

System Architecture Documentation

1. Overview

This document outlines the architecture of a wellness and safety web application built using Angular 18 and Spring Boot. The application provides various services including safety features, wellness resources, and user surveys.

2. System Components

2.1 Frontend Architecture (Angular 18)

2.1.1 Core Modules

- **Authentication**
 - Implements JWT-based authentication
 - Handles user sessions and token management
 - Secures routes and API requests
- **Safety Service**
 - Location-based services integration
 - Map visualization using OpenStreetMap
 - Weather information display using OpenWeatherMap API
 - Emergency services locator (police stations, hospitals)
- **Wellness Service**
 - Mental health articles management
 - Helpline information display
 - Wellness survey system
 - Resource categorization (depression, stress, anxiety)
- **About Service**
 - Company information
 - Vision and mission statements
 - General information pages

2.2 Backend Architecture

2.2.1 API Layer

- RESTful API endpoints

- JWT authentication middleware
- Request validation
- Response formatting

2.3 External Integrations

2.3.1 OpenStreetMap

- Map rendering
- Location-based services
- Emergency services POI (Points of Interest)

2.3.2 OpenWeatherMap

- Current weather data
- Location-based weather forecasts

3. Data Flow

3.1 User Authentication Flow

1. User submits login credentials
2. Backend validates credentials
3. JWT token generated and returned
4. Token stored in frontend
5. Subsequent requests include JWT in header

3.2 Safety Service Flow

1. User provides location
2. Application fetches map data from OpenStreetMap
3. Simultaneously retrieves weather data from OpenWeatherMap
4. Backend processes and combines data
5. Frontend displays integrated information

3.3 Wellness Service Flow

1. Articles retrieved and displayed
2. Helpline information retrieved and displayed
3. Survey responses collected and stored
4. Results processed and displayed to users

4. Future Considerations

- Mobile responsiveness improvements
- Additional mental health resources
- Enhanced emergency services integration
- Real-time chat support
- Multilingual support