# Feasibility Report

**Project Title:**Development of an Inventory Management System
**Date:** 10/3/2025
**Department:** Computer Science & IT

---

## 1. Introduction

The university currently manages its inventory using a file based system, which leads to inefficiencies, manual errors, and difficulty in tracking assets. To improve accuracy, accessibility, and management, this report proposes the development of a database-driven Inventory Management System (IMS) using PostgreSQL. The system will streamline stock management, track incoming inventory from multiple sources, and categorize assets based on type.

---

## 2. Objectives

- Develop an inventory database for the CSIT department .
- Digitalize stock entry, tracking, and management.
- Improve accountability and ensure accurate records of university assets.
- Provide role-based access to authorized personnel.
- Enable stock procurement tracking through purchases, transfers, and donations.
- Implement the system in the CS department first and expand it to other university departments.

---

## 3. Scope of the Project

### 3.1 Core Functionalities

### Stock Management

- Add, update, and delete stock items.
- Categorize stock under Dead Stock (DSR), Furniture & Fixtures (FFR), and Consumables (CSR).

- Maintain procurement, transfer, and donation records.

### Procurement & Documentation

- Record procurement via Purchase Orders (POs).
- Log stock transfers through Internal Memos.
- Document donations with MOUs or official emails.
- Store digital copies of all procurement records.

### Stock Movement & Transfers

- Implement a parent-child inventory structure for stock allocation.
- Enable intradepartmental stock movement tracking with cross-referencing.
- Automate stock reconciliation upon transfers to prevent mismatches.

### Auditing & Reporting

- Generate audit logs for inventory history tracking.
- Create custom user reports based on stock movement and procurement.
- Allow exporting reports in PDF format.
- Provide print functionality for reports and audit logs.

---

# 4. Implementation Plan

## 4.1 Technology Stack

- **Database:** PostgreSQL
- **Backend:** Django (Python) & FastAPI (for optimized API handling)
- **Frontend:** ReactJS
- **API:** REST API for integration

## 4.2 Deployment Strategy

- The system will be hosted on CSIT department servers for security and accessibility.
- Integration with existing university systems for a seamless transition.
- Role based user authentication and access control.

## 4.3 Key Features

- Stock entry automation for faster data input.
- Search and retrieval system for quick inventory lookup.

- Report generation & analytics to support decision-making.
- User role-based access for security and accountability.

---

# 5. Proposed Development Timeline

| Phase | Tasks | Timeline |
|---|---|---|
| **Week 1** | Requirement gathering, design database schema and design UI/UX | **5 days** |
| **Week 2** | Backend API development (Django & FastAPI) | **7 days** |
| **Week 3** | Frontend development (ReactJS integration) | **7 days** |
| **Week 4** | Testing, Deployment, and Documentation | **7 days** |

---

# 6. Feasibility Analysis

## 6.1 Technical Feasibility

- PostgreSQL and Django provide scalability for managing large datasets.
- FAST API integration ensures smooth interoperability with existing university systems.
- Hosting on departmental servers ensures security.

## 6.2 Economic Feasibility

- Using open-source technologies (PostgreSQL, Django, ReactJS) minimizes costs.
- Digitalizing stock tracking reduces financial losses due to errors.

### 6.3 Operational Feasibility

- Staff training ensures smooth system adoption.
- Starting from the CSIT department computer labs  helps in gradual system improvement for the whole department.

---

## 8. Expected Benefits

- Reduces manual errors and eliminates redundant paperwork.
- Faster stock tracking & retrieval, improving operational efficiency.
- Optimized resource allocation, reducing unnecessary procurement.
- Enhanced audit compliance through transparent record-keeping.
- Scalability, allowing future expansion to other departments.

---

## 9. Conclusion

Transitioning from a file-based inventory system to a database-driven approach will improve inventory performance. Starting with the CSIT department as a pilot project, we can fine-tune the system before expanding to the entire university.

---

## 10. Next Steps

- Finalizing database schema
- Design UI/UX for prototyping.
- Apply version control
- System development & testing
- Deployment & ongoing support