

Bus Booking Management System

Comprehensive Project Documentation



Student Information

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Project Overview

The **Bus Booking Management System** is a web-based application developed to simplify and automate the process of reserving bus seats for passengers. It provides a platform where users can view available routes, select buses, check seat availability, and make bookings instantly. The system is designed using **HTML, CSS, JavaScript, and Firebase** to offer a secure, real-time, and responsive experience.



Objectives

- To automate bus booking and ticket management.
- To allow users to view routes, timings, and seat availability in real time.
- To provide admin-level control over buses, routes, and bookings.
- To ensure smooth and user-friendly booking experience.

System Roles and Functionalities

Passenger (User)

- Register and log in securely.
- Search available buses by route or date.
- Book seats and view ticket history.
- Cancel bookings when needed.

Driver / Operator

- View assigned routes and schedule.
- Update trip status (active, delayed, completed).

Admin

- Manage bus details, routes, and drivers.
- View and control all passenger bookings.
- Monitor trip statistics and revenue reports.

Technologies Used

- **Frontend:** HTML5, CSS3, JavaScript (ES6)
- **Backend:** Firebase Firestore
- **Authentication:** Firebase Auth
- **Hosting:** Firebase Hosting
- **Version Control:** Git & GitHub
- **Tools:** Visual Studio Code

Firebase Configuration (Example)

```
const firebaseConfig = {
```

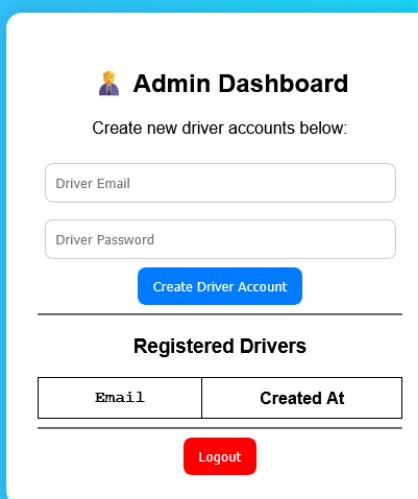
```
apiKey: "AIzaSy...YOUR_KEY...",  
authDomain: "bus-booking-app.firebaseio.com",  
projectId: "bus-booking-app",  
storageBucket: "bus-booking-app.appspot.com",  
messagingSenderId: "XXXXXXXXXXXXXX",  
appId: "1:XXXXXXXXXXXXX:web:XXXXXXXXXXXX"  
};
```

Working Mechanism

1. Users log in or register through Firebase Authentication.
2. Available buses and routes are fetched dynamically from Firestore.
3. Users select a bus, choose seats, and confirm bookings.
4. Admin and drivers can view, update, or cancel trips from their dashboards.

UI Screenshots

Some of the interfaces used in the Bus Booking System:



Smart Bus Tracking System

Real-time bus tracking for Admins, Drivers, and Users

Admin Login

Driver Login

User Dashboard

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Driver Portal

Welcome Driver

Update your bus information and location below.

Bus Number

Route (e.g., Ameerpet → Hitech City)

Current Location

Update Bus Info

Bus Number	Route	Location	Updated
KA 16 EX 1931	BLYR -- CHLK -- BNG	CHLK	6/11/2025, 4:22:55 am

Logout

User Portal – Track Your Bus

CHLK

Search

Bus Number	Route	Current Location	Updated
KA 16 EX 1931	BLYR -- CHLK -- BNG	CHLK	6/11/2025, 4:22:55 am



Future Enhancements

- Integration with Google Maps for live tracking.
- Payment gateway integration for online ticket booking.
- SMS and email notifications for ticket confirmation.
- AI-based route optimization.

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