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“AI Project Proposal”

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Shanto Mariam University of Creative Technology
CSE-3311: Artificial Intelligence

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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Project Proposal: Hey Cal
(An AI-Powered Voice-Activated Smart Calculator)

Project Overview:

“Hey Cal” is a hands-free, always-listening, intelligent calculator app designed for mobile devices. It allows users to perform complex and simple mathematical operations using natural spoken language—without touching the phone or opening any app. Users simply say the command in casual language, like “Hey Cal, what is 5 sum 8,” and the app responds instantly with only the answer: “13, sir.”This project aims to build an AI assistant focused solely on efficient, accurate, and non-intrusive voice-based calculation.

Problem Statement:

Traditional calculators—both physical and digital—require manual input and app navigation. Voice assistants like Google Assistant or Siri can perform calculations, but they often respond with extra context, ads, or questions. Users need a quick, distraction-free tool to get just the answer without opening apps or dealing with clutter.

Proposed Solution:

“Hey Cal” will be a **background-running mobile AI app** that:

1. Continuously listens for its activation keyword (“Hey Cal”).
2. Converts **casual spoken language into structured math expressions**.
3. Supports **basic to advanced mathematical operations**, such as:
    - Sum, minus, multiply, divide
    - Square roots, percentages, exponents
    - Trigonometry and logarithmic functions
    - Math riddles (e.g., “What’s 10 times the square root of 16?”)
4. Speaks back **only the answer**, with no extra dialogue or delay.
5. Works **offline** after initial setup, ensuring privacy and speed.

Uniqueness of the Idea:

Unlike standard voice assistants, this tool is laser-focused on only math—no greetings, no context, no distraction. It blends the power of natural language understanding with smart audio response, giving users instant results with a “siri-like” experience, but only for calculation. Also, its offline-first mode makes it private, fast, and always available.

Use Cases:

- Students solving quick math without pausing their workflow
- Professionals needing fast calculations without unlocking their phone
- People with visual impairments or disabilities

Conclusion:

“Hey Cal” is a futuristic take on calculators—simple, elegant, and voice-first. It reduces friction in daily life calculations and provides a unique way to interact with AI for mathematical problem-solving, making it a standout idea in AI-powered utility tools.

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