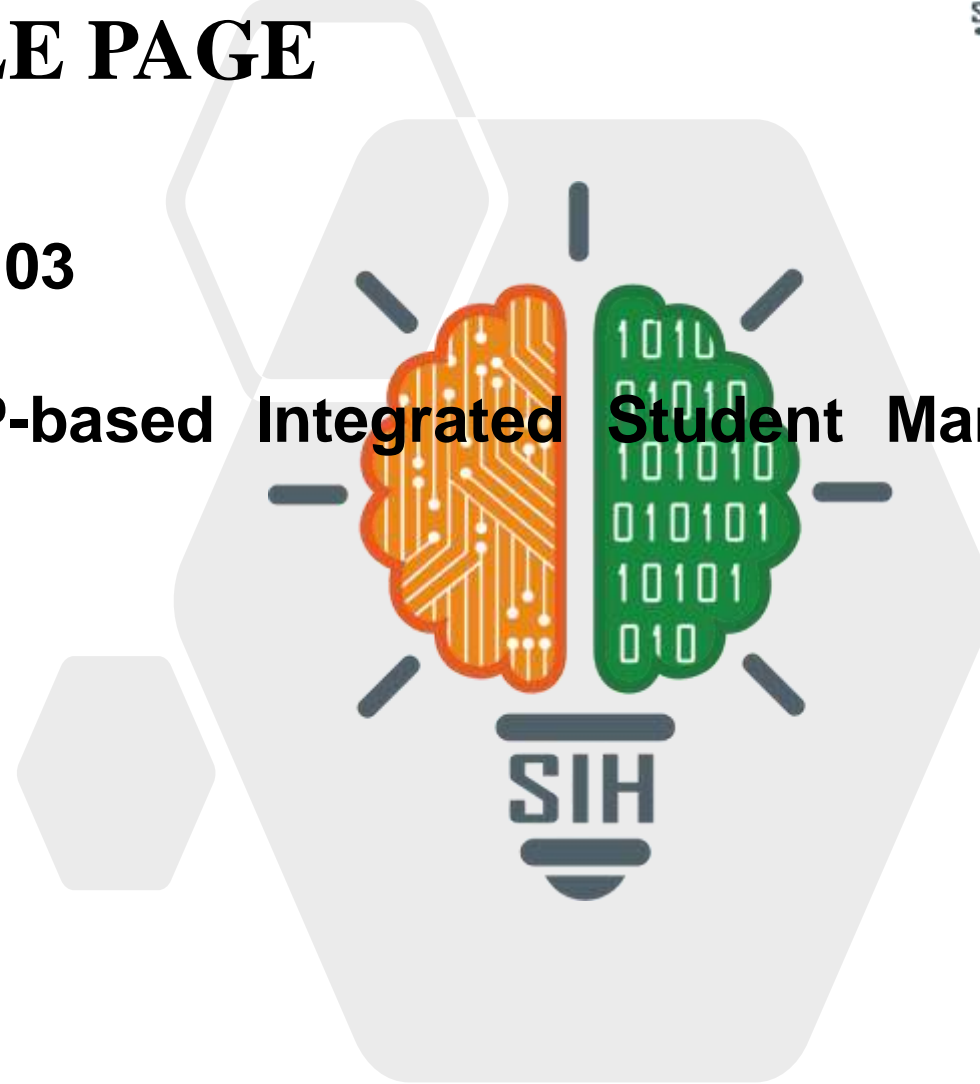


TITLE PAGE

- Problem Statement ID – SIH25103
- Problem Statement Title- ERP-based Integrated Student Management System
- Theme- Smart Automation
- PS Category- Software
- Team Name – Code Maharajas



Idea and Problem :-

Idea: A centralized, AI-assisted ERP that unifies academic, administrative, financial and support services into a single portal with a 24/7 virtual assistant for students, parents and staff.

Problem: Fragmented systems cause delays, manual paperwork, poor visibility into student records, high administrative cost and limited 24x7 support—especially in semi-urban/rural institutes.

Goal: Provide a secure, multilingual, cloud-scalable portal that reduces manual work, improves transparency and delivers instant support.

Problem solution :-

Single source of truth for student records, fees, attendance, hostels, library and exams.

Automated workflows: admission verification, fee receipts, hostel allocation and result publishing.

Secured different portals for teacher , library , staff , accounts ,Hostel , Transport , principal

Innovation and Uniqueness :-

A cloud-first, AI-driven multilingual ERP that automates the entire student lifecycle, delivers real-time insights, and enables seamless integration with institutional and government systems.

Implementation Methodology:-

- **Frontend** :- React + Tailwind (DaisyUI), HTML/JS
- **Backend** :- Node.js + Express (REST, optional GraphQL)
- **Auth & Security** :- manual auth JWT, bcrypt, RBAC
- **Database** :- MongoDB (primary); Google Sheets for light exports
- **Storage** :- Cloudinary (media/docs)
- **Emails/OTP** :- Nodemailer (fallback: SendGrid/Mailgun)
- **Chatbot/AI** :- Gemini 2.5 — chat, intent extraction, multilingual
- **Encryption** :- Bcrypt (hashing)
- **Deployment**:- Vercel (frontend), Render



Technology stack :-



Feasibility :-

Technical: Modern stack (React, Node, MongoDB, cloud) enables fast MVP and phased rollouts

Operational: Core modules (admissions, fees, profiles) deliverable in 6–8 weeks; training in Phase 2.

Financial: Pay-as-you-go cloud and phased development reduce upfront cost; pilot per college.

Potential challenges and risks:-

Data & legacy integration: inconsistent records; difficult to sync older systems.

User adoption : staff resistance and low digital literacy.

Connectivity & devices : poor internet and outdated devices.

Scaling & cost : performance bottlenecks and rising cloud bills.

Maintenance : continuous bug fixes, updates and feature churn.

Overcoming these challenges :-

Phased rollout & data checks : Pilot MVP, feedback-based improvements, automated imports with manual verification.

UX & offline support : Mobile-first UI and UX design

Security, cost & governance : Strong auth/encryption, auto-scaling with monitoring, defined ownership, backups & SLAs.

IMPACT AND BENEFITS

**Students :**

Single portal for academics, fees, exams, hostel & library with instant access.

Parents :

Transparent view of fees, results, notices and timely updates.

Institutions :

Reduced paperwork, streamlined processes, lower administrative cost.

Government :

Real-time student data for policy, planning and monitoring.

Overall :

Improved transparency, automation, efficiency and scalability across education.

GitHub Link : <https://github.com/HarshAgarwal4/SIH2025/>

Project Live Link: <https://dte-sable.vercel.app/>

RESEARCH AND REFERENCES



- Department of Technical Education, Government of Rajasthan :-
<https://dte.rajasthan.gov.in>
- https://www.academia.edu/download/91563878/vol3_issue1_ijceae20220302.pdf
- https://www.journal-aquaticscience.com/article_173871.html
- <https://aisel.aisnet.org/cais/vol1/iss1/9/>
- https://www.researchgate.net/profile/Shrikant-Kokate-2/publication/283321433_E-College_An_ERP_for_Educational_Institute/links/5633438908ae5848780aaea3/E-College-An-ERP-for-Educational-Institute.pdf