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PIC SPECIAL LAB REGISTRATION AND ATTENDANCE PORTAL WITH DISCUSSION FORUM

Sutharsan K[1], Ravivarma E D[2], Vijayanand M[3] , Sanjay V Y[4]

[123] *Bannari Amman Institute of Technology, Mechatronics Engineering Department, Sathyamangalam, India*
[4] *Bannari Amman Institute of Technology, Aeronautical Engineering Department, Sathyamangalam, India*

Abstract - *The PIC Registration and Attendance Portal with Discussion Forum is an integrated system designed to streamline student management processes while fostering collaboration and learning. This platform automates workflows such as student enrollment, lab registration, attendance tracking, and training scheduling, offering a centralized dashboard for students, faculty, administrators, and industry partners. By incorporating an interactive discussion forum akin to Quora, the system promotes knowledge sharing, technological updates, and query resolution among users. The system enhances efficiency through role-based functionalities, automated notifications, and a comprehensive analytics module that provides insights into academic performance and engagement.*

Key Words: Academic Management, Discussion Forum, Event Registration, Automation, Collaboration, Knowledge Sharing

1.INTRODUCTION :

Efficient management of student details, lab registrations, attendance tracking, and training schedules is crucial for academic institutions. Traditional methods rely on spreadsheets and manual tracking, which introduce inefficiencies, errors, and delays. The PIC Special Lab Registration and Attendance Portal addresses these issues by providing a structured, automated, and interactive platform. This paper explores the system's key components, including student and faculty dashboards, event registration modules, discussion forums, and real-time notification features.

2. Literature Survey

Existing research highlights the transition from traditional attendance and academic management systems to automated solutions. Technologies such as biometric authentication, RFID-based systems, and cloud-integrated academic management portals have been explored to enhance student engagement and administrative efficiency. The discussion forum aspect of the platform is inspired by existing knowledge-sharing platforms and aims to bridge the gap between academia and industry collaborations.

3. OBJECTIVES AND METHODOLOGY

3.1 Objectives

- **Automation**: Minimize manual effort through automated workflows.
- **Centralization**: Provide role-based dashboards for real-time updates.
- **Collaboration**: Implement a discussion forum for academic and industry interaction.
- **Efficiency**: Ensure seamless notification mechanisms and reporting features.

3.2 Methodology

- **Frontend:** Developed using React.js for a dynamic user interface.
- **Backend:** Built on Spring Boot for handling API interactions.
- **Database:** MySQL is used for structured data storage and retrieval.
- **Authentication:** Firebase authentication ensures secure user access.
- **Hosting & Deployment:** The platform is deployed on a cloud server for scalability.

4. SYSTEM ARCHITECTURE

The system is designed with a modular architecture that ensures scalability and security. The key modules include:

- **User Management Module**: Role-based access for students, faculty, and administrators.
- **Lab Registration & Attendance Tracking**: Automated lab enrollment and real-time attendance tracking.
- **Discussion Forum**: A collaborative space for sharing ideas and resolving queries.
- **Event Registration & Scheduling**: Automated eligibility verification and notifications.
- **Analytics & Reporting**: Performance dashboards for data-driven decision-making.

5. RESULTS AND DISCUSSION

The implementation of the PIC Special Lab Registration and Attendance Portal has led to:

- **Reduction in administrative workload** through automation.
- **Improved student engagement** via structured forums and real-time updates.
- **Enhanced academic tracking** with detailed reporting and analytics.

Performance testing revealed that the system efficiently handles concurrent user interactions with minimal latency. User feedback highlighted the effectiveness of real-time notifications and centralized data management.

6. CONCLUSION

The PIC Registration and Attendance Portal significantly enhances academic workflow management by integrating automation and collaboration features. Future enhancements may include AI-driven analytics for predictive academic performance insights, mobile application support, and biometric attendance tracking for enhanced security.

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