

SOFTWARE REQUIREMENTS SPECIFICATION

Ambulance Booking and Tracking System

1. Introduction

1.1 Purpose

The purpose of this document is to describe the functional and non-functional requirements of the Ambulance Booking and Tracking System. The system allows users to book ambulances during emergencies and track them in real time.

1.2 Scope

The system provides an online platform where users can request ambulances, drivers can manage trip requests, and administrators can monitor operations. The objective is to reduce response time and improve coordination.

2. Overall Description

2.1 Product Perspective

The system follows a client-server architecture consisting of User Application, Driver Application, Admin Panel, Backend Server, and Database.

2.2 User Classes

User (Patient/Relative)

Driver

Administrator

3. Functional Requirements

FR-1: User Registration and Login

Description: Allows users to create accounts and log in securely.

Inputs: Name, Phone, Email, Password, OTP

Processing: Validate details, verify OTP, encrypt password, store data

Outputs: Registration confirmation or error message

FR-2: Ambulance Booking

Description: Allows users to request an ambulance.

Inputs: Pickup location, Ambulance type, Emergency details

Processing: Identify available ambulances, generate booking ID

Outputs: Booking confirmation and driver notification

FR-3: Automatic Ambulance Assignment

Description: Assigns nearest available ambulance automatically.

Inputs: User GPS, Ambulance location data

Processing: Calculate distance and select nearest ambulance

Outputs: Assigned ambulance details

FR-4: Real-Time Tracking

Description: Provides live tracking of ambulance.

Inputs: Driver GPS updates

Processing: Update map location and calculate ETA

Outputs: Live tracking display and arrival notification

FR-5: Driver Trip Management

Description: Enables driver to manage trip lifecycle.

Inputs: Booking request, Trip start/end confirmation

Processing: Update trip status and store trip data

Outputs: Trip confirmation and status updates

FR-6: Admin Monitoring and Control

Description: Allows admin to manage system operations.

Inputs: Ambulance and driver details

Processing: Add/update/delete records, monitor bookings

Outputs: Updated dashboard and reports

4. Non-Functional Requirements

Performance: Response time shall not exceed 2 seconds.

Security: Data shall be encrypted and securely stored.

Reliability: System shall be available 24/7.

Usability: Interface shall be simple and user-friendly.

5. Future Enhancements

Online payment integration

Hospital system integration

AI-based route optimization