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1 Analysis

1.1 Problem Identification

1.1.1 Problem Description

Popular inventory management solutions are relatively expensive, and may be out of reach for individuals or small schools. Inventory systems have numerous benefits for businesses and individuals alike; a business may choose to track their supply levels where an individual may wish to catalogue their DVD collection.

My goal is to create a web-based application aimed at both businesses and individuals to manage inventory, with additional modern features such as automatic item re-ordering when stocks are running low.

Traditional inventory management solutions are typically single-user at best, whereas I intend to create a multi-user, collaborative environment.

In my view, an inventory system should be:

- Easy for end users to use.
- Cross platform
- Performant interface
- Efficient in terms of adding data
- Allow for easy cataloguing of inventory
- Allow for item scanning using QR codes / barcodes
- Be able to source data from external sources
- Support both consumable and non-consumable goods.

1.1.2 Stakeholders

Stakeholder	Description	Current Use	Requirements
Claire Foley	SENCo, Library Lead at The Village Prep School	No system. Library books are not tracked.	TBD
TBD	Freelance photographer	Excel Spreadsheet	TBD

1.1.3 Interview

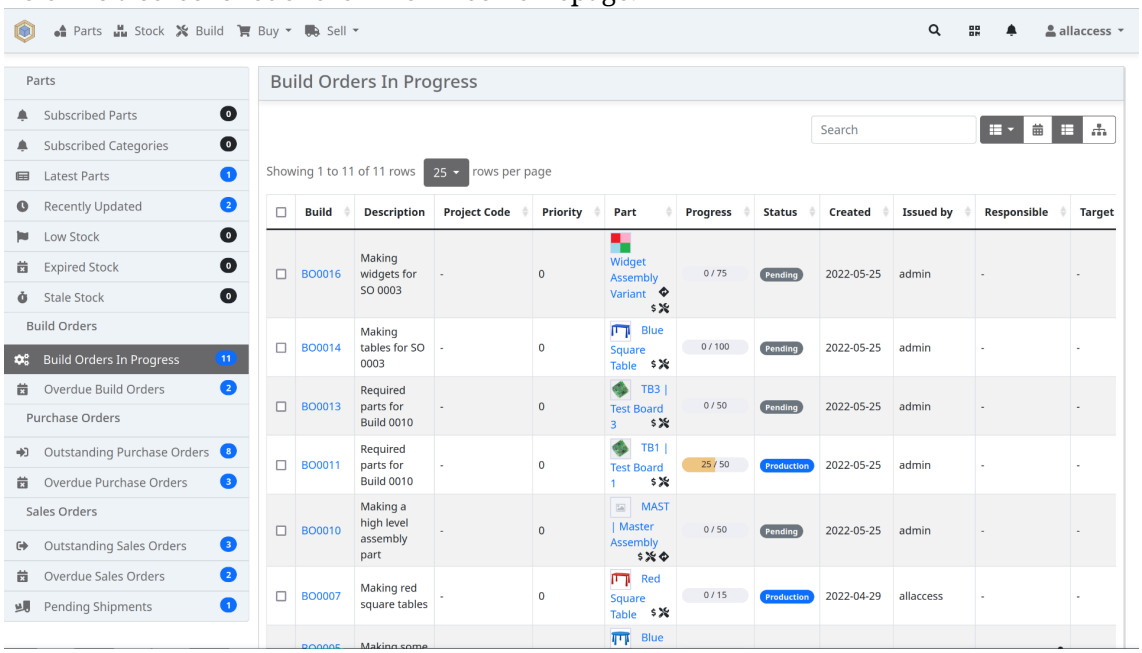
1.1.4 Existing similar solutions

InvenTree `https://inventree.org/`

Overview

InvenTree is an **open-source** inventory management system, providing *low level stock control and part tracking*. It uses a Python/Django database backend and provides both a **web-based interface** as well as a REST API for interacting with other services. InvenTree also has a powerful plugin system for custom applications and other extensions.

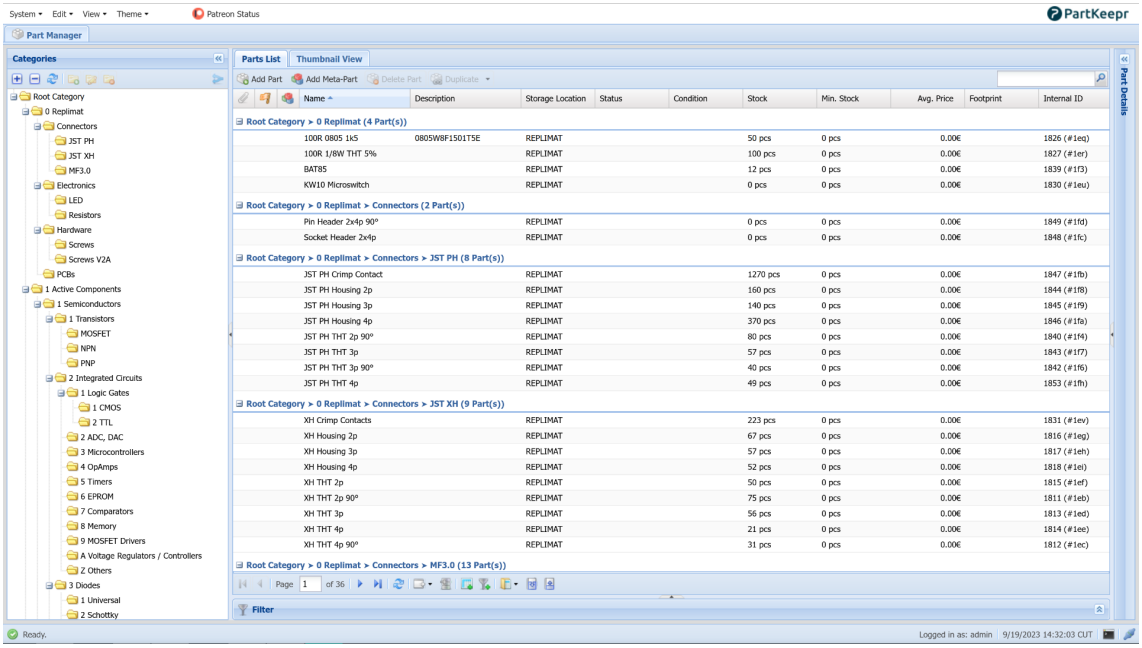
Below is a screenshot of the InvenTree homepage.



Parts applicable to my solution

The core concept is similar (the application is web-based), but my solution will be more generalized that just stock control.

PartKeepr `https://partkeepr.org/`



Overview

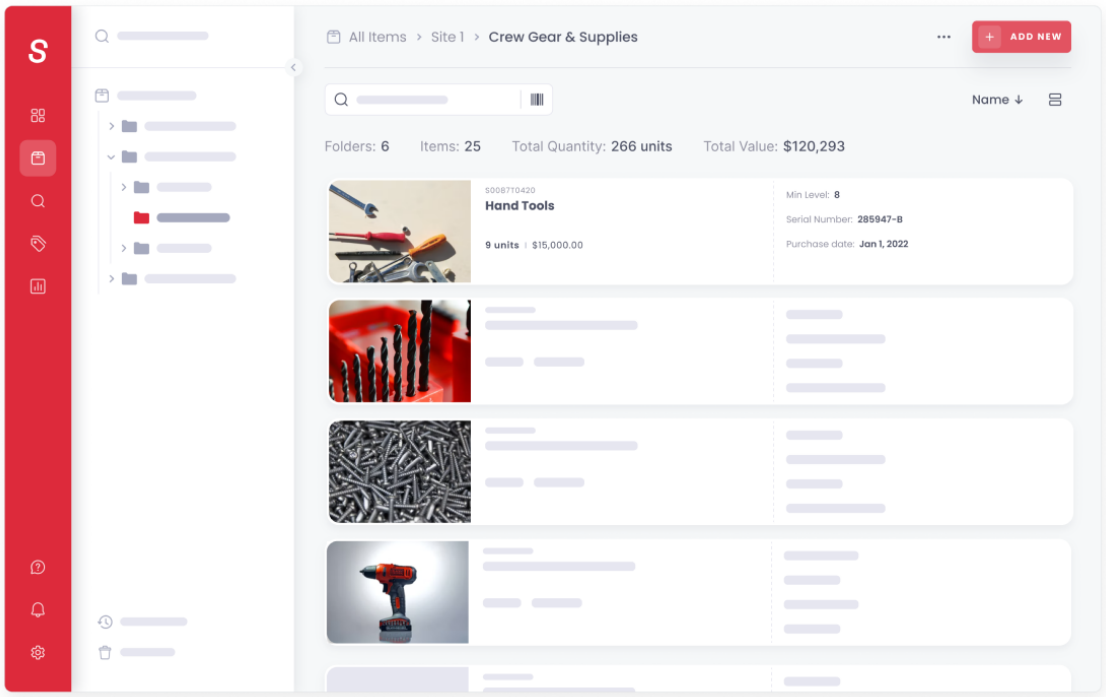
PartKeepr is an open-source inventory management system with a focus on electronic components. It is designed around four main principles:

- Fast Part Searching
- Ability to add complete part database
- Keeping track of stock
- Ease of use

Parts applicable to my solution

Like PartKeepr, I hope to implement a web-based interface. However, I am using a different approach as my solution will not be tailored specifically to electronic components.

Sortly `https://www.sortly.com/solutions/inventory-management-software/`



Overview

Sortly is a proprietary cloud-based inventory management system with a focus on small businesses and inviduals.

It has two plans available, an always free plan with limited functionality and a paid plan will a more complete feature-set.

Parts applicable to my solution

I hope to implement the following features from Sortly:

- Web based interface
  - Allows for easy access.
- Barcode support
  - Allows end users to print off QR codes to stick to items
  - Which can be scanned in-app to easily perform actions on the item.
- Real-time reporting insights
  - Allows for added insight into usage patterns for particular units.

1.1.5 Features to be incorporated into solution

1.1.6 Feedback from stakeholders

1.2 Requirements

1.2.1 Stakeholder requirements

1.2.2 Software and hardware requirements

1.2.3 Success requirements

2 Design

2.1 User Interface Design

2.1.1 Usability Features

2.1.2 Feedback from stakeholder

2.2 Modular breakdown

2.3 Algorithms

2.4 Data Dictionary

2.5 Inputs and outputs

2.6 Validation

2.7 Testing

2.7.1 Methods

2.7.2 Test Plan

3 Implementation

3.1 First Iteration

4 Testing

5 Evaluation