## TITLE PAGE
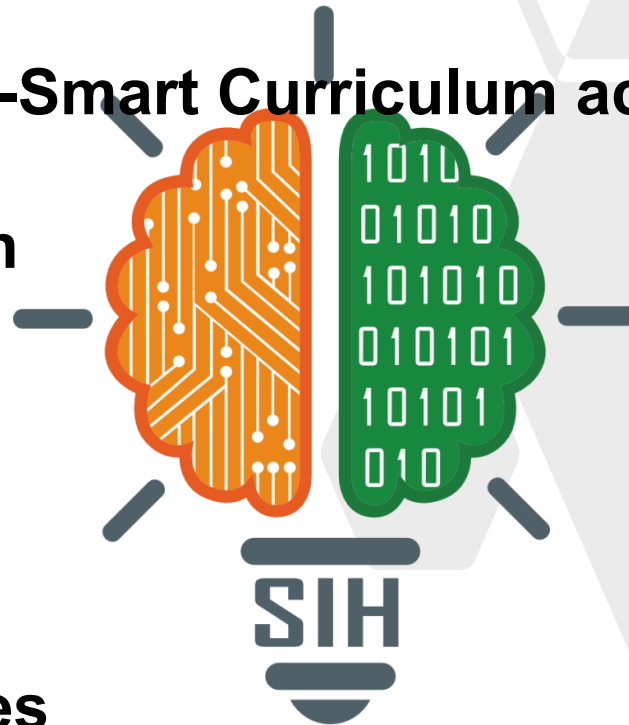
- **Problem Statement ID –25011**

- **Problem Statement Title-Smart Curriculum activity & Attendence App**

- **Theme- Smart Education**

- **PS Category- Software**

- **Team ID-**

- **Team Name - CodingBees**

**CodingBees**

# CAMPSORT

## Solution Overview

- **Smart Attendance System** → Dynamic QR (6s refresh), face recognition & seat mapping to prevent proxies.
- **Academic Support** → Access to study materials, report cards, timetables, and class updates.
- **Role-Based Dashboards** → Dedicated interfaces for students, teachers, coordinators, and principals.
- **AI-Powered Assistance** → Chatbot *Aditya* for extracurricular guidance and free-slot utilization.

## Key Features

- **Students** → Dynamic QR (6s), face recognition, seat mapping, study materials, report cards, AI chatbot *Aditya*.
- **Teachers** → Upload notes, swap/cancel classes, validate attendance, view student records, announcements.
- **Coordinators** → Manage timetables & domains, internal marks, classrooms, student & staff info, announcements
- **Principals** → Real-time dashboards, announcements, approvals, attendance & performance analytics.

## Uniqueness

- **Triple-layer attendance (QR + Face + Seat).**
- **AI chatbot** for extracurricular guidance.
- Centralized solution integrating **academics + admin + activities.**

*"Your Seat. Your Face. Your Scan. Your Proof."*

# TECHNICAL APPROACH

SMART INDIA HACKATHON 2025

## TECH TO BE USED

**Frontend Technologies:**
React.js, Bootstrap 5, Chart.js, QRCode.js,

**Security & Authentication:**
JWT, bcrypt

**Backend Technologies:**
Node.js, Express.js, Socket.io, Mongoose

**Development Tools:**
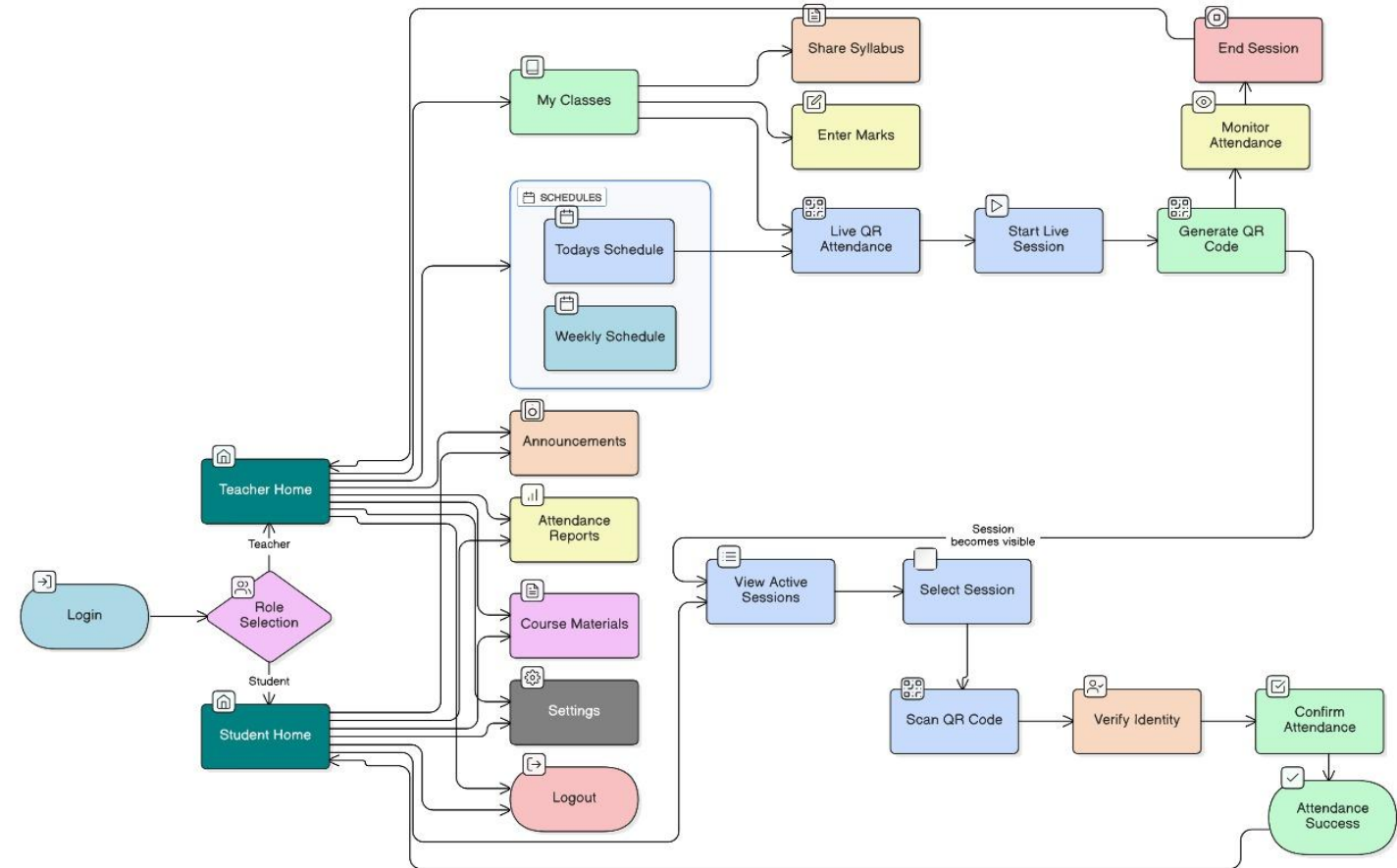VS Code, Postman, GitHub, Docker

**Database & Storage:**
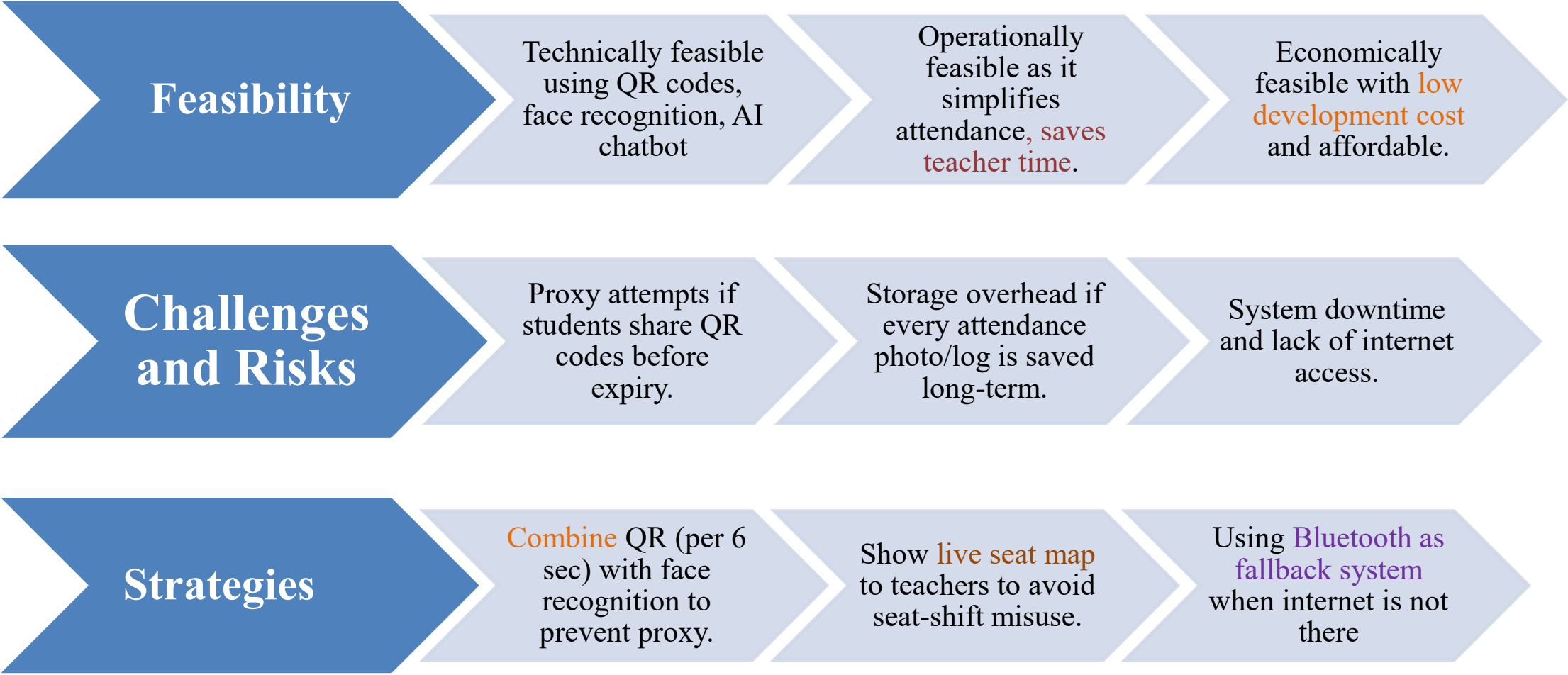MySQL, MongoDB, AWS S3

**AI/ML & Advanced :**
TensorFlow.js, Redis

## PROCESS IMPLEMENTATION



*"From Scan to Sense: Tech that Never Blinks."*

# FEASIBILITY AND VIABILITY

CodingBees

## Feasibility

- Technically feasible using QR codes, face recognition, AI chatbot
- Operationally feasible as it simplifies attendance, saves teacher time.
- Economically feasible with low development cost and affordable.

## Challenges and Risks

- Proxy attempts if students share QR codes before expiry.
- Storage overhead if every attendance photo/log is saved long-term.
- System downtime and lack of internet access.

## Strategies

- Combine QR (per 6 sec) with face recognition to prevent proxy.
- Show live seat map to teachers to avoid seat-shift misuse.
- Using Bluetooth as fallback system when internet is not there

"Affordable, adaptable, and impactful."

# IMPACT AND BENEFITS

## Impact

- **Students** → Faster, transparent attendance; access to notes, reports, timetable, and AI support for extracurriculars.
- **Teachers** → Saves class time, prevents proxy, easier resource sharing, and real-time student academics tracking.
- **Coordinators** → Simplified timetable and exam management, reduced manual workload, and smoother communication.
- **Principals/Admins** → Data-driven decisions, transparent analytics, and improved institutional efficiency.
- **Institutions overall** → Higher productivity, reduced errors, better student engagement, and enhanced trust in the system and it's also Aligned with NEP 2020's vision for technology-driven, student-centric education.

## Benefits

- **Social** → Enhances student engagement, ensures fairness in attendance, promotes transparency, and encourages extracurricular participation.
- **Economic** → Saves teacher time (more productivity), reduces administrative workload, minimizes paper-based processes, and is affordable to scale.
- **Educational** → Provides students with easy access to notes, reports, and schedules; improves learning outcomes through structured management.
- **Environmental** → Cuts down on paper usage (attendance registers, notices, report cards) → supports eco-friendly digital practices.
- **Institutional** → Strengthens trust between students, faculty, and management; builds a data-driven ecosystem for decision-making.

"Saving Minutes, Shaping Minds."

# RESEARCH AND REFERENCES

- **Automated Employee Attendance** Monitoring Using Liveness Face Recognition and Geofencing in Real Time, IEEE ICAECC, 2023.
- Automated Attendance Management Systems, International Journal of Technology Enhanced Learning, 2022.
- **AI-Powered Learning Management** System for Enhanced Education, IEEE ICICV, 2025.
- **National Education Policy 2020, Government of India**. (https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)
- **Generative AI** Tools for Classroom Content Creation, IEEE Conference, 2025.
- https://ijiset.com/vol10/v10s7/IJISET_V10_I7_03.pdf

EXISTING SYSTEMS

"Smart Education is the spark that fuels Atmanirbhar Bharat."