Security Emergency Response and Tracking System – Requirement Document

# 1. Overview

This project is a real-time, location-based emergency response system that connects users in distress with nearby security agents, enabling rapid assistance through GPS tracking, live chat, and optional calling functionality. Users can report emergencies (robbery, fire, assault, etc.) and receive live updates on agent proximity and estimated response time—similar to Uber’s live tracking model.

# 2. Goals

## Business Goals

- Enable real-time dispatch of nearby security agents to reported emergencies.  
- Increase trust and safety in local communities.  
- Provide a scalable SaaS platform for security companies.  
- Capture and monetize user and agent engagement data.  
- Offer subscription or service-based revenue models.

## User Goals

- Quickly report emergencies using phone number or email.  
- View nearest available security agents in real time.  
- Chat or call agents within the app.  
- Receive prompt and efficient help during emergencies.  
- Track response time and agent location.

## Non-Goals

- The platform does not include payment integration at this stage.  
- It does not provide medical emergency support (ambulance services).  
- It is not a marketplace for hiring security agents (only for real-time emergency deployment).

# 3. User Stories

## As a User, I want to:

- Register/sign in using phone or email.  
- Choose emergency type (e.g., fire, robbery).  
- Allow the app to access my location or manually input it.  
- View the nearest agent on the map.  
- Send/receive chat messages with agents.  
- Track the agent’s movement as they approach me.  
- Receive notifications when the agent accepts or arrives.

## As a Security Agent, I want to:

- Register as an agent and update my location in real time.  
- Receive alerts about nearby emergencies.  
- Accept or decline emergency tasks.  
- Navigate to the user using a built-in map.  
- Communicate with the user via in-app chat.  
- Update my availability status.

# 4. User Experience & Key Features

## Narrative

In the event of a sudden emergency, users can quickly trigger an alert via the mobile app. The system uses their location to identify the nearest available security agent and notifies them. The agent can accept the request, and both user and agent see each other's real-time location. They can chat or call within the app until the emergency is resolved.

## Why Does This Matter?

In developing regions where emergency response is often delayed or unreliable, this app provides a direct, decentralized, and efficient method to summon help. It builds a digital bridge between victims and trained responders, potentially saving lives.

# 5. Success Metrics

- Average Response Time: Time between emergency initiation and agent arrival.  
- User Retention Rate: % of users who return after the first use.  
- Number of Resolved Emergencies: Ratio of resolved to total reports.  
- Accuracy of Location Matching: Distance between user's actual location and the agent's arrival point.  
- Chat Engagement Rate: Percentage of users who use the in-app chat feature.  
- Crash/Error Rate: API and frontend error logs below 1% of total sessions.

# 6. Technical Considerations

- Frontend: React Native (Expo), Tailwind CSS  
- Backend: Node.js, Express.js, TypeScript  
- Database: PostgreSQL with Prisma ORM  
- Authentication: JWT with cookies  
- WebSocket: Socket.IO for real-time location updates and chat  
- Geolocation: Google Maps API or OpenStreetMap  
- DevOps: Docker (optional), pm2  
- Hosting: Railway or Render for backend; Firebase or Expo EAS for mobile

# 7. Feature Backlog

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| Priority | Feature | Description |
| 🔴 High | User & Agent Auth | Register/login with phone/email & roles |
| 🔴 High | Emergency Type | Let users select emergency types |
| 🔴 High | Real-Time Location | Capture and stream live locations of users and agents |
| 🔴 High | Map View | Show live tracking of agent's location approaching user |
| 🔴 High | Chat | In-app real-time chat between user and agent |
| 🟠 Medium | Call Feature | VOIP or phone call integration within app |
| 🟢 Low | Notification System | Push notifications for new emergency or arrival |
| 🟢 Low | Review & Feedback | Let users rate agents after help is provided |
| 🟢 Low | Admin Dashboard | For viewing all activities, reports, and agents on a map |