Rail Madad

In-Train Passenger Assistance System

Group ID: 26

https://youtu.be/A5ZgRJDsmV0

Passengers face several in-train issues such as:

- Complaints related to Cleaning and improper facilities
- Food ordering
- Lost belongings
- Emergency medical or safety concerns
- Poor communication between passengers and staff

Existing manual systems are slow and lack transparency.

Proposed Solution:

Our proposed In-Train Service Management System is designed to simplify and streamline the handling of passenger requests and issues during the journey through a single, integrated platform.

01.

Unified Complaint Portal:
A centralized web application where passengers can easily raise, view, and track their complaints in one place, eliminating confusion and ensuring transparency.

02.

Role-Based Dashboards:
Dedicated interfaces for each user type —

- **Passengers**: Submit complaints, upload evidence, and check complaint status.
- **Staff Members**: View assigned complaints, update progress, and provide resolutions.
- **Administrators**: Oversee all activities, manage user roles, and analyze overall complaint trends.

03.

Category-Wise Complaint Modules
Complaints are organized into distinct modules such as Catering, Lost & Found, Emergency, and Feedback, enabling faster categorization, assignment, and resolution by the relevant department.

04.

Real-Time Order Updates and Notifications
Passengers receive instant updates as their food order moves through each stage
— from placement to preparation, kitchen processing, and delivery
— ensuring transparency and timely service.

System Architecture:

Overview

The system follows a Three-Tier Architecture:
Frontend (Client) → Backend (Server/API) → Database
It ensures modularity, scalability, and secure data flow between users and the system.

Frontend(Presentation Layer)

- User interfaces for Passengers, Staff, and Admins.
- Complaint submission and tracking forms.
- Dashboard views for different roles.
- Integration with backend APIs via HTTPS.
- JWT storage in browser (securely using HTTP-only cookies or local storage).

Backend/API Server(Application Layer)

- Handles all API requests from frontend.
- Validates and processes complaint data.
- Role-based access control and authentication using JWT.
- Manages complaint life cycle (create → assign → update → resolve).
- Sends real-time updates

Database (Data Layer)

- Acts as the central data storage for all system entities (users, complaints, logs, categories, etc.).
- Ensures data consistency, integrity, and fast retrieval using MongoDB's document-based structure.
- Database: MongoDB (NoSQL, document-oriented).
- ODM (Object Data Modeling): Mongoose for schema definition and validation.

Backend Structure

01

Controllers:

- admincontroller.js
- cateringcontroller.js
- complaintController.js
- emergencyController.js
- feedbackController.js
- foodController.js
- lostnfoundController.js
- newsController.js
- staffcontroller.js
- usercontroller.js

02

Middlewares:

- adminAuthentication.js
- staffAuthentication.js
- userAuthentication.js

03

Models:

- adminModel.js
- cateringModel.js
- complaintModel.js
- emergencyModel.js
- feedbackModel.js
- foodModel.js
- lostnfoundModel.js
- NewsModel.js
- staffModel.js
- userModel.js

04

Routes:

- adminRoutes.js
- cateringRoutes.js
- complaintRoutes.js
- emergencyRoutes.js
- feedbackRouter.js
- foodRoutes.js
- lostnfoundRoutes.js
- newsRouter.js
- staffRoutes.js
- userRoutes.js

Cloudinary for image uploading and JWT Token authentication for Login and Registeration

Tech Stack

- **Frontend** - HTML, CSS, Javascript
- **Backend** - Node.js, Express.js
- **Database** - MongoDB
- **Authentication** - JWT
- **Image and File Uploads** - Multer and Cloudinary
- **Testing API's** - Postman

Key Functionality

01.

User (Passenger)

- Register / Login, Submit Complaints, Track Status
- Passengers can create an account, raise complaints, upload images or descriptions, and monitor the progress of their issues in real time.

02.

Admin

- Manage Users & Complaints, Assign Staff, View Analytics
- The admin oversees all complaint categories, manages user roles, assigns staff to specific complaints, and reviews overall system performance.

03.

Staff

- View Assigned Complaints, Update Status, Resolve Issues
- Authorized staff members handle assigned complaints, provide updates, and mark complaints as resolved once addressed.

04.

Food Ordering

- Order and Review Onboard Food Services
- Passengers can browse menus, place food orders during travel, and track order preparation and delivery status.

05.

Lost & Found Module

- Report and Manage Lost Items
- Manages complaints regarding lost or found belongings, enabling verification and return tracking.

06.

Emergency Module

- Address Urgent Onboard Situations
- Handles time-sensitive complaints such as medical emergencies, safety concerns, or urgent onboard assistance.

07.

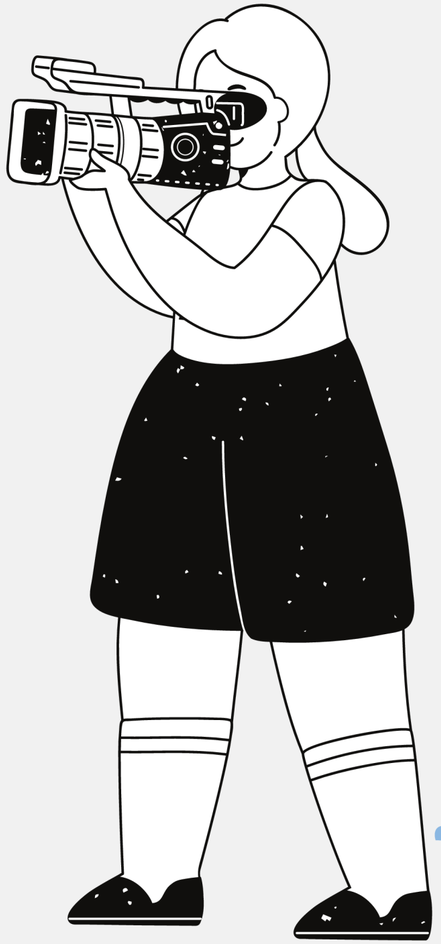
Feedback Module

- Collect Service Ratings and Comments
- Allows passengers to share experiences, rate services, and suggest improvements for future journeys.

08.

Catering – Staff Management

- Manage Orders, Coordinate Kitchen & Delivery
- Catering staff can view passenger food requests, assign them to chefs for preparation, manage kitchen operations, and coordinate delivery through managers and distributors.



Future Enhancements & Conclusion

Our system aims to enhance user experience with live train and PNR integration, linking complaints to real-time data. Passengers will receive instant alerts via SMS or email. Features like AI-based categorization and an analytics dashboard will improve efficiency and decision-making.

The Complaint Management System ensures a transparent and secure way to raise and track issues. It unites passengers, staff, and admins on one platform with real-time updates. The system boosts accountability and responsiveness, moving toward a modern, data-driven railway service.

Thank you very much!