

## API Requirements

### 7. API Requirements

#### 7.1 User Roles

- Volunteer: Participates in Umuganda activities.
- Organizer: Creates and manages events, projects, and tasks.
- Admin: Oversees users and platform settings.
- AI Assistant: Virtual assistant for questions and awareness.

#### 7.2 Authentication & Authorization APIs

- POST /auth/register: Register new user.
- POST /auth/login: Login and get token.
- POST /auth/logout: Logout current session.

#### 7.3 Volunteer Management APIs

- GET /volunteers/{id}: Get profile.
- PUT /volunteers/{id}: Update profile.
- GET /volunteers/{id}/participation: Participation history.
- GET /volunteers/recommendations: Event suggestions.

#### 7.4 Event APIs

- POST /events: Create Umuganda event.
- GET /events: List all events.
- GET /events/{id}: Event details.
- POST /events/{id}/signup: Sign up for event.
- GET /events/{id}/participants: List participants.

#### 7.5 Task Assignment APIs

- POST /tasks/assign: Assign tasks via AI.

## CommuniServe - Software Requirements

- GET /tasks/{volunteer\_id}: Volunteer task list.
- POST /tasks/feedback: Submit feedback.

### 7.6 Project & Resource Management APIs

- POST /projects: Create project.
- PUT /projects/{id}/resources: Assign tools.
- GET /projects/{id}/resources: View resources.
- GET /resources/available: List of resources.

### 7.7 Real-Time Monitoring APIs

- POST /monitoring/event/{id}: Upload progress.
- GET /monitoring/event/{id}/dashboard: View dashboard.

### 7.8 Feedback & Collaboration APIs

- POST /feedback/event/{id}: Submit feedback.
- GET /feedback/event/{id}: View feedback.
- POST /comments/project/{id}: Add comment.

### 7.9 Communication APIs

#### User-to-User Messaging

- POST /messages/send: Send message.
- GET /messages/thread/{user\_id}: Get chat.
- GET /messages/inbox: Inbox preview.
- DELETE /messages/{message\_id}: Delete message.

#### Event Chat

- POST /chats/event/{event\_id}/send: Send group message.
- GET /chats/event/{event\_id}: Group chat history.

#### AI Chat

- POST /chatbot/query: Send message to AI.

## CommuniServe - Software Requirements

- GET /chatbot/history/{user\_id}: View history.

### 7.10 Rewards APIs

- GET /leaderboard: Top contributors.
- POST /rewards/assign: Assign badge.

### 7.11 Safety & Risk APIs

- POST /risk-assessment: Assess risk.
- POST /incident-report: Report incident.
- GET /safety-guidelines: Safety info.

### 7.12 Privacy & Integration APIs

- GET /user/data/export: Export data.
- DELETE /user/data/delete: Delete data.
- GET /weather/forecast: Weather data.
- POST /iot/sensor-data: Upload sensor data.

## Entities and Relationships

### 8. Entities and Relationships

Main Entities:

1. User (id, name, email, phone, password\_hash, role, location)
2. Event (id, title, description, date, location, organizer\_id)
3. Project (id, title, description, start\_date, end\_date)
4. Task (id, title, description, assigned\_to, event\_id)
5. Resource (id, name, quantity, assigned\_to\_event, project\_id)
6. Message (id, sender\_id, recipient\_id, event\_id, content)
7. ChatbotInteraction (id, user\_id, message, response)
8. Participation (id, user\_id, event\_id, check\_in\_time, feedback\_score)

## CommuniServe - Software Requirements

9. Feedback (id, user\_id, event\_id, rating, comment)

10. Skill (id, name, description)

### Relationships:

- User organizes Event (1:N)
- User participates in Event (N:M via Participation)
- User sends/receives Message (1:N)
- Event has Tasks (1:N)
- Task assigned to User (M:1)
- Project has Tasks & Resources (1:N)
- Event linked to Project (M:1)
- User gives Feedback to Event (1:N)
- User has Skills (M:N)
- ChatbotInteraction belongs to User (N:1)