School Transportation Management System

The School Transportation Management System is a full-stack project designed to simplify and secure the management of student transportation for schools. It aims to improve safety, communication, efficiency, and transparency by integrating modern technology solutions.

Key Features

• User Management (Admins, Staff, Drivers, Parents, Students)
• Route & Vehicle Management (Add/Edit/Delete routes, vehicle capacity tracking)
• Live Bus Tracking via GPS integration
• Attendance & Check-In System using RFID/QR/manual methods
• Notifications & Alerts (bus delay, pickup/drop, emergencies)
• Payment & Fees Management with invoices and online payments
• Safety Features (panic button, emergency contacts, driver verification)
• Reports & Analytics (usage, fuel, maintenance)
• Parent Portal (track bus, notifications, online payment)
• Driver App/Module (route details, attendance, emergency reports)

Extra Enhancements

• AI-based Route Optimization for time & fuel saving
• IoT Integration with RFID for automatic attendance
• Modern UI with Dark & Light Modes
• Multi-Language Support
• Strong Data Security measures

Suggested Tech Stack

Frontend	React.js / Angular
Backend	Node.js (Express) / Django
Database	MongoDB / MySQL
Real-Time Tracking	Socket.IO + Google Maps API
Notifications	Firebase / Twilio
Payment Gateway	Stripe / PayPal / Local (JazzCash, Easypaisa)

This project addresses real-world transportation challenges faced by schools. By integrating safety, tracking, and automation features, it ensures a reliable and transparent transportation experience for schools, parents, and students.