

School Inventory Management System

Project Overview

School staff and students rely on a variety of equipment and materials for a productive learning environment. From projectors and monitors to USB drives and stationery, managing these assets can be time-consuming for teachers and administrators. This system provides a digital solution for school **users** and **administrators** to effectively manage and monitor classroom equipment, supplies, and materials.

Main Capabilities:

- **Users** can request and track equipment usage.
- **Admins** can manage inventory, handle approvals, and generate reports.

User Roles and Permissions

I. Users

1. **Description:** Authenticated users with limited access to equipment.
2. **Functions:**
 - View available equipment.
 - Request permitted items.
 - View personal borrowing history.
3. **Restrictions:**
 - Cannot add/edit/delete equipment or documents.
 - Cannot approve/reject equipment requests.
 - Cannot access system settings or reports.

II. Administrators

1. **Description:** Authenticated users with full access superusers.
2. **Functions:**
 - Manage users and permissions.
 - Add/update/delete equipment.
 - Approve/reject equipment requests.
 - Log returns and update item condition.
 - Export reports (CSV/PDF).
3. **Restrictions:**
 - Cannot handle physical equipment unless also assigned as a manager. This ensures that administrative and operational responsibilities remain clearly separated.

Features

Mandatory Features:

1. **Authentication & Roles:**
 - Role-based access control (User, Admin).
2. **Inventory Catalog:**

- Search/filter equipment.
- Fields: name, type, serial number, condition, status, location, photo.
- 3. **Equipment Request System:**
 - Borrowing request by time/date.
 - Admin approval required for sensitive items (e.g., last 2 projectors).
- 4. **Condition & Status Tracking:**
 - Status: Available, Checked Out, Under Repair, Retired.
 - Condition logs during return.
- 5. **Return & History Logs:**
 - Return tracking.
 - Borrowing history by user/item.

Optional Features:

- QR code generation for tagging.
- Email reminders.
- Low stock alerts.
- Usage analytics.
- CSV/Excel exporting OR Google Docs Viewer.
- Role-based dashboards.

Architecture

I. Backend (Mandatory):

1. **Database Integration:**
 - Utilize a database (e.g., MySQL, PostgreSQL) to store user data, inventory records, borrowing requests, documents, etc.
 - Implement database migrations and ensure data integrity and consistency.
2. **RESTful API Development:**
 - Create RESTful API endpoints for user registration, authentication, equipment management, and reporting.
 - Ensure proper request handling, error responses, and authentication mechanisms.

II. Frontend (Optional):

1. **User Interface Design:**
 - Develop a responsive and intuitive frontend interface for interacting with the system.
 - Implement features for browsing inventory, making requests, and viewing status.
2. **Customizable Views:**
 - Provide users with filtered dashboards depending on their role (Users, Admin).
 - Allow personalized item tracking.

3. **Preview Mode:**

- Include a preview mode item details before confirming uploads or requests.
- Ensure previews reflect the final version available to the user.

REST Endpoints

Authentication

- POST /auth/register
- POST /auth/login
- GET /auth/logout

Equipment Management

- GET /equipment
- GET /equipment/{id}
- POST /equipment
- PUT /equipment/{id}
- PUT /equipment/{id}/status
- DELETE /equipment/{id}

Requests

- POST /request
- GET /requests
- GET /manager/requests
- PUT /request/{id}/approve
- PUT /request/{id}/reject
- PUT /request/{id}/return

Reports

- GET /reports/usage
- GET /reports/history
- GET /reports/export

Integrations and Tools

Purpose	Tool/API	Description
Dashboard	React-Admin / AdminBro	Admin interfaces
Barcode Scanning	QuaggaJS	Quick inventory update via barcode
Document Storage	Firebase Storage / Cloudinary	Store images and documents
Document Preview	Google Docs Viewer	Inline document preview
Exporting	SheetJS	Export to Excel or CSV
Notifications	SendGrid / Nodemailer	Email alerts
Analytics	Chart.js / Recharts	Inventory and request analytics
Backup Export	Google Sheets API / OnlyOffice	Cloud-based export and backup