

Requirement Gathering

Project: Smart Bus Assistance System

The Smart Bus Assistance System is a mobile-based application designed to improve public transportation by providing real-time bus tracking, ETA updates, simple ticket information, and complaint reporting. The system aims to help passengers, conductors, and administrators manage and monitor bus operations efficiently.

Main Objectives

- To provide passengers with real-time bus tracking and accurate ETA.
- To offer a simple complaint submission system for reporting issues.
- To give admins a clear view of bus status and user complaints.
- To provide a basic platform for user login and role-based access (Passenger/Admin).
- To improve convenience and reduce uncertainty related to bus arrival times.

System Prototype Scope

This mini project is designed as a working prototype.

It includes essential and achievable features such as:

- Login/Signup
- Live bus location
- ETA calculation
- Complaint submission (text + image)
- Admin view of buses and complaints
- Basic route information

Modules Included

1. Authentication Module

- Login and signup using Firebase Authentication
- User roles: Passenger, Admin
- Stores user details in Firebase

2. Real-Time Tracking Module

- Shows bus position on OSMDroid map
- Updates from Firebase in real-time
- Calculates ETA using speed + distance

3. Complaint Module

- Users can submit textual complaints
- Option to upload one image (stored in Firebase Storage)
- Admin can view all complaints

4. Route & Bus Info Module

- Shows route name, bus ID, and basic details
- Displays bus movement on selected route

5. Admin Module

- View bus locations
- View complaints list
- Monitor basic system data

6. User Account Module

- Allows users to view basic profile information
- (Optional) view travel history if added later

Target Users

1. Passengers

- View bus location
- Check ETA
- Submit complaints

2. Admin

- Monitor buses
- View complaints
- Check basic operational info

System Ownership

The project is owned and maintained by the developer/team creating the application.

It contains route information, user data, and complaint entries that must be handled securely through Firebase.

Industry / Domain

- Public Transportation
- Mobile Application Development
- Smart Mobility Systems

Data Collection Contacts

Bus Stand Staff / Transport Personnel

Used for gathering data about bus timings, delays, and operational issues.

Questionnaire for Data Collection

1. How do you currently find bus timings or routes?

I usually rely on information from other passengers, conductors, or printed schedules at the bus stand.

2. Do you face difficulties in knowing when the next bus will arrive?

Yes, it is often difficult because the timings are not always accurate and delays are common.

3. Would real-time bus tracking be helpful for your daily travel?

Yes, real-time tracking would be very helpful and reduce waiting time.

4. How important is an accurate ETA to you?

Accurate ETA is very important as it helps in planning my travel and managing time better.

5. Would you prefer digital tickets over paper tickets?

Yes, digital tickets are more convenient and easier to manage than paper tickets.

6. How often do you need to report issues related to bus service?

Occasionally, mainly when there are delays, crowding, or service-related problems.

7. Would a complaint system with text or image upload be useful?

Yes, it would be very useful for reporting issues quickly and more clearly.

8. What features would you like in a bus assistance mobile app?

Live bus tracking, ETA updates, route information, ticket details, and a complaint submission option.

9. Do buses usually arrive on time at this stand, or is there a frequent time difference between expected and actual arrival?

There is usually a time difference because buses often get delayed due to traffic or other conditions.

10. Would you use a mobile app that shows bus location, ETA, and complaints in one place?

Yes, I would definitely use such an app as it makes travel easier and more organized.

GEOTAG PHOTOS:

