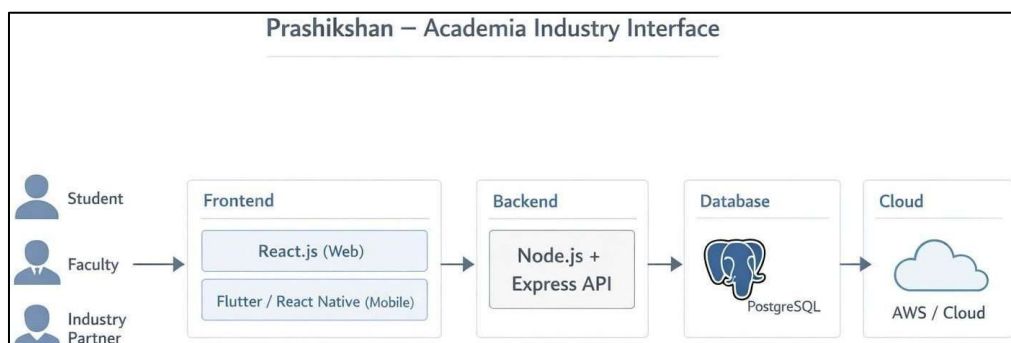


Fig. 2. System Architecture — Prashikshan Platform

Relationships between entities such as students, internships, faculty, and industry partners, as shown in Figure 3. The system design incorporates structured workflows to manage data efficiently across all modules. User interactions such as internship applications, logbook submissions, and evaluations are processed through secure APIs and stored in the PostgreSQL database. An Entity-

Relationship (ER) Diagram defines the System workflows enable seamless real-time communication between modules, ensuring that updates from one stakeholder are instantly reflected for others. For example, industry feedback submitted by a mentor is immediately available to both the student and the faculty evaluator.

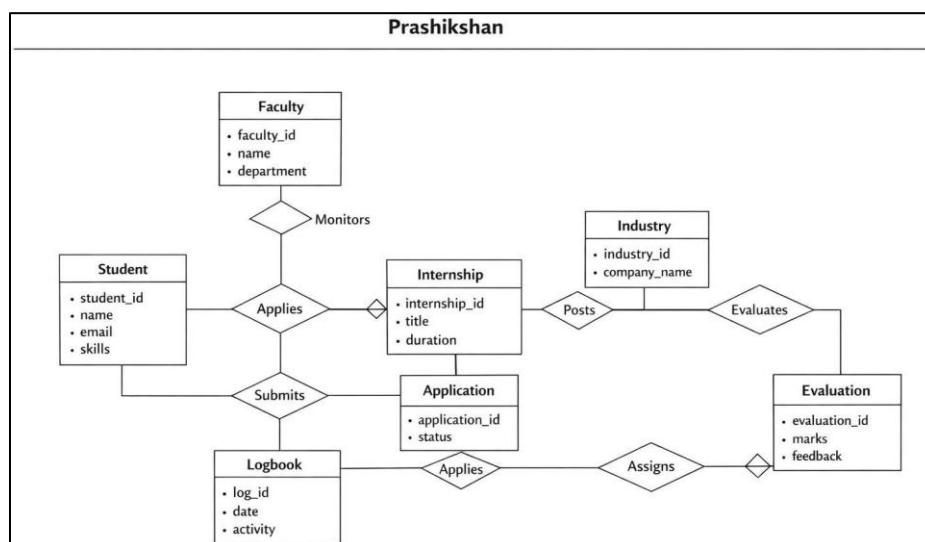


Fig. 3. Entity-Relationship (ER) Diagram — Prashikshan Database Design

Key Features

- Centralized access to verified internship opportunities
- Digital logbook and automated report generation
- Real-time monitoring and evaluation dashboard
- Structured communication between all stakeholders
- NEP-compliant documentation and credit allocation
- Offline synchronization for improved accessibility

The proposed architecture enhances scalability, reduces administrative workload, and improves transparency in internship management. By integrating all stakeholders into a single platform, Prashikshan addresses the limitations of existing approaches and supports practical learning outcomes effectively.

IV. METHODOLOGY

The development of the Prashikshan platform follows a structured approach based on the Software Development

D. System Advantages

Life Cycle (SDLC), combined with iterative improvements to ensure flexibility and scalability. Figure 4 illustrates the end-to-end workflow of the system from student registration to credit assignment.

A. Requirement Analysis

The initial phase involved identifying key challenges in the existing internship management system through discussions with students, faculty, and academic coordinators. Major issues such as lack of verification, manual documentation, poor monitoring, and weak industry collaboration were identified. Both functional and non-functional requirements were defined to guide system development.

B. System Design

A client-server model was adopted to ensure efficient communication between users and the backend. Core modules such as student management, internship tracking, logbook maintenance, evaluation, and analytics were defined. System behavior and workflows were represented using Data Flow Diagrams (DFD) and Entity-Relationship (ER) diagrams. The user interface was designed for simplicity, accessibility, and ease of use across all devices.

C. Technology Selection

The platform uses React.js for web and Flutter/React Native for mobile frontend. The backend runs on Node.js with Express, and PostgreSQL handles structured data storage. Cloud platforms (AWS) are used for deployment to ensure scalability and availability.

D. System Implementation

The system is modularized for better organization. The student module handles registration, internship applications, and digital logbooks. The faculty module enables monitoring, verification, and performance evaluation. The industry module supports opportunity posting, applicant management, and structured feedback. All modules interact through secure RESTful APIs to ensure smooth data flow and synchronization.

Prashikshan Internship Management System

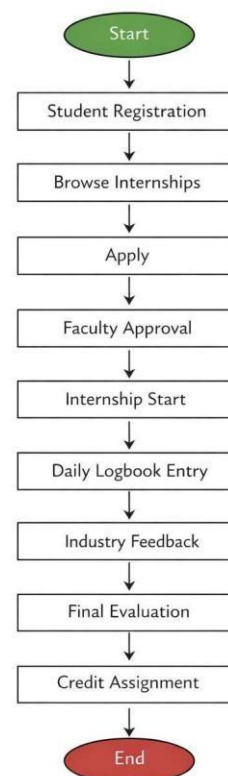


Fig. 4. System Workflow Flowchart — Prashikshan Internship Management Process

E. Testing and Validation

Functional testing verifies that each module operates correctly. Integration testing ensures smooth interaction between all system components. User-level testing evaluates usability and identifies improvements to ensure the platform performs efficiently under real-world conditions.

F. Deployment and Maintenance

The application is deployed on cloud-based infrastructure. Regular updates and maintenance are planned to fix bugs, improve performance, and incorporate new features. The system is designed to be adaptable to future technological advancements and evolving institutional requirements.

V. TESTING AND RESULTS

To ensure Prashikshan is reliable, efficient, and suitable for real-world deployment, a comprehensive testing strategy was adopted covering unit testing, integration testing, end-to-end testing, and continuous integration workflows.

A. Unit Testing

Unit testing was performed on individual components including student registration, internship application, logbook submission, and authentication services. This helped identify and resolve errors at an early stage, ensuring all individual functions operated as expected.

B. Integration Testing

Integration testing ensured smooth interaction between different modules. Data flow between the frontend and backend, as well as communication between student, faculty, and industry modules, was verified to ensure seamless operation without data inconsistencies or communication failures.

C. End-to-End (E2E) Testing

Complete workflows—including student registration, internship application, logbook updates, faculty evaluation, and industry feedback—were tested from start to finish to ensure a smooth and consistent user experience across all stages of the internship lifecycle.

D. Continuous Integration and Deployment (CI/CD)

CI/CD pipelines were implemented to maintain code quality and ensure smooth updates. Automated testing was integrated into the development workflow, allowing the system to detect errors during deployment, reducing manual effort and ensuring faster, more stable releases.

E. Results and System Evaluation

The implementation of Prashikshan demonstrates significant improvements over traditional internship management systems. The digital platform reduces dependency on manual processes, enabling real-time monitoring and automated documentation. Faculty workload is reduced through streamlined evaluation and reporting, while students benefit from verified opportunities and structured progress tracking.

The system improves transparency by maintaining digital records of all activities, reducing fraudulent documentation. Cloud-based deployment ensures the system handles multiple users simultaneously and can be scaled for larger institutional use. Offline synchronization makes the platform accessible to students in low-connectivity areas, increasing inclusivity.

Overall, the testing results indicate that the proposed system is robust, secure, and capable of supporting real-world academic and industry requirements effectively.

VI. CONCLUSION AND FUTURE WORK

In this paper, a centralized digital platform, Prashikshan, has been proposed to address the challenges associated with internship management in higher education institutions. The proposed solution introduces a structured and integrated approach that streamlines the entire internship lifecycle through a unified digital interface.

By incorporating features such as verified internship opportunities, digital logbooks, real-time monitoring, automated documentation, and structured feedback

mechanisms, the system significantly improves the reliability and efficiency of internship processes. The integration of students, institutions, and industry stakeholders into a single platform enhances communication, reduces administrative workload, and ensures compliance with academic requirements. The use of modern technologies and cloud-based deployment enables scalability, accessibility, and adaptability for broader implementation.

The results indicate that the proposed system can effectively bridge the gap between academic learning and industry requirements, thereby improving student engagement and employability. It also provides a transparent and accountable framework that supports the objectives of experiential learning under NEP 2020.

For future work, the integration of artificial intelligence can be explored for personalized internship recommendations and skill gap analysis. Advanced analytics can provide deeper insights into student performance and industry trends. Expanding the platform to support cross-institution collaboration and incorporating more robust security features can further strengthen the system. Continuous updates and user feedback-driven improvements will ensure the platform remains relevant in evolving academic and industry environments.

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