dance System Using Face Recognition and QR Validation with Device and Sess

Abstract

This paper proposes a secure digital attendance system that combines face recognition and QR validation with device bin
The system addresses proxy attendance, multi-device misuse, and fake scans
It enhances security and ensures verifiable records.

Introduction / Problem Statement

Traditional attendance systems suffer from proxying, misuse, or high cost
Problem: Institutions need a reliable, fraud-resistant attendance system that prevents proxying and ensures accountability

Related Work (Existing Solutions)

Manual roll call is error-prone
Biometric systems need costly hardware
QR-only is easily shared
Face-only can be spoofed
Gap: No system combines multi-factor validation with device and session restrictions.

Proposed Method

Hybrid Attendance (Face + QR), Device Restriction (one-device-per-user), Logout Policy (IT approval), Session Face Loc

Implementation

Frontend: React Native
Backend: Node.js + Express
Database: MySQL
Face Detection: Expo Camera (planned ML Kit upgrade)
QR Handling: Lecture-generated only.

Results & Observations

System prevented multi-device misuse, proxy attendance, and fake QR scans
Added traceability with photo + hash.

Conclusion

The system provides a fraud-resistant, low-cost, scalable attendance mechanism
Hybrid validation with session/device restrictions eliminates attendance fraud.

Future Work

Upgrade face detection with ML Kit, add liveness detection, AI-based embeddings, and cloud deployment for multi-institut