SMART INDIA HACKATHON 2025

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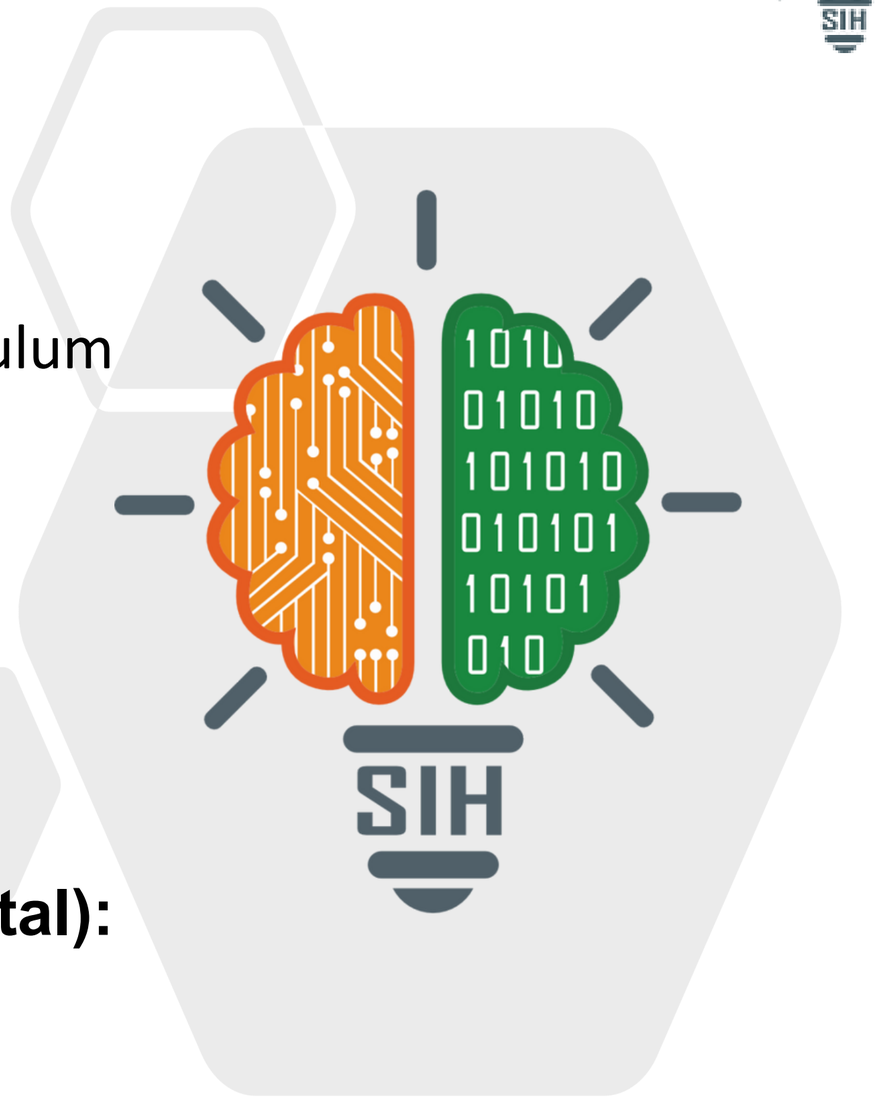
- **Problem Statement ID –** 25011
- **Problem Statement Title-** Smart Curriculum Activity & Attendance App
- **Theme-** Smart Education
- **PS Category-** Software
- **Team Name (Registered on portal):** HEXACODERS



Smart Curriculum Activity & Attendance App

• Proposed Solution

- **Automated Attendance System –**face recognition to mark attendance instantly, reducing manual errors and saving class time.
- **AI-Powered Routine Generator –** Integrate APIs to create a personalized daily routine by combining class schedules, free periods, and long-term career/academic goals.
- **Personalized Task Suggestions –** Use machine learning/AI APIs to recommend productive academic and skill-building tasks during free periods, tailored to each student's interests and strengths.
- **Unified Student Dashboard –** Provide students with a real-time dashboard showing attendance status, upcoming classes, suggested tasks, and progress tracking for better time management.

TECHNICAL APPROACH

Technical Architecture

- Camera Module: Captures student faces for recognition
- Face Recognition Engine: Processes and matches facial features
- Database System: Stores student data, entry/exit times, and attendance records
- Time Calculation Engine: Computes total class time and determines attendance status
- Automated Features: Timetable generation and task management systems

Key Design Features Attendance Logic:

- Automated Timetable: Generates dynamic schedules based on curriculum requirements and student availability.
- Personal Guidance: Provides task recommendations and career guidance when students have free time.
- This design workflow provides a complete visual blueprint for your student attendance management system

, ensuring seamless user experience while maintaining robust functionality for educational institutions.

FEASIBILITY AND VIABILITY

- **Low Infrastructure Requirement** – Uses existing smartphones, QR codes, or classroom Wi-Fi/Bluetooth, minimizing additional hardware costs.
- **Ease of Adoption** – Simple mobile app/web interface ensures teachers and students can adapt with minimal training.
- **Scalable Design** – Can be deployed across multiple classrooms, departments, or institutions without significant changes.
- **Cost-Effective Implementation** – Leverages widely available technologies (QR/face recognition APIs, cloud hosting), making it affordable for educational institutions.
- **Sustainable Impact** – Enhances efficiency, improves student engagement, and aligns with NEP 2020 goals, ensuring long-term relevance.

IMPACT AND BENEFITS

- **Time Efficiency** – Automates attendance, saving valuable teaching hours for instruction and learning.
- **Accuracy & Transparency** – Ensures reliable, real-time attendance records, minimizing errors and proxies.
- **Student Productivity** – Converts free periods into structured learning with personalized academic tasks.
- **Personalized Growth** – Supports individualized routines aligned with student interests and career goals.
- **Institutional Insights** – Provides analytics for teachers and administrators to improve engagement and efficiency.

RESEARCH AND REFERENCES

•Face Recognition based Attendance System" (Research paper on advancements in facial recognition for attendance)

https://www.ijert.org/research/face-recognition-based-attendance-system-IJERTV9IS060615.pdf

•"Face Recognition Smart Attendance System using Deep Learning" (Deep learning application in facial attendance)

https://www.sciencedirect.com/science/article/pii/S1877050921019232

•"Development of an Attendance Management System Using Face Recognition" (Project with design, simulation, and implementation details)

https://journaljerr.com/index.php/JERR/article/view/1307

•"Class Attendance System Based on Face Recognition" (System design and implementation)

https://www.iieta.org/journals/ria/paper/10.18280/ria.370517

•"Facial Recognition Attendance System Using Python" (Implementation using Python and OpenCV)

https://www.questjournals.org/jses/papers/Vol5-issue-2/D05021829.pdf