Smart Attendance System

Project Documentation  
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# 1. Project Overview

The Smart Attendance System is a mobile-based application designed to simplify and automate the attendance process for organizations. It allows users to securely log in, reset passwords, verify identity via OTP, scan QR codes for attendance, and view daily attendance reports. The application is built using Flutter for the frontend, PHP for backend services, and MySQL as the database.

# 2. Key Features

• User Authentication (Login, Forgot Password, Reset Password)

• OTP Verification for secure password reset

• QR Code scanning for attendance marking

• Attendance submission confirmation

• Daily attendance report view and submission

• User profile management

# 3. Technology Stack

|  |  |  |
| --- | --- | --- |
| Component | Technology Used | Description |
| Frontend | Flutter (Dart) | Cross-platform mobile app framework |
| Backend | PHP (REST API) | Handles authentication, QR processing, and database operations |
| Database | MySQL | Stores user data, attendance records, and reports |
| Hosting | Apache | Server environment for hosting PHP backend |
| Tools | VS Code / Android Studio | Development & debugging environment |
| Version Control | Git & GitHub | Source code management |

# 4. System Architecture

The Smart Attendance System follows a three-tier architecture:  
1. Flutter frontend sends requests to backend APIs for authentication, attendance, and reporting.  
2. PHP backend processes requests and communicates with the database.  
3. MySQL database stores all application data including users, attendance logs, and reports.

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# 5. Database Structure (Example Tables)

\*\*users\*\*  
- id (PK)  
- name  
- email  
- password  
- created\_at

\*\*attendance\*\*  
- id (PK)  
- user\_id (FK)  
- date  
- time  
- status

\*\*reports\*\*  
- id (PK)  
- user\_id (FK)  
- report\_date  
- morning\_time  
- evening\_time

# 6. Development Timeline

|  |  |  |
| --- | --- | --- |
| Module | Description | Estimated Days |
| Project Setup & Environment | Flutter + PHP + MySQL setup | 1 |
| UI Development (Flutter) | Login, OTP, Dashboard, QR Scanner, Reports | 4 |
| Backend API Development (PHP) | Authentication, OTP, attendance APIs | 5 |
| Database Design (MySQL) | Schema creation, relationships, indexing | 1 |
| Integration & Testing | Frontend-backend integration and testing | 3 |
| QR Code Functionality | Scan and verify attendance feature | 1 |
| Final QA & Deployment | Bug fixing and deployment | 1 |

✅ Total Estimated Time: 16 Days

# 7. Future Scope

• Push notifications for attendance reminders

• Attendance analytics and reports

• Multi-role access control (Admin, HR, User)

• Integration with biometric or RFID systems

# 8. Cost Details (Approximate)

| **Service** | **Monthly Cost (₹)** | **Notes** |
| --- | --- | --- |
| Twilio (OTP SMS) | 2,490 | ₹0.83 per OTP × 100 users × 30 days |
| SendGrid Paid Email | 450 | ₹0.15 per email × 100 users × 30 days |
| Google Maps (Location API) | 1.35 | ₹0.00045 per request × 100 users × 30 days |
| Push Notifications (FCM) | 0 | Free |
| QR Code Generation | 0 | Free (using GoQR.me or local generation) |
| **Total Estimated Cost** | **2,941.35** | Sum of all services |