Pravesh Proposal

A complete smart entry-exit solution for campuses with different interfaces for students, guards, wardens, and faculty — all connected through a single app and backend system. This system will be managed by CRISPR & IoTics.

Overview

Pravesh enables:

- QR-based student entry/exit.

- Visitor approval by teachers.

- Warden monitor and control over late entries.

- Fest ID and special access system.

- Admin logging and real-time notifications .

Interfaces Overview

Student Interface

- Scan QR to mark Entry/Exit.

- Request Leave Form (includes destination, purpose, time).

- QR with a Time Limit.

- Logs section: View past entries, exits, and leave status.

- Notification on approval/rejection of leave.

- Late Entry Notification visible after 8 PM, auto-logged and flagged.

Guard Interface

- Main dashboard:

    - Scan QR

    - Manually Override for backup.

    - Visitor Entry Form

- Visitor will select Teacher name from dropdown, click photo, auto-time log.

- If after 8 PM for students: Auto-prompt to notify warden.
- CSV export option for logs.

Teacher Interface

- Receives Visitor requests from Guard.

- View photo, time, name of visitor.

- Approve or Reject with optional remarks.

- Log section for past visits.

- Notification preferences and auto-approve settings.

Warden Interface

- Real-time alerts after 8 PM entry.

- Can approve or deny late entries.

- View all student logs.

- Sort/filter logs by date, student ID.

- Flagging option for repeat latecomers.

- CSV export option for logs.

Interlinking Logic

- QR generated on Flutter App is unique per user, tied to unique QR_ID and DEVICE_ID and timestamp.

- QR expires every few minutes for security.

- QR scanners at MAIN GATE through QR code scanner.

- If after-hours, send notification to Warden.

- Visitor flow sends an alert to the Teacher for approval.

- Fest QR generated by admin and linked to temporary visitor profile.

Backend Setup (Beginner Friendly)

Backend Stack (Recommended)

- Platform: Strapi (Node.js-based CMS)

- Database: MySQL

- Hosting: CRISPR server

- Image Storage: CRISPR server

- Notifications: OneSignal

Backend Structure

Tables/Collections:

1. Users (Students, Faculty, Warden, Guard)

    - BT_id, name, email, role, photo, device_id,room_no

2. Log

- - BT_id, user_id,phone_no, name,room_no,timestamp, method (QR/manual), status,Entry_timestamp,Exit_timestamp

3. LeaveRequests

- - BT_id, user_id, reason, destination,Additonal_conatct, from_time, to_time, status , no_of_days,(pending/approved/rejected)

4. VisitorLog

- - id, name, photo_url, visiting_faculty_id, timestamp, status, guard_id

5. FestEntries

- - id, temp_id, email,assigned_name, assigned_to, valid_time_range

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Authentication

- Use Strapi for secure login sessions.

- Guard login uses device-based login (1-time generated code)

- Student/Faculty/Warden login via:

  - College email verification

  - Password-based login

Notification Setup

- Use OneSignal in Flutter+Strapi to:

  - Alert wardens after 8 PM entry

  - Notify faculty of visitors

  - Notify students of leave approval

Team Structure

Mentors
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Frontend

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3. Rishabh Bansal - BT24CSE102 (8851145218)
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Backend

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Hardware Integration

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Q/A & Testing

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Development Timeline

Task	Expected Deadline
Planning & Documentation	24th July 2025
4 Interfaces (Guard, Student, Teacher, Warden)	2nd August 2025
Full App + Hardware Demo Ready	29th September 2025
Final Testing Begins	30th October 2025
Remove Manual Registers	10th November 2025

Pravesh Hardware Specification

Purpose

To outline the essential hardware components and assembly methods for the Pravesh Smart Entry/Exit System, built for use at college gates. This includes QR verification for students, visitor logging, and secure faculty access.

1. Core Hardware Components

Component	Purpose	Price
Realtek AMB82 IoT Camera X 2	For scanning QR codes generated by the Pravesh app.	Rs. 6000
Waveshare 5 inch Resistive TFT LCD Display X 2	For showing status of entry/exit with student details.	Rs. 8600
ChargeXcel Mini UPS X 2	For uninterrupted power supply	Rs. 6000
Green and Red LED	Indicates successful or unsuccessful QR scan and entry.	Rs. 40
Buzzer X 2	Provides audible feedback on scan status.	Rs. 100
Micro USB Cable X 2	Power and programming the AMB82-CAM.	Rs. 500
PLA filament bundle	Houses and protects the AMB82-CAM unit at the gate.	Rs. 6000

Waterproof Sealant	Ensures dust and water resistance for the case.	Rs. 500
Jumper Wires + Electric wires	Internal connections between AMB82 and peripherals.	Rs. 1250
220Ω Resistors (Pack of 10)	Current limiting resistors for LEDs	Rs. 20
Sunon MagLev 5V 40mm Silent Fan X 2	To cool the board	Rs. 1000
Heat sink	To prevent overheating	Rs. 200
MicroSD Card (16GB) X 2	To store data as backup	Rs. 600
Play Store & App Store Deployment	For releasing app in iOS and Android devices	Rs.12000

Total Estimated Cost: Rs. 44,060
Apple App Store Developer Fee: Rs. 9,000/year (recurring)

2. Construction and Mounting

- **Enclosure**: Made using acrylic or polycarbonate sheets.

  - Joined using industrial-grade waterproof sealant.

  - Transparent window for camera lens.

  - Slots for ventilation, power cable routing.

- **Mounting**:

  - Wall-mounted or pole-mounted near the gate.

  - Installed at eye level for easy QR scanning.

3. Role-Based Device Usage

- **AMB82-IoT Based CAM Device**:

  - Used for scanning QR codes.

- ○ Mounted at the gate and connected to the backend for validation.

- ● **Guard Device (Phone/Tablet)**:

  - ○ Used to enter visitor details and take visitor photographs.

  - ○ Handles late-night student entries after 8 PM:

    - ■ Marks the entry as "Late".

    - ■ Captures student details.

    - ■ Sends permission requests to Warden.

    - ■ Treated like a visitor request with approval workflow.