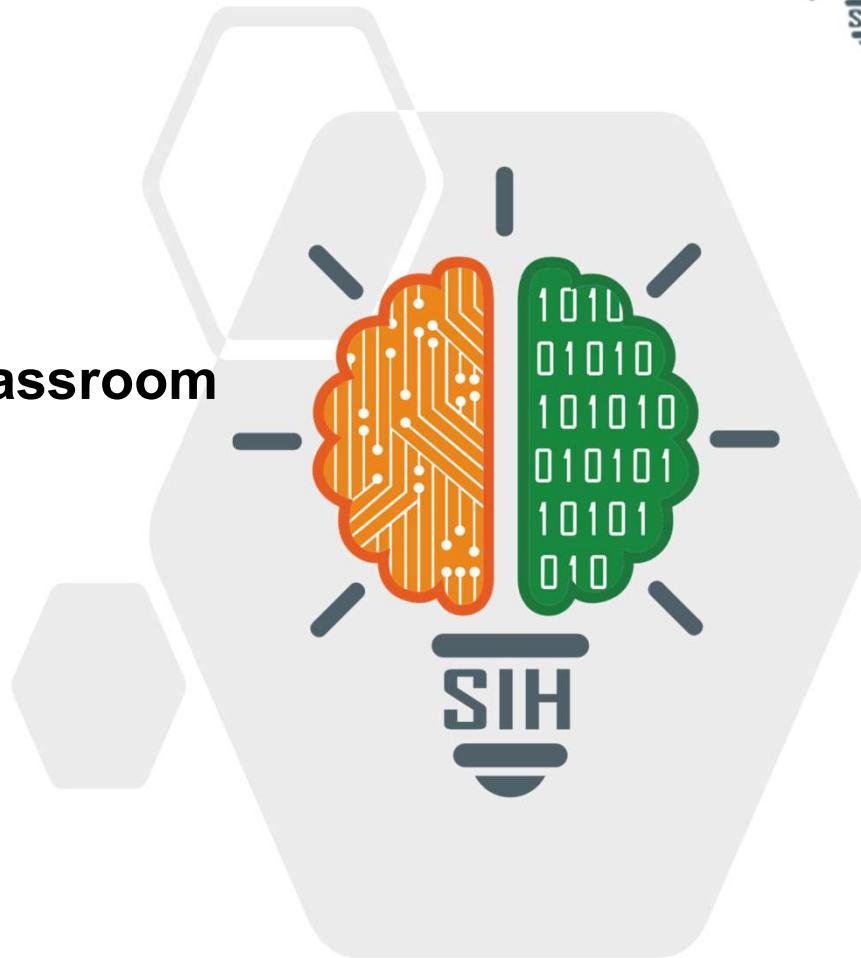


SMART INDIA HACKATHON 2025



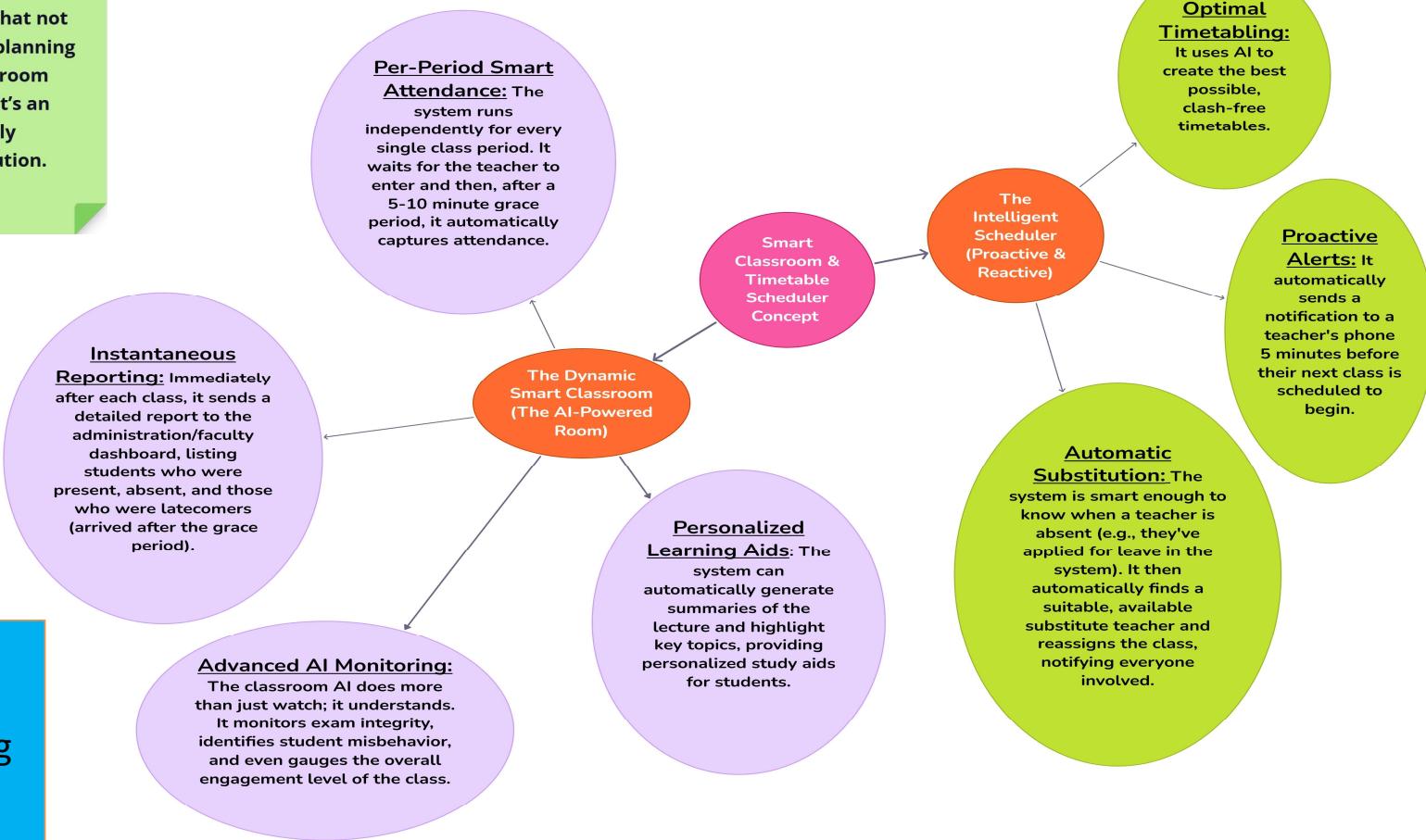
- **Problem Statement ID –SIH25028**
- **Problem Statement Title- Smart Classroom**
- **& Timetable Scheduler**
- **Theme- Smart Education**
- **PS Category- Software**
- **Team ID-59903**
- **Team Name-DELTA**



smart classroom and time table generator



Our Dynamic Classroom & Intelligent Scheduler is a next-generation platform that not only automates academic planning but also manages the classroom environment in real-time. It's an all-in-one solution for a truly modern educational institution.



Automatic lights control and smart board control using sensors and voice detection.

TECHNICAL APPROACH

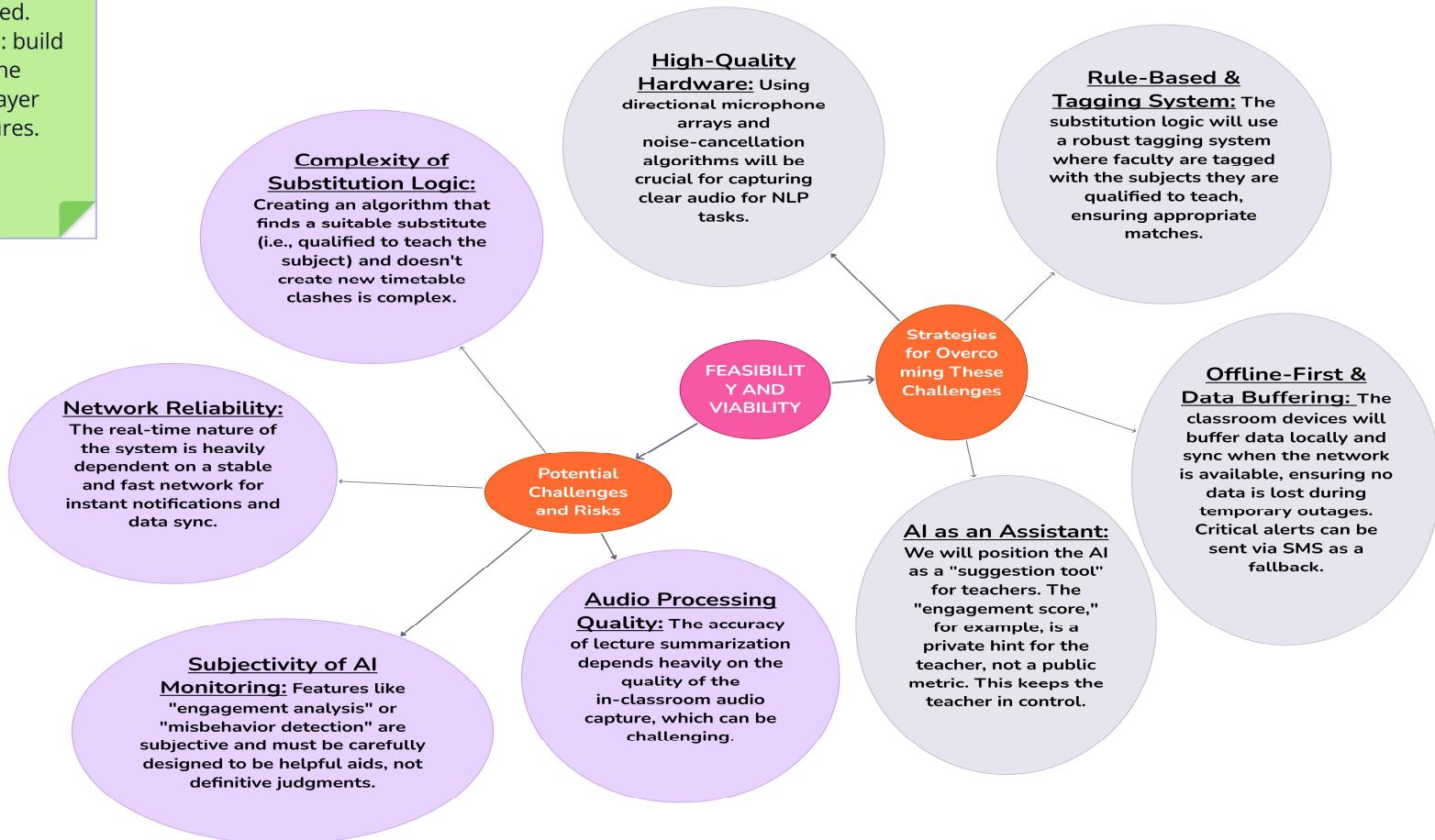


<i>Category</i>	<i>Component</i>	<i>Technology / Tool score</i>
Smart Classroom AI and time table generator	Web Platform	Real-time Database
	Backend	Node.js or Python with Django Channels
	Hardware	Raspberry Pi 4/5, Wide-angle Camera, Microphone Array
	Vision Libraries	OpenCV, TensorFlow/PyTorch
Communication	NLP Libraries	Hugging Face, spaCy
	Push Notifications	Firebase Cloud Messaging
Methodology	Backup Alerts	Twilio/SendGrid (SMS & Email)
	Process	Agile Development

FEASIBILITY AND VIABILITY



Analysis of the Feasibility of the Idea:
The project remains highly feasible,
but the complexity has increased.
The key is a modular approach: build
the core scheduler first, then the
attendance system, and then layer
on the more advanced AI features.



IMPACT AND BENEFITS



The impact of this enhanced system is transformative, moving from simple automation to creating a truly intelligent and responsive academic environment.

Benefits of the Solution:

Maximized Academic Productivity: With automatic substitution and enhanced engagement, every single academic hour is utilized to its fullest potential.

Creates a Culture of Punctuality and Accountability: Real-time, per-period tracking naturally encourages students and faculty to be on time and prepared.

Empowers Teachers with AI Superpowers: The system acts as a personal assistant for every teacher, handling administrative tasks, providing insights into student understanding, and even helping them manage the classroom.

Data-Driven Educational Strategy: The institution gains incredibly rich data on everything from syllabus pacing and difficult topics to student punctuality, enabling long-term strategic improvements.

Enhanced Student Learning Experience: Features like automated summaries and better-paced lectures directly contribute to improved student comprehension and retention.

RESEARCH AND REFERENCES



1. Automatic Timetable Generator

Link: <https://share.google/QM10YctlH6IEJZNIZ>

2. Adaptive Learning & The "Digital Twin" Concept

Link: <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-021-00284-y>

3. Ethical Frameworks for AI in Education

Link: <https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>

4. Core AI/ML & Data Technologies

Links: <https://www.tensorflow.org> and <https://pytorch.org>