

## Project Proposal

### University Bus Management System: Enhancing Efficiency and Safety in Student Transportation

#### Scope

This project will transform FAST University's bus management with an advanced digital solution. It will replace outdated manual processes, addressing inefficiencies by streamlining dynamic bus scheduling, seat reservations, and student fee management. Custom-designed for FAST's specific needs, the system will feature real-time route adjustments and parental tracking for improved safety and convenience.

1. **Automated Bus Reservation System:** Digital platform for real-time bus routes, seat reservations, and bookings.
2. **Integrated Fee Verification:** Ensure only students with up-to-date fee payments can reserve seats and board buses.
3. **Real-Time Updates and Notifications:** Mobile app/web interface for real-time bus schedules and route changes.
4. **Dynamic Route Adjustment:** Adjust and display routes based on real-time data.
5. **Parental Tracking and Route Visibility:** Enable parents to track their child's bus and view routes in real-time.
6. **Interactive Bus Maps:** Display current bus locations, routes, and estimated arrival times.
7. **Lost and Found System:** Report and manage lost items on buses.
8. **Emergency Notifications:** Alerts for delays, accidents, or schedule changes.
9. **Feedback and Rating System:** Allow users to provide feedback and rate the service.

FAST University's current bus management system is outdated, resulting in inefficiencies, overcrowding, and confusion. Issues include manual fee management and lack of real-time information, affecting both students and administrators.

Our proposed University Bus Management System will automate reservations, integrate fee verification, and provide real-time updates. Features like dynamic route management, parental tracking, interactive maps, and emergency notifications will enhance efficiency, safety, and user satisfaction. The system is feasible with existing technology and university resources, ensuring a practical solution.