# Project Proposal: AttendAI
# (Smart Attendance Tracker using Classroom CCTV and AI)

## Project Overview:

Traditional classroom attendance systems are manual, time-consuming, and prone to human error. This project proposes an AI-based attendance system that leverages existing CCTV cameras installed in classrooms to automatically detect and recognize students present in the class, and then mark their attendance according to the class routine. This ensures accuracy, saves time, and improves overall class monitoring.

## Problem Statement:

Manually taking attendance in large classrooms is inefficient and distracts from valuable teaching time. Moreover, students may be marked present even if they are not physically present (proxy attendance). There is a lack of intelligent systems that can automate this process using existing infrastructure like CCTV.

## Key Features:

- **Face Detection & Recognition**: Using computer vision to identify individual students from CCTV footage.
- **Time & Duration Analysis**: Track how long each student was present during the class.
- **Routine Mapping**: Link with academic routine to determine which student was supposed to attend the class.
- **Automated Attendance Marking**: Auto-update the attendance system without teacher intervention.
- **Privacy & Security**: Data will be securely stored and only accessible by authorized users.

## Uniqueness of the Idea:

While face recognition attendance systems exist, no existing solution directly uses classroom CCTV + class routine mapping to fully automate attendance without any additional hardware or interaction. This project utilizes already-installed CCTV cameras and adds an AI layer to it — making it cost-effective and novel.

## Potential Future Improvements:

- Integration with university portal for real-time attendance display.
- Emotion detection to analyze class engagement.
- Notify students/guardians if someone is absent for multiple classes.

## Conclusion:

This project introduces an innovative approach to solving the attendance problem in educational institutions using AI and existing infrastructure. It not only automates the process but also ensures accuracy, reliability, and reduces workload for educators - setting a benchmark for smart campuses.


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