ABSTRACT

In modern educational and corporate environments, accurate and efficient attendance management is crucial. Manual attendance systems are time-consuming, error-prone, and susceptible to manipulation. To address these limitations, this project introduces a **Face Recognition-Based Attendance System** using Python and the `face_recognition` library, integrated with **Google Sheets** and **Gmail** for automated attendance tracking and notifications. The system performs real-time face detection and recognition by capturing live video frames, identifying individuals, and logging their attendance automatically. A preloaded local database of known faces is used to match real-time captured images using 128-dimensional facial feature vectors. If a match is found, the system marks attendance in a **Google Sheet** with the corresponding date and time.

Additionally, it fetches the registered email ID of the recognized individual from the sheet and sends a personalized attendance notification via **Gmail**, ensuring real-time communication and transparency. The system operates with high accuracy and efficiency, reducing the burden on administrative staff. It minimizes manual errors and enables contactless attendance, which is especially useful in pandemic or health-sensitive contexts. In conclusion, the Face Recognition-Based Attendance System combines AI-powered vision, integration, and communication automation to deliver a reliable, user-friendly, and scalable solution for attendance monitoring.