

# TrackNEnroll: Student Admission Categorization System

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*Abstract* — Admission is one of the most significant processes in colleges as it directly influences student intake and department distribution. Despite its importance, many institutions still depend on manual admission practices, which often result in duplication of records, communication delays, and lack of accountability. This traditional approach puts additional workload on staff and makes it difficult for principals and heads of departments (HODs) to monitor progress effectively. This paper presents TrackNEnroll, a student admission categorization system designed as an auto-synchronized platform combining a React-based web dashboard for principals and HODs with a React Native mobile application for staff. The system operates through a centralized database and backend API, ensuring that any update on the mobile app is instantly visible on the web dashboard through real-time synchronization. Students are automatically distributed to departments and staff, but the final allocation requires approval from both the principal and HOD, thus maintaining control while reducing manual effort. TrackNEnroll improves efficiency by simplifying student assignment, preventing data duplication, and creating a transparent workflow. The results demonstrate how automation with human supervision can enhance accountability, save time, and ensure smoother academic operations.

**Keywords:** Database Management, Mobile App, Real-Time Sync, Student Admission, Workflow Automation

## I. INTRODUCTION

Every college must manage admissions carefully, as this process determines how students are enrolled and how departments plan their academic sessions. Traditional manual systems rely on paperwork or spreadsheets, which are prone to human errors, duplication, and delays. Staff members spend significant time handling records, while principals and HODs often lack clear visibility of departmental progress. These inefficiencies create missed opportunities and increase administrative stress. TrackNEnroll aims to solve these challenges by offering a digital admission categorization system that combines automation, supervision, and synchronization. Unlike generic ERP tools, TrackNEnroll focuses on hierarchical workflows: the principal approves the distribution of students across departments, HODs approve distribution among staff, and staff update student admission outcomes. This semi-automated yet supervised approach ensures efficiency without losing human control. The system uses a React web dashboard for principals and HODs, a React Native mobile app for staff, and a Node.js backend with a MySQL database. Real-time synchronization through WebSockets allows seamless communication between the web and mobile platforms. The project's scope is to make admissions transparent, accountable, and scalable, while

opening avenues for future integration with analytics, fee management, and AI-powered decision-making.

## II. LITERATURE REVIEW

Research in admission systems and decision support has evolved over decades. W. Remus (1989) studied how decision-making differed between experienced managers and undergraduate students in decision support system (DSS) experiments. The study concluded that user experience plays a major role in decision quality, as inexperienced users showed erratic outcomes. This finding highlights the need for systems like TrackNEnroll to simplify workflows and reduce the burden on staff with varying levels of expertise. In recent years, web-based and intelligent platforms have emerged. Sejal Jadhav et al. (2023) proposed an intelligent web-based mentoring system for higher education, emphasizing analytics models that predict which applicants are more likely to accept admission offers and succeed academically. Such predictive mechanisms could later be integrated into TrackNEnroll to optimize follow-ups and planning. Oluwafemi O. S. Abe et al. (2024) addressed the inefficiencies of traditional admissions that depend on physical screenings and paper records. Their work demonstrated that online systems can automate applications, provide real-time updates, and securely handle documents. TrackNEnroll extends this principle by embedding structured approvals and workload distribution for smoother institutional management. With the rise of artificial intelligence, Nguyen Nang Hung Van et al. (2025) explored AI-powered university admission counseling using large language models. Their findings showed significant improvements in accuracy, transparency, and workload reduction. TrackNEnroll follows similar principles by using structured categorization and instant visibility of staff actions for higher authorities. Finally, Kam Cheong Li et al. (2025) introduced a multi-model analytics system to support decision-making in admissions. Their study showed how predictive analytics reduces uncertainty and streamlines follow-ups with students. TrackNEnroll complements this by focusing on workflow organization, which can later incorporate predictive analytics to enhance efficiency further. Overall, the literature reveals that while predictive analytics and online admission systems exist, very few solutions emphasize hierarchical approvals, auto-synchronization, and staff accountability. TrackNEnroll fills this gap.

## III. SYSTEM DESIGN & METHODOLOGY

### A. Tools And Technologies Frontend (Web):

React with Tailwind CSS. Mobile Application: React Native for staff interaction. Backend: Node.js + Express REST API. Database: MySQL for centralized storage. Synchronization: WebSockets (Socket.IO) for real-time updates.

### B. Workflow:

Student records are entered into the system. The backend auto-suggests student distribution across departments. Principal reviews and approves distribution. Within each department, auto-suggested staff assignments are generated. HOD reviews and approves staff allocation. Staff access their assigned students on the React Native app or Website. Staff contact students and update admission status. The backend updates the MySQL database, instantly syncing changes with web dashboards.

### C. Modules

Principal module: Approves departmental allocations and monitors institutional progress. HOD Module: Confirms staff assignments and tracks department-level admissions. Staff Module: Updates student status (Interested, Not Interested, Pending) through the app. Records Module: Maintains student records, logs, and generates reports.

## IV. IMPLEMENTATION & WORKING

The system's functionality was implemented step by step: Login & Authentication: Role-based access ensures that users only see data relevant to their role. Automatic Distribution: Students are initially distributed by algorithm, but require Principal and HOD approval before final assignment. Mobile or Website Updates: Staff mark students as Interested, Not Interested, or Pending through the app. Real-Time Sync: Updates from staff instantly appear in dashboards via WebSockets. Reports: Principals and HODs can generate real-time department-wise and staff-wise reports.

Example Case: If 150 student applications are received, the system suggests 50 per department. The Principal reviews and approves this distribution. Each HOD then reviews staff assignments (e.g., 10 students per staff). Staff contact students, and the database is updated: 85 students Interested, 40 Not Interested, and 25 Pending. The Principal's dashboard reflects this distribution instantly, ensuring clear progress monitoring.

## V. RESULTS & DISCUSSION

Prototype testing of TrackNEnroll demonstrated notable improvements: Real-time visibility: Principal dashboards updated instantly as staff made changes. Reduced workload: Automatic distribution minimized repetitive manual tasks. Improved accountability: All actions (assignments, approvals, updates) were logged. Transparency: Department-level and staff-level performance was visible to higher authorities. While highly effective, the system currently depends on stable internet connectivity and requires staff training. Offline support is a future requirement.

## VI. CONCLUSION & FUTURE SCOPE

TrackNEnroll offers a structured admission system that combines automation, hierarchical approvals, and real-time synchronization. By integrating React for the web dashboard and React Native for mobile applications, the system ensures transparency, accountability, and faster admission handling. Future enhancements may include: Offline synchronization for low-connectivity areas. AI-driven prioritization of

students most likely to take admission. Integration of payment modules for fees and scholarships. Cloud-based deployment for scalability across multiple campuses. This research demonstrates how digital workflows can modernize college admissions and create a foundation for fully automated, intelligent enrollment management.

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