

FEATURES LIST (SHORT, PRECISE, COMPLETE)

User Roles & Access

- Admin
- Teacher
- Student
- Accountant
- Custom roles (admin-defined)

Permissions

- Access
- Edit (UI avoids “read/write” wording)

Student Management

- Name
- Roll number
- Class / section
- Assigned classes
- Parent & student WhatsApp numbers
- Metadata fields

Teacher Management

- Assigned classes
 - Mark attendance
 - Enter grades
 - Publish results (manual trigger)
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Attendance System

- Manual attendance
 - Automatic alerts on absence
 - Integration with facial recognition (optional)
 - Per-class & per-day records
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Alert System (WhatsApp)

- Automated alerts:
 - Absence
 - Result published
 - Manual alerts:
 - Entire school
 - Selected classes
 - Selected students (cross-class)
 - Custom message editor
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Excel Import / Export

- Download template
 - Upload Excel
 - Strict column name matching
 - Ignore extra columns
 - Auto-create student records
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Fee Management

- Class-wise student view
 - Monthly fee
 - Pending / partial / paid status
 - Inventory charges added to monthly bill
 - Full breakdown per student
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Accounting Dashboard

- Filters:
 - Not paid
 - Partially paid
 - Fully paid
 - Default hides fully paid
 - Graphs & visuals (useful only)
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Payment Modes System

- Cash
 - JazzCash
 - EasyPaisa
 - Bank transfers
 - Custom modes (admin add)
 - Stored lowercase (no duplicates)
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Daily Cash Reconciliation

- Opening balance
 - Closing balance
 - Expected vs actual per payment mode
 - Mandatory comment on shortage
 - Red / green indicators
 - Forced reconciliation before logout
 - Popup on next login if skipped
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Inventory & Sales

- Predefined inventory items
- Unique item names (case-insensitive)
- Variable prices allowed
- Sales added to student account
- Timestamped entries
- Included in monthly fees

Invoices & Printing

- Landscape PDF invoices
- Download PDF
- Direct print option
- Print:
 - Entire school
 - Selected classes
 - Selected students
- Search by:
 - Name
 - Roll number
 - Class



Reports (Admin & Accountant)

- Fee collection graphs
- Payment mode distribution
- Daily / monthly summaries
- Clean visuals only (no clutter)

FACIAL RECOGNITION ATTENDANCE (PLUGIN)

Technologies (Tech Stack)

Frontend

- **React (web-first)** – runs standalone or inside CMS 
- **PWA** – works on desktop & mobile 
- MediaPipe Face Detection – client-side stabilization
- HTML5 Video + Canvas

- Tailwind CSS & Framer Motion

Backend

- **Python (FastAPI, standalone service)** – handles only face recognition ✓
- FaceNet – embedding generation
- Cosine distance – identity matching
- NumPy & OpenCV

Storage

- **File-based: JSON + NumPy files** – self-contained, plug-in/out friendly ✓
- Attendance stored in CMS, not in FR module ✓

Plug-and-play highlights ✓:

1. Web-first PWA frontend → works standalone or integrated
2. Backend is standalone → only provides identity API
3. File-based storage → independent & easy to backup/restore
4. Attendance managed by CMS → module can be enabled/disabled easily