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Problem Statement: Automated Attendance System for Rural Schools

Problem Statement ID: 25012

Source : Government of Punjab

Github Repository: <https://github.com/Tanish-132/Automated-Attendance-System-for-Rural-Schools.git>

Approach:

To solve the problem of manual and error-prone attendance in rural schools, we propose developing a low-cost, offline-first QR-code-based automated attendance system. Each student will receive a unique QR ID card, and teachers will use an Android app to quickly scan these codes and record attendance even without internet connectivity. The data will be stored locally on the device and automatically synced to a central cloud database whenever a connection becomes available. A simple web dashboard will enable school administrators to monitor attendance trends, generate daily or monthly reports, and provide accurate data for government programs such as mid-day meals and scholarships. The solution will be implemented in four stages—design and development, pilot testing, full deployment, and government integration—ensuring the system is easy to adopt, scalable, and reliable for rural environments with limited resources.

Plan for System Architecture:

I will begin by defining a lightweight, modular system architecture that can run efficiently in low-resource environments. This includes choosing technologies that support offline operation, low bandwidth, and easy scalability. I will design APIs and data flows that keep the system simple, secure, and easy to maintain.

Category: Software

Theme: Smart Education

Organization: Government of Punjab

Department: Department of higher education