Feasibility Report & Functional - Non Functional Requirements

University Stock Management

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Introduction

We aim to digitalize the management of University Stock of labs, professor cabins, classrooms.
We will maintain records like desktops, chairs, tables, printers and other equipment. Each item will be assigned a unique QR code and verification can be done by scanning the QR code.

Technical Feasibility

Technical feasibility evaluates whether the required technology and technical resources are available to develop and maintain the system.

Hardware Requirements:

- Computer system for admin
- QR code printer
- Smartphone or QR scanner device
- Server for database

Software Requirements:

- Frontend (HTML/CSS/JavaScript)
- Backend (Node.js / Java /
  .)
- Database (MySQL / MongoDB)
- QR code generation library
- QR scanning library

Technical Analysis:

- QR code generation and scanning libraries are freely available.
- Database systems support large-scale inventory storage.
- The required development tools are easily accessible.

Economic Feasibility

Development Cost:

- No major cost (academic project)
- Open-source tools used
- No licensing cost

Operational Cost:

- Minimal server cost
- QR code printing cost (low)
- Maintenance cost is minimal

Benefits:

- Reduces manual paperwork
- Saves verification time
- Prevents asset misplacement
- Improves transparency
- Reduces inventory fraud

Operational Feasibility

Current System Problems:

- Manual record keeping
- Time-consuming verification
- Possibility of data loss

Proposed System Advantages:

- Faster 6-month verification process
- Digital record maintenance
- Easy report generation
- Reduced human errors

User Acceptance:

- Admin and verification officers require minimal training.
- QR scanning is simple and user-friendly.

Functional Requirements

1. User Authentication

1. The system shall allow Admin and Verification Officer to log in using valid credentials.
2. The system shall restrict access to unauthorized users.
3. The system shall allow users to log out securely.

2. Room Management

1. The system shall allow Admin to add new rooms.
2. The system shall allow Admin to update room details.
3. The system shall allow Admin to delete rooms (if no items are linked).
4. The system shall display a list of all rooms.

3. Inventory Management

1. The system shall allow Admin to add new inventory items.
2. The system shall generate a unique Item ID for each item.
3. The system shall store item details including:

- Item Name

- Item Type
- Room
- Location (Lab/Classroom/Cabin)
- Purchase Date

4. The system shall allow Admin to update item details.
5. The system shall allow Admin to mark an item as decommissioned.
6. The system shall allow Admin to search items by ID, type, or room.

4. QR Code Management

1. The system shall generate a unique QR code for each item.
2. The QR code shall contain the unique Item ID.
3. The system shall allow downloading/printing of QR codes.

5. Verification Management

1. The system shall allow Verification Officer to scan QR codes.
2. The system shall extract Item ID from scanned QR code.
3. The system shall update the last verification date.
4. The system shall record verification history.
5. The system shall mark items as “Verified” or “Pending”.

6. Reporting

1. The system shall generate verification reports by department.
2. The system shall display verified and unverified items separately.
3. The system shall allow exporting reports in PDF or Excel format.

7. Audit & History

1. The system shall maintain historical verification records.
2. The system shall log date and time of each verification.

Non-Functional Requirements

1. Performance Requirements

1. QR code scanning response time shall be less than 3 seconds.
2. The system shall support at least 10,000 inventory items.
3. The system shall handle multiple users simultaneously.

2. Security Requirements

1. User passwords shall be encrypted in the database.
2. Role-based access control shall be implemented.
3. Only Admin can add or delete items.
4. Verification Officer can only scan and verify items.

3. Usability Requirements

1. The system shall have a simple and user-friendly interface.
2. Minimal training shall be required to operate the system.
3. The system shall display clear error messages.

4. Reliability Requirements

1. The system shall ensure 99% uptime during working hours.
2. Data shall be stored reliably without loss.
3. Regular database backups shall be supported.

5. Scalability Requirements

1. The system shall allow addition of new departments easily.
2. The system shall support increasing inventory size over time.

6. Maintainability Requirements

1. The system shall be modular in design.
2. The system shall allow easy modification of verification schedule (e.g., from 6 months to 3 months).
3. Code shall follow standard software engineering practices for easy maintenance.

7. Compatibility Requirements

1. The system shall work on modern web browsers.
2. QR scanning shall be supported via mobile device or external scanner.