

# 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:

