

Requirements

Functional Requirements

1. User authentication (email/password, Google, phone)
2. Profile management (edit, stats, badges)
3. Waste identification (on-device ML, image upload/camera)
4. Educational content (browse, search, bookmark guides)
5. Community marketplace (create/browse posts, private messaging)
6. Event management (create, RSVP, check-in)
7. Location services (find recycling centers, maps)
8. Gamification (points, badges, leaderboards)
9. Push notifications (real-time updates)

Non-Functional Requirements

1. Performance: App launch <2s, ML inference <3s
2. Usability: Intuitive UI, accessibility (WCAG 2.1 AA), multi-language
3. Security: TLS/SSL, OAuth2, JWT, GDPR compliance
4. Reliability: >99.5% uptime, offline support for basic features
5. Scalability: 10,000+ users, efficient caching
6. Maintainability: Modular codebase, 80%+ test coverage, docs
7. Compatibility: Android 8+/iOS 13+

Glossary

- **ReUseIt:** The mobile app for recycling and community
- **Recyclable Items:** Items that can be processed and reused
- **Image Recognition:** AI-based waste identification
- **Community Engagement:** User interaction (posts, events, chat)
- **TensorFlow Lite:** ML framework for mobile
- **GraphQL:** API query language
- **React Native:** Mobile app framework
- **NestJS:** Backend framework
- **MongoDB:** Database
- **Google Maps API:** Location services
- **Gamification:** Points, badges, leaderboards