GearUp - Military Equipment Manager (Product Specification)

1. Product Name

GearUp - Military Equipment Manager

2. Product Purpose

Enable platoons and companies to manage equipment efficiently, simply, and accurately-reducing shortages, reducing confusion between soldiers and commanders, and significantly improving control over personal and unit equipment.

3. Target Audience

- Commanders and logistics roles (Platoon Commander, Squad Leaders, Logistics NCO)
- Soldiers who want to know what they are signed for
- Units with large and frequently changing equipment inventories

4. Problem Statement

- Managing equipment in Excel spreadsheets is cumbersome, not field-friendly, and not accessible in real time.
- There is limited transparency regarding who is responsible for which item.
- End-of-deployment periods often result in missing items and operational chaos.
- There is a need for printable/signable documents and clear proof of who took what.

GearUp provides fast, convenient, real-time access to all equipment data-anytime, anywhere.

5. Product Principles

- Maximum simplicity for field users
- Fast workflows and minimal steps
- High reliability and strong security
- Modular structure to enable future expansion
- Full audit trail for every change (Audit Log)

6. Roles & Permissions

Owner (Organization Admin)

- Create units/companies
- Assign group admins
- Manage permissions and roles

Group Admin (Platoon Commander / Squad Leader)

- Create/manage groups
- Add equipment
- Sign-out and returns
- Exports and reporting

Editor (Equipment Editor)

- Edit equipment tables
- Update item statuses
- Open/manage defective items

Viewer / Soldier

- View only the items assigned to them
- Perform digital sign / return actions (where relevant)

7. Core Entities

- **User**
- **Group** (platoon/team)
- **Item** (equipment item)
- **Assignment** (who took what)
- **Defect Ticket** (damaged item handling)
- **Inventory Event** (inventory count session)
- **Attachment** (photos/documents)
- **Notification**
- **Kit Template** (predefined kit by role)
- **Audit Log** (who changed what)

8. Core System Flows

8.1 Digital Sign-Out

- Commander selects one or multiple items
- Scans a soldier QR code or selects from a list
- Soldier signs digitally
- Assignment record is created
- Confirmation is sent via email/WhatsApp

8.2 Return / Clearance

- Scan item QR code
- Mark condition: OK / Damaged
- Optional photo upload

- Close assignment record

8.3 Inventory Count

- Create an inventory event
- Continuous scanning of items
- Record found vs missing items
- Generate discrepancy report

8.4 Damaged Items Management

- Open a defect ticket
- Add photos, description, SLA
- Track status until fixed/closed

9. Key Reports

- Active assignments list
- Open defect tickets
- Latest inventory count report
- Returned equipment report
- Shortages by equipment category
- Printable signature report (PDF)

10. UI Screens (aligned with the prototype)

10.1 Login Screen

- Username
- Password
- Login button

10.2 Groups Screen

- Group search
- "+" add group button
- Groups list (example columns):
  - Group name
  - Vests + quantity
  - Helmets + quantity
  - Weapons + quantity

10.3 Group Equipment Screen

- Equipment table by categories
- Total quantity
- Navigation to sign-outs

10.4 Sign-Out Screen

- Group name
- Existing sign-outs list:
    - Soldier name
    - Personal ID
    - Signature
- Add sign-out / sign button

10.5 Single Item Screen

- Soldier details
- Quantity
- Item ID / serial
- Condition/status
- Sign / Return / Report defect actions

11. ERD (High-Level Summary)

- User ↔ GroupMembership ↔ Group
- Group → contains Items
- Item → has Assignments
- Assignment → can have Attachments

Additionally:

- Items can be linked to DefectTickets
- Items can be linked to inventory structures (e.g., InventoryLine)
- Every change is recorded in AuditLog

12. Suggested Technical Stack

- DB: PostgreSQL
- Backend: Node.js / NestJS
- Frontend: React Native
- Image storage: AWS S3
- QR scanning: ZXing / MLKit
- Notifications: Firebase Push

13. MVP Scope (Version 1)

- User permissions & roles
- Create groups
- Add equipment
- Equipment table
- Digital sign-out
- Returns
- Basic inventory count

- Audit log
- Export printable PDF
- Search + barcode/QR scanning

14. Future Roadmap

- AI image recognition
- Inventory automation
- Analytics dashboards
- Integrations with real-world logistics systems