Software Requirements Specification

for

Inventory Management System

Version 1.0

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Table of Contents

Table of Contents

Customer Statement of Requirements

Motivation for the New System

This new system provides new functionalities that will improve inventory management, speed, and efficiency for the Sunland County Office elections. The current paper system has to be viewed in person and written. This is to store inventory, perform maintenance, schedule deliveries, create reports, and create audits. Each of these tasks will become easier with this new system. Once the item inventory and reports can be added to, deleted from, and viewed from any device with access to the system.In addition to the mobile barcode scanners and gps system for the voting booths.

Problems and Solutions of the Current System

- **Problems**
    - **Solutions**
- No backup in case of damage, lost, or misfiled information
    - Secure storage of information
- Redundant information being stored
    - Hand checking and deleting if found
- Can only be viewed in person
    - Sending messages or checking inventory and reports frequently
- Uncompleted reports
    - Completing them when they are found and not filing uncompleted reports
- Inaccurate information regarding inventory numbers
    - Recounting inventory
- Lack of action when inventory numbers are out of the ideal range
    - Making notes of inventory amounts and checking inventory often
- Information distribution is limited when it comes to reports and deliveries
    - Sending messages or checking inventory and reports frequently

Feasibility Analysis

This project will involve creating a database for the inventory and reports. As we build, test and revise this system we can assure you that it will complete all of your desired results by the end of the creation of this system. A risk of this system is a bug not being caught in our testing and revisions. We can assure you that our IT department, that will be readily available to your team, will not disappoint in diffusing any issues. The cost of this team is incorporated in the annual costs of this system on the cost benefit analysis page.

Technical Feasibility

The adding of information, deleting of information, editing of information, creating alerts, scanning items, and tracking items are all tasks that our team has done thoroughly before. The software for the creating and editing of these databases will be exactly what is required of this system. We have a large team ready to make this system at the speed and functionality that is desired. As far as compatibility goes this system is able to sync perfectly with networks, scanners, and GPS devices.

Economic Feasibility

Cost-Benefit Analysis Document:

Cost-Benefit Analysis

Assumptions:

- Dollar value increases by 3.5% per year.
- Equipment, network, software, and start-up costs are estimated reasonably.

Cost Estimates:

- **Equipment:** $500,000 (initial), $50,000 (annual maintenance)
- **Network:** $100,000 (initial), $10,000 (annual maintenance)
- **Software:** $300,000 (initial), $30,000 (annual maintenance)
- **Start-Up Costs:** $150,000 (one-time)
- **Labor Costs:** $150 per hour

Yearly Cost Breakdown:

Year	Equipment	Network	Software	Start-Up	Labor (hours)	Total Cost
1	$500,000	$100,000	$300,000	$150,000	2000	$1,350,000
2	$50,000	$10,000	$30,000	$0	500	$165,000
3	$50,000	$10,000	$30,000	$0	500	$165,000
4	$50,000	$10,000	$30,000	$0	500	$165,000
5	$50,000	$10,000	$30,000	$0	500	$165,000

Present Value of Costs:

Year	Total Cost	PV Costs
1	$1,350,000	$1,310,680.68
2	$165,000	$155,528.28

Year	Total Cost	PV Costs
3	$165,000	$150,998.38
4	$165,000	$146,600.39
5	$165,000	$142,330.41
Total PV Costs		**$1,906,137.12**

Benefit Estimates:

- **Efficiency Savings:** $500,000 annually
- **Error Reduction Savings:** $200,000 annually
- **Resource Optimization Savings:** $100,000 annually

Yearly Benefit Breakdown:

Year	Efficiency Savings	Error Reduction Savings	Resource Optimization Savings	Total Benefits
1	$500,000	$200,000	$100,000	$800,000
2	$500,000	$200,000	$100,000	$800,000
3	$500,000	$200,000	$100,000	$800,000
4	$500,000	$200,000	$100,000	$800,000
5	$500,000	$200,000	$100,000	$800,000

Present Value of Benefits:

Year	Total Benefits	PV Benefits
1	$800,000	$776,699.03
2	$800,000	$754,076.73
3	$800,000	$732,113.33
4	$800,000	$710,789.64

Year	Total Benefits	PV Benefits
5	$800,000	$690,087.03
Total PV Benefits		**$3,663,765.75**

ROI Calculation:

- **Total PV of Benefits:** $3,663,765.75
- **Total PV of Costs:** $1,906,137.12
- **ROI:** 92.21%

Organizational Feasibility

- Will the users accept the system?
    - Yes, the system will be simple, making it easy to learn and use on a daily basis.
- Is the project strategically aligned with the business?
    - Yes, the system will enhance the productivity and organization of this business.

Requirements of the New System

- Manage inventory
- View reports on inventory items
- View reports on expenses and revenue
- View employee and volunteer information through logistics reports
- Generate reports on carts needed for each polling location
- Generate Alerts when items need to have maintenance as well as when they reach their lifespan
- Generating maintenance reports on items that had maintenance performed
- Generating an audit report for when audit is performed
- Generating Expense Reports
- Generating Inventory Reports
- Generating Delivery Reports
- Generating LogisticsReports

Glossary of Terms

Class: A class serves as a blueprint or template for creating specific objects within a program. A class for employees will store information for their personal and business information as well as categorize the actions they can perform.
Prototype: A prototype for the purpose of this document will be a website page preview to show the layout of the pages and functionality.
Storyboard: A storyboard is a visual representation of the sequence of events occurring in a project. Here it is used to show the website page actions that will be possible in the future. As well as an idea of what order the pages are used.
Use Case: A mandatory action to the system that can be performed. Use cases are used to categorize the responsibilities of the system.

Section 1: Functional Requirements Specification

1.1 General Functional Requirements:

The system when completed will provide functionality for most users and will include the ability to:

- Manage(add, update, remove) inventory
- View reports on inventory items
- View reports on expenses and revenue
- View employee and volunteer information through logistics reports
- Generate reports on carts needed for each polling location
- Generate Alerts when items need to have maintenance as well as when they reach their lifespan
- Generating maintenance reports on items that had maintenance performed
- Generating an audit report for when audit is performed
- Generating Expense Reports
- Generating Inventory Reports
- Generating Delivery Reports
- Generating LogisticsReports

1.2 Actors and Goals:

Sunland County Auditor's Office(Project Sponsor)

- Manage Inventory: Add, Update, and delete inventory items such as voting booths, ballots and other equipment
- Generate Reports: Create reports on equipment usage, stock levels and logistics(such as voting location, staff at those locations, how many voters at locations etc)
- Integration: Overseeing the integration of the new system with existing systems to ensure data integrity
- Receiving alerts for voting booths when they reach their 10 year lifespan.
- Ensuring Audits are performed.

IT Department

- Integration Management: Ensures seamless integration of current systems into the new system
- Maintenance Support: Providing maintenance for systems such as updates and troubleshooting

Office Staff

- Manage Inventory: Add, update, and delete inventory records for voting equipment
- View reports on items needed for polling locations
- Track Equipment: Monitor the carts that were sent out to each polling location including how many carts at each location, how many booths, ballots and other items for voting.
- Generate Reports: Create reports on equipment usage and stock levels
- Inventory Reports: Receive alerts when stock levels are low or when equipment needs maintenance
- Scanning out and In carts that go out and returned(keeping track of items going to polling locations and scanning in items brought back to the primary office)

1.3 Stakeholder Analysis

Stakeholders:

Sunland County Auditor's Office:

- Role: Project Sponsor
- Interest: To make sure that the system implementation and the operation will run well.
- Influence: High – Are the final signatories of the project.

IT Department:

- Role: System Implementers and Cognoscente

- Interest: To make sure that the cells created conform the existing structures and are maintainable.
- Influence: High – They are technical officers who focus on the technical aspects of the projects, such as the level of feasibility possible in implementing the solutions proposed.

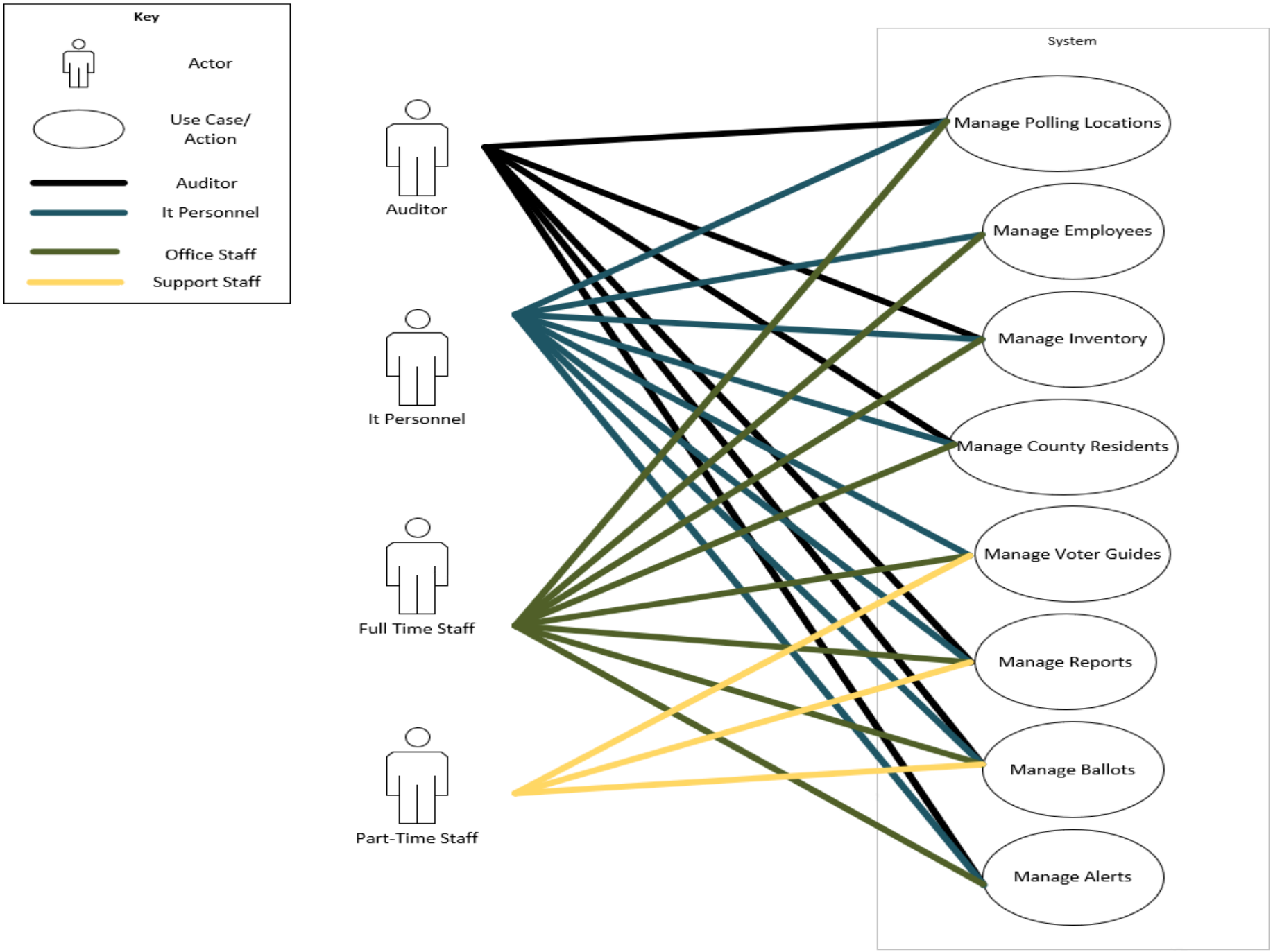
Office Staff:

- Role: System Users
- Interest: Management of inventory and equally management of logistics with optimum degrees of efficiency.
- Influence: Medium - Direct consumers who will be more involved in giving feedback and recommendations that can enhance their usage.

Section 2: Use Cases

2.1 Use Case Diagram

The use case diagram portrays the major functionalities or actions of the system. There are relationships between the stakeholders/actors and the functionalities. This allows us to see how the system will be used by each group of people in a broad sense.
Figure 2-1


Key
Actor
Use Case/ Action
Auditor
It Personnel
Office Staff
Support Staff
Auditor
It Personnel
Full Time Staff
Part-Time Staff
System
Manage Polling Locations
Manage Employees
Manage Inventory
Manage County Residents
Manage Voter Guides
Manage Reports
Manage Ballots
Manage Alerts

2.2 Casual Descriptions

Manage Inventory: Add, Update, and delete inventory items such as voting booths, ballots and other equipment

Examples of actions within this use case:

- **Generate Inventory Report**: Gives a report on current inventory levels, as well as changes and usage
- **Update Inventory Amount:** Updates the Inventory Amount
- **Update Inventory Information:** Allows editing the attributes of any inventory item type
- **Notify Office Staff:** Sends notification to office staff with a string for any information entered by the sending database
- **Validate User Permissions:** Runs in the background once logged in to generate the allowed access to that user. Office Staff have more access than part time employees

Manage Equipment: Allows polling locations to schedule a delivery of voting equipment and track the deliveries of said voting equipment to each polling location. This ensures the voting equipment is scanned out of the office and delivered to various locations and when the equipment is returned, they can be scanned in. This use case also allows users to generate a logistics report on the equipment, seeing what equipment was used and how many people used it, as well as how many carts will be needed at these locations.

Manage Maintenance Report: Creates and updates the maintenance reports. This will allow office staff to attach the maintenance reports to a specific piece of equipment. Maintenance report status can be edited here to mark it as in progress, completed, or failed.

Manage Audit report: Creates and updates Audit reports. Audit report status may be updated between in progress, passed, and failed.

Manage Staff: Adds staff, removes staff, and edits staff profiles may be completed here.

Manage Voting Locations: Reserves voting locations for voting days, assigns workers with shift times, contains the amount of carts required for this location, and assigns specific carts to each location using item ID on barcode.

Manage Ballots: Schedules staff members for the retrieval of ballots and transportation to the office. Manages the mailing of the ballots to county residents. Carries out the processing of hard copy and electronic ballots.

2.3 Manage Equipment Use Case Description

<table>
<tr><td>Use case name: Manage Equipment</td><td>ID:1</td><td>Importance Level: High (a necessity to the system)</td></tr>
<tr><td>Primary actor: Office Staff</td><td colspan="2">Use case type: Detail, Essential</td></tr>
<tr><td colspan="3">Stakeholders and interests:
Office Staff: Ensuring timely deliveries and return of voting equipment
Sunland County Auditors’ Office: Requires the accurate tracking of equipment and logistics at voting locations
IT Department: Ensures system is functional and keeps track of data to ensure data integrity</td></tr>
<tr><td colspan="3">Brief description:
This use case allows polling locations to schedule a delivery of voting equipment and track the deliveries of said voting equipment to each polling location. This ensures the voting equipment is scanned out of the office and delivered to various locations and when the equipment is returned, they can be scanned in. This use case also allows users to generate an inventory report on the equipment, seeing what equipment was used and how many people used it, as well as how many carts will be needed at these locations.</td></tr>
<tr><td colspan="3">Trigger:
Sunland County Auditor's Office.

Type: External</td></tr>
<tr><td colspan="3">Relationships:
Association (related): Office staff, Sunland County Auditor's Office, IT Department
Include (Breakout from larger use case): Validate User Permissions
Extend (Optional Behavior): Notify office staff of any delivery status changes and alerts for delayed deliveries.</td></tr>
</table>

Normal flow of events (steps normally taken in the use case):

1. The office staff logs into the system.

2. The office staff navigates to the logistics management section, to see how many carts need to be delivered at a polling location.

3. The office staff selects the option to schedule a delivery.

4. The office staff enters the necessary details for the delivery, including the destination, equipment items, and delivery date.

5. The office staff confirms the scheduling details.

6. The system validates the input and updates the logistics database.

7. The system notifies the office staff about the scheduled delivery and will scan-out items needed for the delivery.

8. The office staff updates the delivery status as dispatched, in transit, and delivered.

9. The system tracks the delivery status in real-time.

10. The office staff views the delivery status and confirms completion upon delivery.

11. The office staff schedules the return of equipment after use.

12. The office staff scans-in items returned.

13. The system updates the logistics database with return details.

14. The system provides a confirmation message to the manager and generates an inventor report.

Sub-flows (contains more in-depth steps from the flow of events):

Validate User Permissions:

1. The system checks the users permissions and role
2. If the user has permission the process can start
3. If the user does not have permission, deliveries cannot be started

Notify Office Staff:

1. The system will send a notification to the delivery team with details about the delivery
2. The delivery team will start the delivery and scan-out necessary items for the location.
3. The delivery team will update the delivery status.

Alternate Flows:

1. If details for a scheduled delivery are not found, the system will display an error
2. Sunland Auditords' office can cancel a delivery
3. If the delivery is delayed the system will generate an alert.

2.4 Manage Inventory Use Case Description

Use case name: Manage Inventory	ID:2	Importance Level: High (a necessity to the system)
Primary actor: Office Staff	Use case type: Detail, Essential	
Stakeholders and interests: Employee: wants to edit stock amount, update inventory information		
Brief description: This use case allows the employee to update the current amount of each item in stock by adding or removing an item. Allows the employee to see if the inventory item is in the optimal range each year.		
Trigger: An item is damaged or lost. The item changes optimal inventory status. An item is purchased. Type: External		

Relationships:

Association (related):Office staff, Sunland County Auditors' Office, IT Department

Include (Breakout from larger use case): Validate User Permissions

Extend (Optional Behavior): Update Inventory Amount, Update Inventory information, Notify office staff if an item's inventory amount is outside of the optimal amount for usable items

Generalization (Inheritance): Manage Equipment

Normal flow of events (steps normally taken in the use case):

1. The office staff logs into the system.

   The system S-1: Validates User Permissions is performed in the background

2. The office staff navigates to the inventory management section
3. The office staff selects an item in inventory
4. The office staff updates the inventory amount

   The system validates the input and updates the inventory database

   The system S-2: Notify Office Staff if the item's amount is outside of the item's optimal range

5. The office staff selects an item in inventory
6. The office staff updates the item's information

   The information is validated and stored in the inventory's database

Sub-flows (contains more in-depth steps from the flow of events):

S-1: Validate User Permissions:

1. The system checks the users permissions and role
2. If the user has permission the process can start
3. If the user does not have permission, deliveries cannot be started

S-2: Notify Office Staff:

1. The system sends a notification to the office staff with the inventory item, inventory item amount, and inventory item optimal amount.
2. The Office Staff will create maintenance reports for any damaged items to bring the item's inventory up to optimal if necessary
3. The Office Staff will purchase items to bring up the inventory to the optimal range if necessary.
4. The Office Staff will relocate extra inventory to extra storage if necessary.

Alternate/exceptional flows (alternate options from sub-flows):

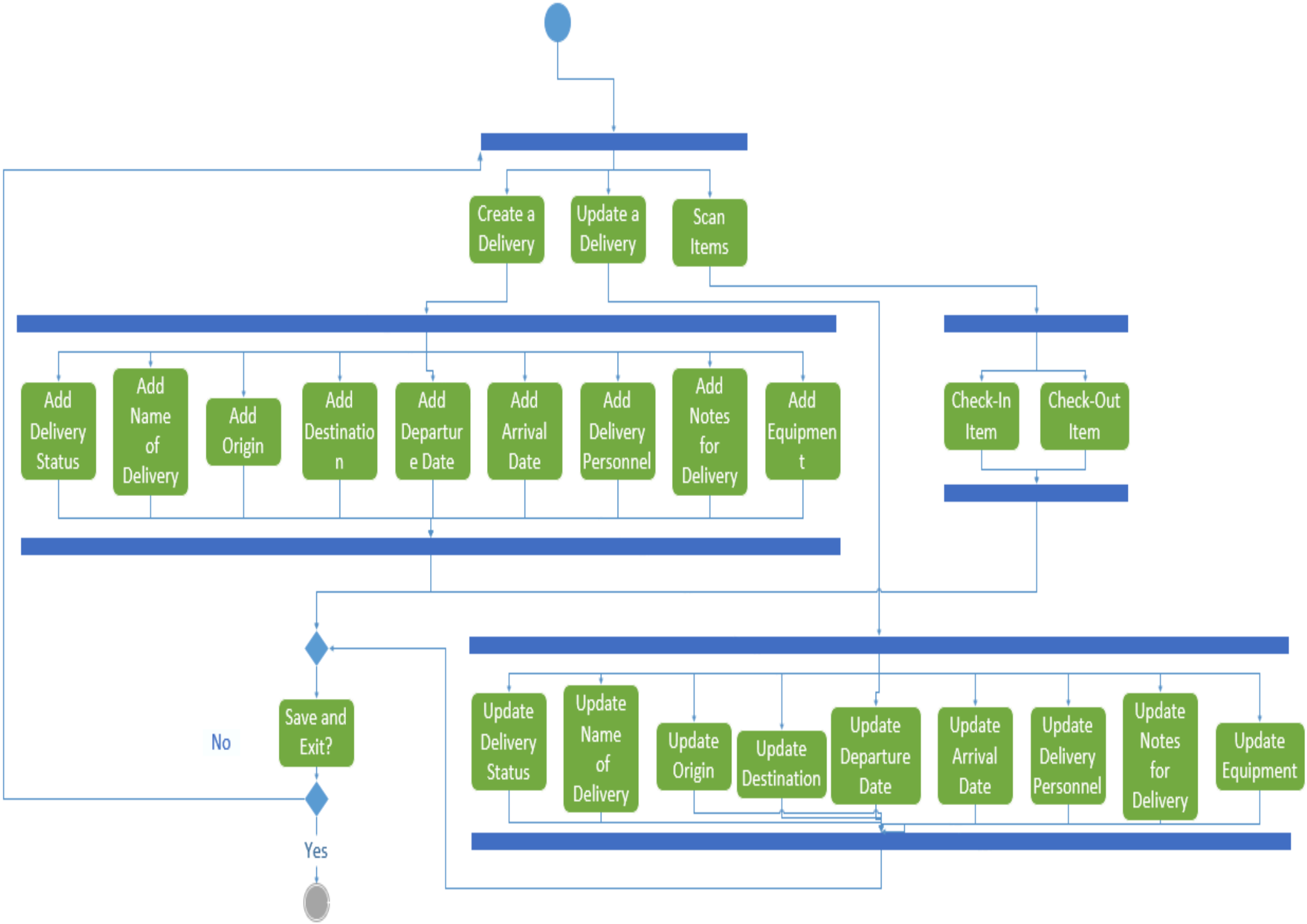
s-2 a1: If the office staff have not opened the notification in 3 days a followup message will be sent to the staff member.

Section 3: Activity diagrams

3.1 Manage Equipment Activity Diagram

Below is the diagram going over the manage equipment use case or action. This use case goes over the scheduling of deliveries and scanning-in and out equipment that is sent to voting locations. The office staff oversees most of the process. The auditors' office is able to generate a report on the voting location. To see how many expected voters are to show up and see how much equipment to send to a location as well as see how many actual voters showed up and how many times the equipment was used. Below in the diagram the word update allows editing or deleting the current variable. The flow of actions inside of the manage equipment use case is portrayed by the arrows below.

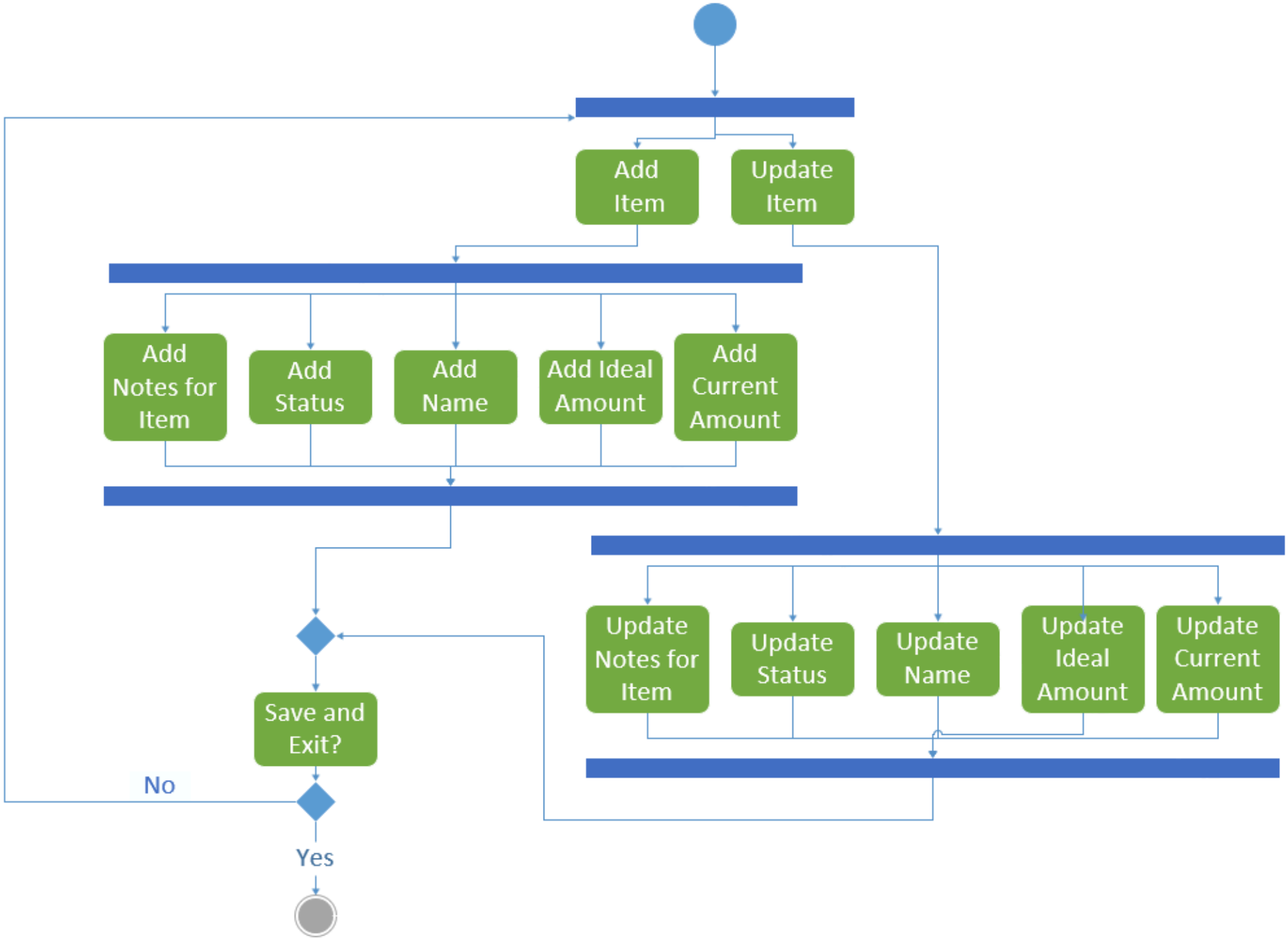
Figure 3-1


Create a Delivery
Update a Delivery
Scan Items
Add Delivery Status
Add Name of Delivery
Add Origin
Add Destination
Add Departure Date
Add Arrival Date
Add Delivery Personnel
Add Notes for Delivery
Add Equipment
Check-In Item
Check-Out Item
Save and Exit?
No
Yes
Update Delivery Status
Update Name of Delivery
Update Origin
Update Destination
Update Departure Date
Update Arrival Date
Update Delivery Personnel
Update Notes for Delivery
Update Equipment

3.2 Manage Inventory Activity Diagram

Below is the diagram going over the manage inventory use case or action. This will allow the office staff to edit stock amounts, update inventory information, and view the status of the amount of the item. Below in the diagram the word update allows editing or deleting the current variable of the selected item. The flow of actions inside of the manage inventory use case is portrayed by the arrows below.

Figure 3-2

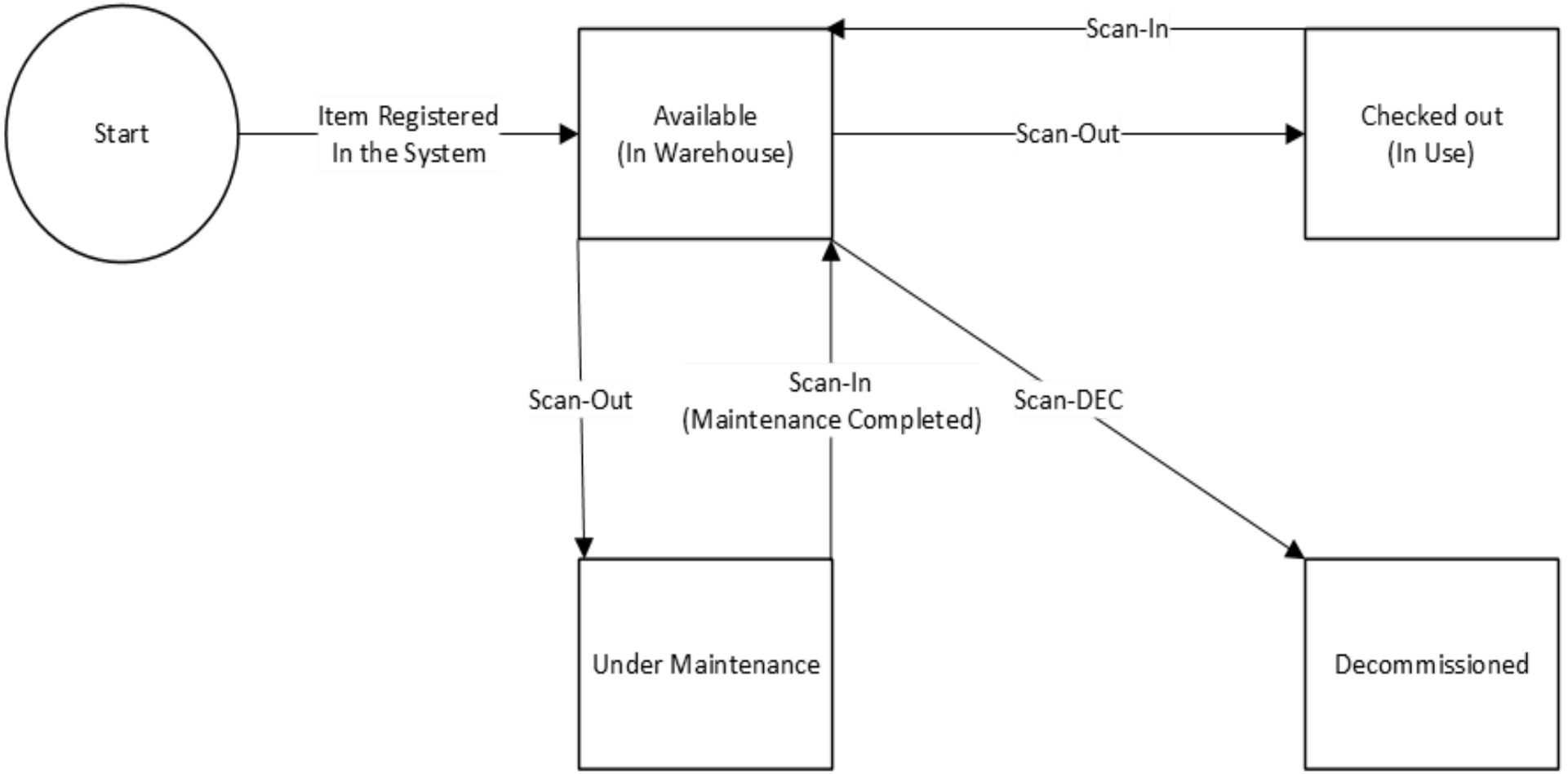

Add Item
Update Item
Add Notes for Item
Add Status
Add Name
Add Ideal Amount
Add Current Amount
Update Notes for Item
Update Status
Update Name
Update Ideal Amount
Update Current Amount
Save and Exit?
No
Yes

Section 4: Interaction diagrams & State Machines

4.1 Item Status: Behavioral State Machine

Below is a diagram of the status flow of an item in inventory. Each item will have a barcode that is used to update the status of the item using a barcode scanner. The scanner will be able to Scan-In(), Scan-Out(), or Scan-Dec(). **scan-In()** will mark the item as available for use. This is what the employees will set the scanners to when receiving items that are returning back to the warehouse. **scan-Out()**, will mark the item as in use and should be used when sending out items to a voting ballot. Scan-Out can also be used for items that need maintenance. **scan-Dec()** (Decommission) is a special case mode for items that have been broken and can no longer be used.

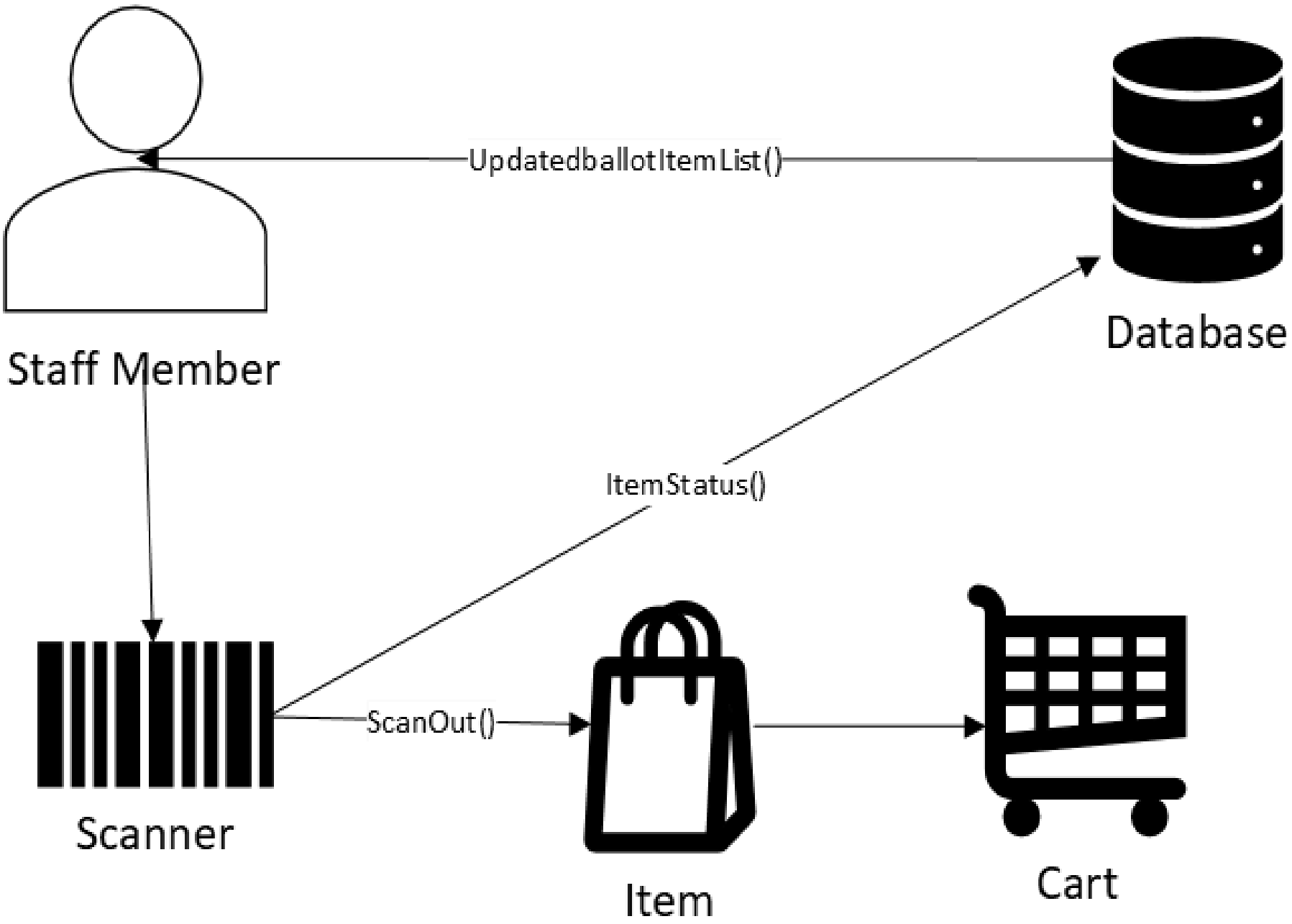
Figure 4-1


Start
Item Registered
In the System
Available
(In Warehouse)
Scan-In
Scan-Out
Checked out
(In Use)
Scan-Out
Scan-In
(Maintenance Completed)
Scan-DEC
Under Maintenance
Decommissioned

4.2 Filling Carts: Communication Diagram

Below is a diagram of the system communicating with the staff members to speed up as well as improve organization of the process of checking items out for a ballot. This whole function is called **fillCart()** and will be used in the next communication diagram. The database will be displayed on a scanner showing the staff member what items need to be checked out for the current ballot. Next the staff member will use a scanner to scan items on the **updatedBallotItemList()** until the updatedBallotItemList() is empty and there are no more items to scan. Scanned items status will be updated once scanned which will update the updatedBallotItemList().

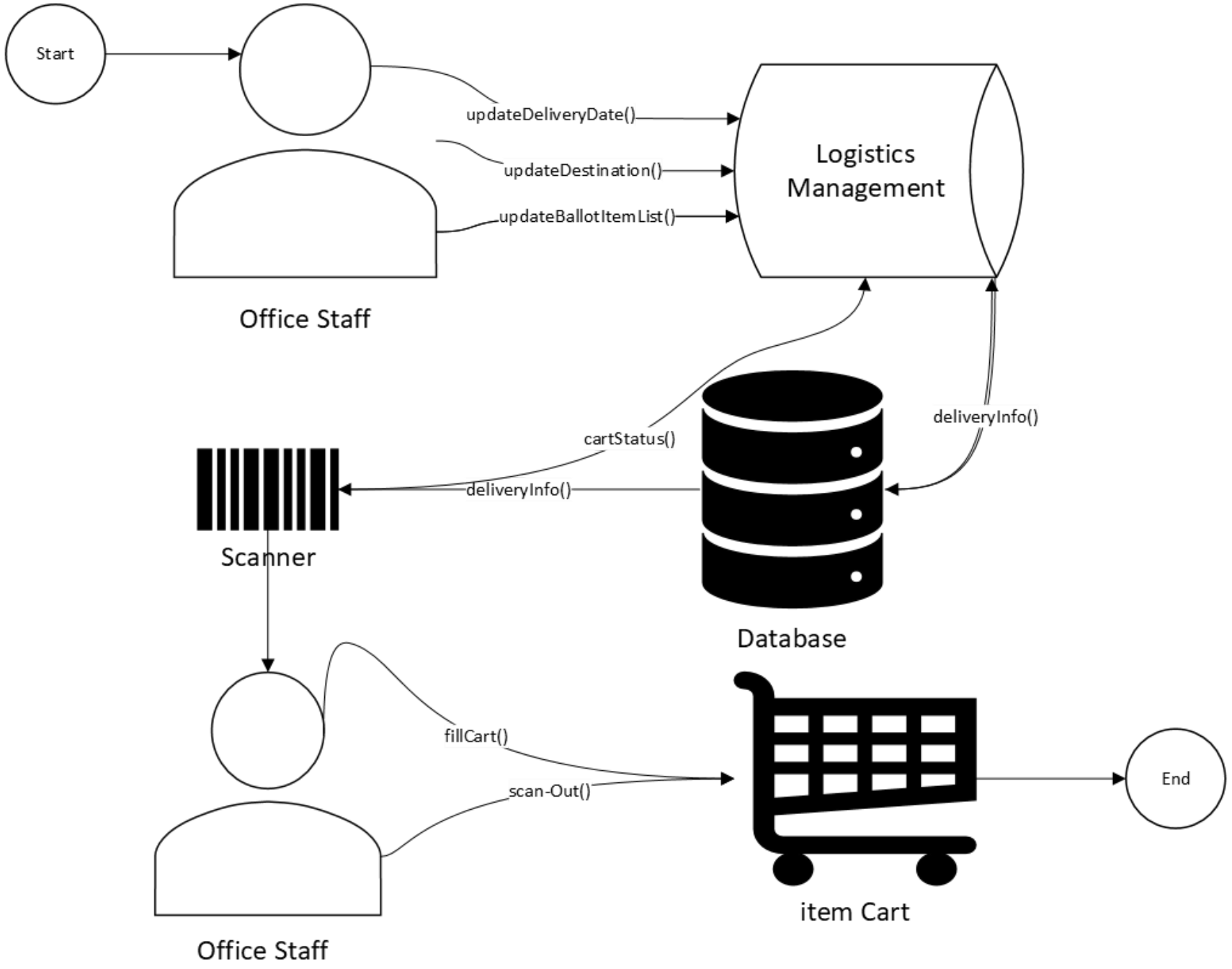
Figure 4-2


UpdatedballotItemList()
Database
Staff Member
ItemStatus()
ScanOut()
Scanner
Item
Cart

4.3 Equipment Delivery: Communication Diagram

Shown below is a diagram that illustrates the communication between office staff, through the system. In this diagram, an office staff member uses the logistics management section of the system to update the delivery date, destination, and the ballot item. Once the delivery info is updated into the database it will automatically be updated on any scanner which office staff can use. They will use the scanner to **fillCart()** (explained in: Filling Carts Communication Diagram). Once the cart is filled they will **scan-Out()** the cart which will update the status of the cart with all the proper the cart needs to be shipped to the location. The **cartStatus()** will contain the destination it's being delivered to, date of delivery, and items contained in the cart.

Figure 4-3

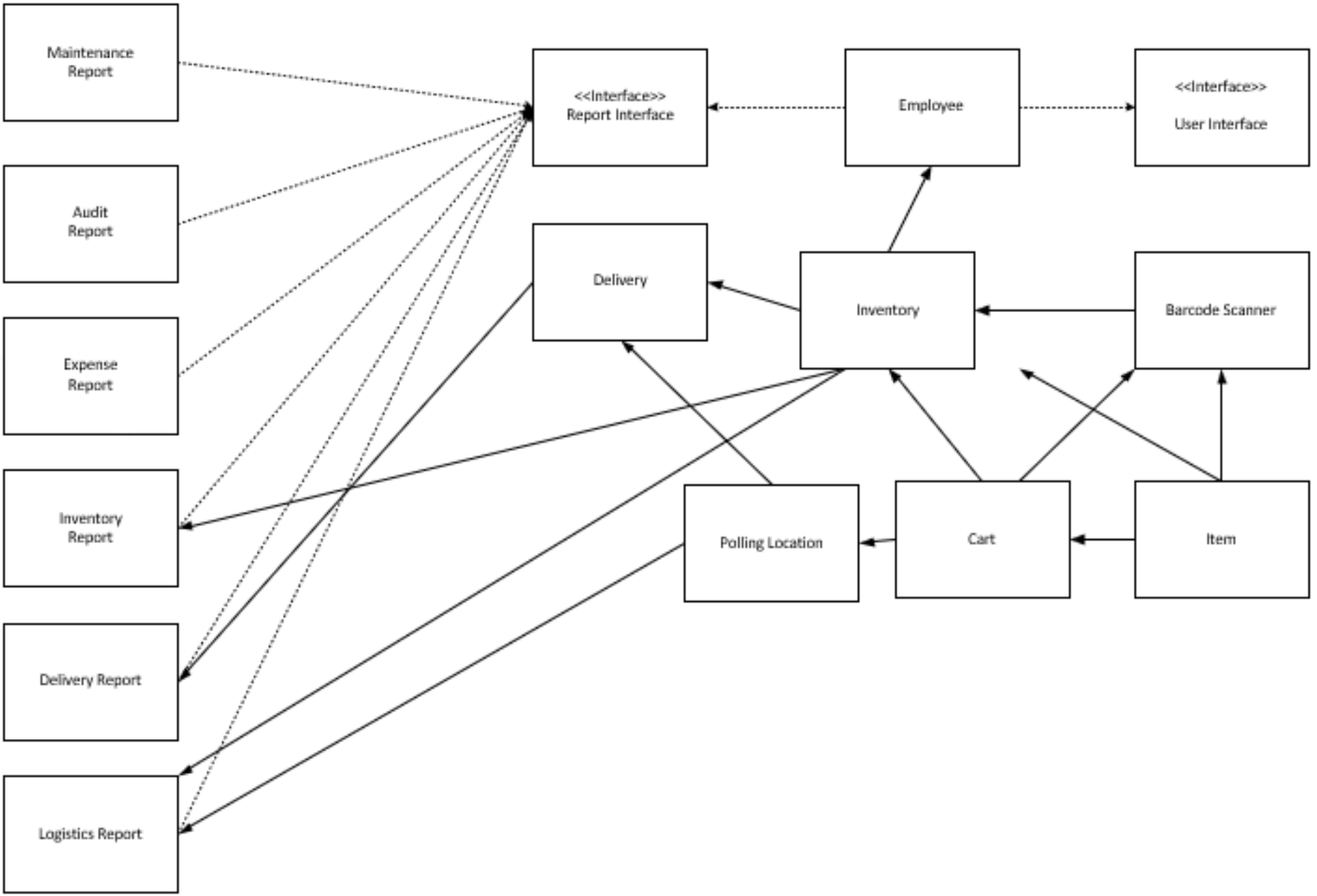

Start
updateDeliveryDate()
updateDestination()
updateBallotItemList()
Logistics Management
Office Staff
cartStatus()
deliveryInfo()
deliveryInfo()
Scanner
Database
fillCart()
scan-Out()
End
item Cart
Office Staff

Section 5: Overview Class diagram and domain list

5.1 Overview Diagram

The overview Diagram displays all of the objects that will be necessary when transferring this system into code. The objects are known as classes for the organization of coding. This will display the relationships between objects and the interfaces needed. Logistics reports will allow the adding of any information the user deems necessary.

Figure 5-1

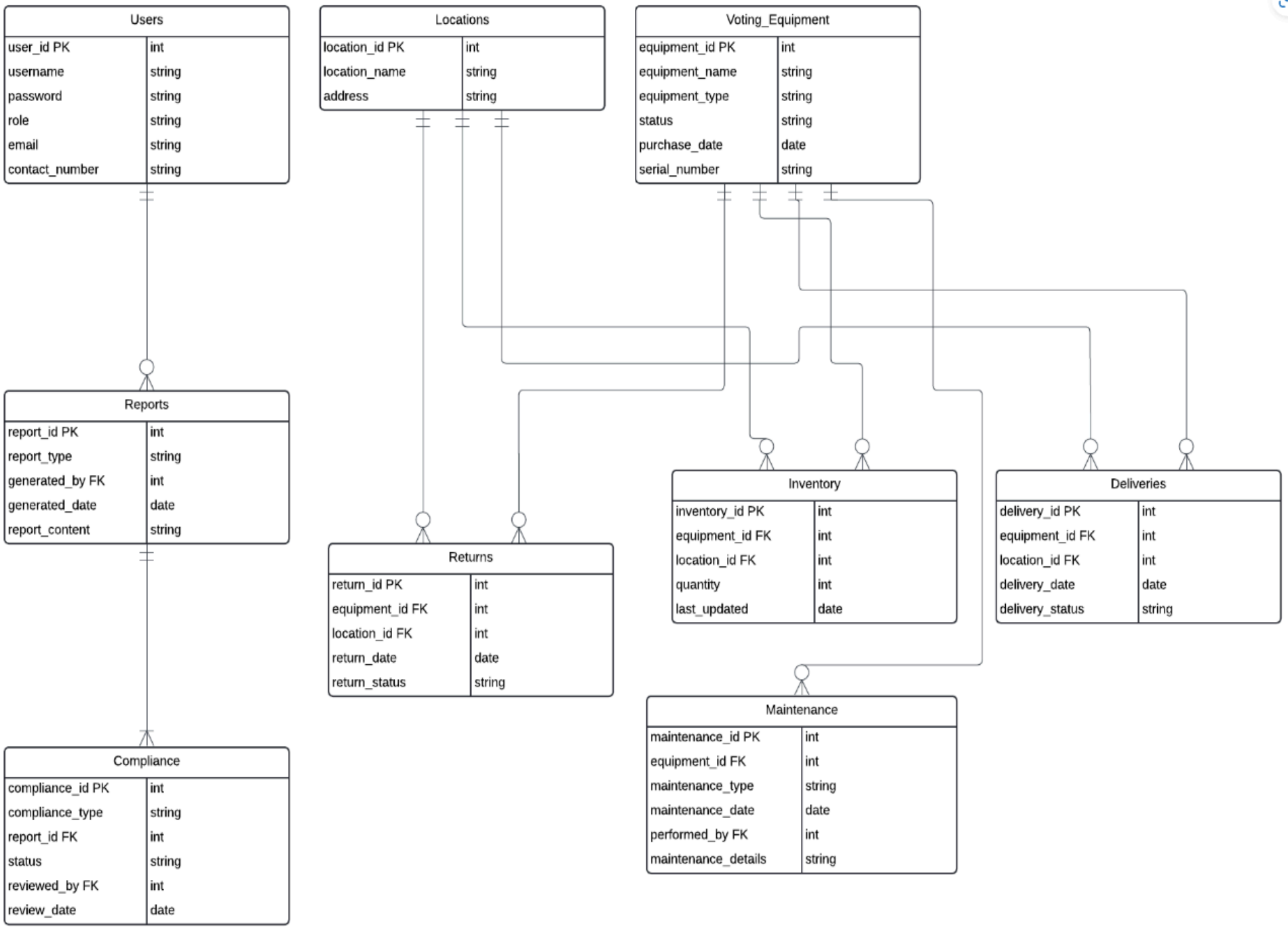

Maintenance Report
Audit Report
Expense Report
Inventory Report
Delivery Report
Logistics Report
<<Interface>> Report Interface
Employee
<<Interface>> User Interface
Delivery
Inventory
Barcode Scanner
Polling Location
Cart
Item

5.2 Potential Class Domains

Section 6: Relational Database Table

6.1 Relational Database Table Diagram:

Figure 6-1


Users
user_id PK int
username string
password string
role string
email string
contact_number string
Locations
location_id PK int
location_name string
address string
Voting_Equipment
equipment_id PK int
equipment_name string
equipment_type string
status string
purchase_date date
serial_number string
Reports
report_id PK int
report_type string
generated_by FK int
generated_date date
report_content string
Returns
return_id PK int
equipment_id FK int
location_id FK int
return_date date
return_status string
Inventory
inventory_id PK int
equipment_id FK int
location_id FK int
quantity int
last_updated date
Deliveries
delivery_id PK int
equipment_id FK int
location_id FK int
delivery_date date
delivery_status string
Compliance
compliance_id PK int
compliance_type string
report_id FK int
status string
reviewed_by FK int
review_date date
Maintenance
maintenance_id PK int
equipment_id FK int
maintenance_type string
maintenance_date date
performed_by FK int
maintenance_details string

6.2 Relational Database Data Examples:

VOTING EQUIPMENT:

equipment_id	equipment_name	equipment_type	serial_number
VE001	Voting Booth A	Booth	SN12345678
VE002	Ballot Scanner 1	Scanner	SN87654321
VE003	I Voted Stickers	Consumable	SN11223344

COMPLIANCE:

compliance_id	compliance_type	report_id	status	reviewed_by	review_date
C001	Regulatory	REP003	Approved	U002	2024-07-04
C002	Safety	REP002	Pending	U003	2024-07-05
C003	Regulatory	REP001	Approved	U001	2024-07-06

REPORTS:

report_id	report_type	generated_by	generated_date	report_content
REP001	Inventory	U001	2024-07-01	Inventory report data
REP002	Logistics	U002	2024-07-02	Logistics report data
REP003	Compliance	U003	2024-07-03	Compliance report data

RETURNS:

return_id	equipment_id	location_id	return_date	return_status
R001	VE001	L001	2024-07-07	Returned
R002	VE002	L002	2024-07-08	Scheduled
R003	VE003	L003	2024-07-09	In Transit

DELIVERIES:

delivery_id	equipment_id	location_id	delivery_date	delivery_status
D001	VE001	L001	2024-07-04	Delivered
D002	VE002	L002	2024-07-05	In Transit
D003	VE003	L003	2024-07-06	Scheduled

INVENTORY:

inventory_id	equipment_id	location_id	quantity	last_updated
INV001	VE001	L001	5	2024-07-01
INV002	VE002	L002	3	2024-07-02
INV003	VE003	L003	2000	2024-07-03

LOCATION:

location_id	location_name	address
L001	City Hall	123 Main St, Sunland, CA
L002	Community Center	456 Elm St, Sunland, CA
L003	High School	789 Oak St, Sunland, CA

MAINTENANCE:

maintenance_id	equipment_id	maintenance_type	maintenance_date	performed_by	maintenance_details
M001	VE001	Routine	2024-07-01	U003	Cleaned and inspecte
M002	VE002	Emergency	2024-07-02	U003	Scanner repair require
M003	VE003	Routine	2024-07-03	U003	Restocked consumable

Section 7: Nonfunctional Requirements

7.1 Performance

Response Time:

- Scanner Input: The system will process and respond to scanner inputs within 2 seconds. If there is network trouble the system fails to do so, the scanner will display a loading icon on the screen.

- Data Retrieval: The system will return data to the user within 3 seconds of inputting a query. If the system takes longer than that there will be a loading icon displayed in the window.

Throughput:

- The system will be able to handle up to 10 scans a second while responding to scanner inputs within 2 seconds.

- The system will be able to process and update 1,000 inventory transactions per hour.

7.2 Scalability

Users:

- The system will be able to handle up to 200 concurrent users without significant performance dips.

Data Volume:

- The system will scale to manage up to 500,000 inventory items efficiently.

7.3 Security

Data Protection:

- Encryption: All sensitive data will be encrypted for protection.

Authentication:

- Passwords: Passwords are required for all users and must be 12 characters long.

7.4 Usability

User Interface:

- Task Completion Time: Users will be able to complete tasks within a few minutes with ease.

Training:

- Training Time: It will take 1-2 hours of training before new users are able to perform basic tasks using the system.
- Help: There will be on screen help throughout the system.

Section 8: References

Books:
Sommerville, I. (2016). Software Engineering. 10th ed. Harlow: Pearson Education Limited.
Pressman, R.S. (2014). Software Engineering: A Practitioner's Approach. 8th ed. New York: McGraw-Hill.
Fowler, M. (2018). UML Distilled: A Brief Guide to the Standard Object Modeling Language. 3rd ed. Boston: Addison-Wesley.
Brown, G. and Green, T. (2017). Financial Analysis: A Business Decision Guide. 2nd ed. Hoboken: Wiley.
Jeston, J. and Nelis, J. (2014). Business Process Management. 4th ed. Routledge: New York.
Journal Articles:
Boehm, B. and Hansen, W.J. (2001). The Spiral Model as a Tool for Evolutionary Acquisition. ACM SIGSOFT Software Engineering Notes, 26(4), pp.1-18.
Kruchten, P. (2004). The Rational Unified Process: An Introduction. Addison-Wesley Professional. 3rd ed.
Kaplan, R.S. and Norton, D.P. (1992). The Balanced Scorecard—Measures that Drive Performance. Harvard Business Review, 70(1), pp.71-79.
Hwang, B., Zhao, X. and Toh, L.P. (2014). Risk Management in Small Construction Projects in Singapore: Status, Barriers and Impact. International Journal of Project Management, 32(1), pp.116-124.
Conference Papers:

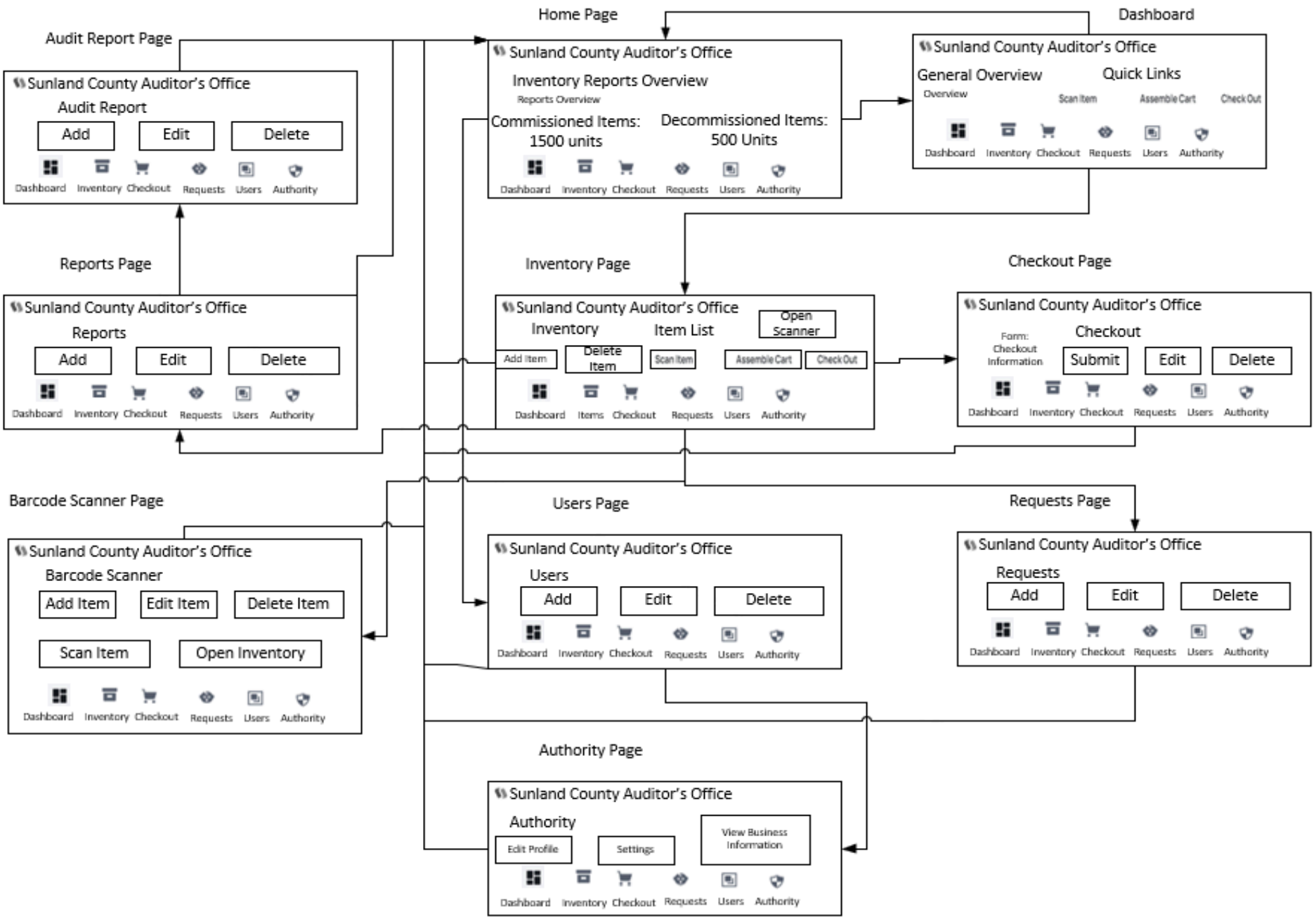
Chen, X. and Hu, Y. (2020). A Comparative Study on API Design for Financial Applications. In: Proceedings of the 2020 ACM International Conference on Software Engineering. New York: ACM Press, pp. 112-120.
Smith, J. and Brown, M. (2019). Implementing Cost-Benefit Analysis Tools for Financial Decision Making. In: Proceedings of the 2019 IEEE International Conference on Business and Management. Piscataway: IEEE, pp. 25-32.
Reports:
Deloitte. (2020). API Economy: From Systems to Business Services. London: Deloitte Insights.
Gartner. (2021). Top Trends in Data Visualization. Stamford: Gartner Research.
Standards and Guidelines:
IEEE. (2018). IEEE Std 830-1998: Recommended Practice for Software Requirements Specifications. New York: IEEE.
W3C. (2018). Web Content Accessibility Guidelines (WCAG) 2.1. [online]. Available at: https://www.w3.org/TR/WCAG21/ ss.

Section 9: User Interface design:

9.1 Storyboard

This will display the typically used website pages for the new system. There are buttons and headers to show the majority of the actions that can take place on each page. There will be arrows going to and from the pages to show the normal flow of use. Each page can return us to the home page. Allow the normal flow is displayed by the arrows, most pages can be accessed by the navigation menu at the bottom of each image.

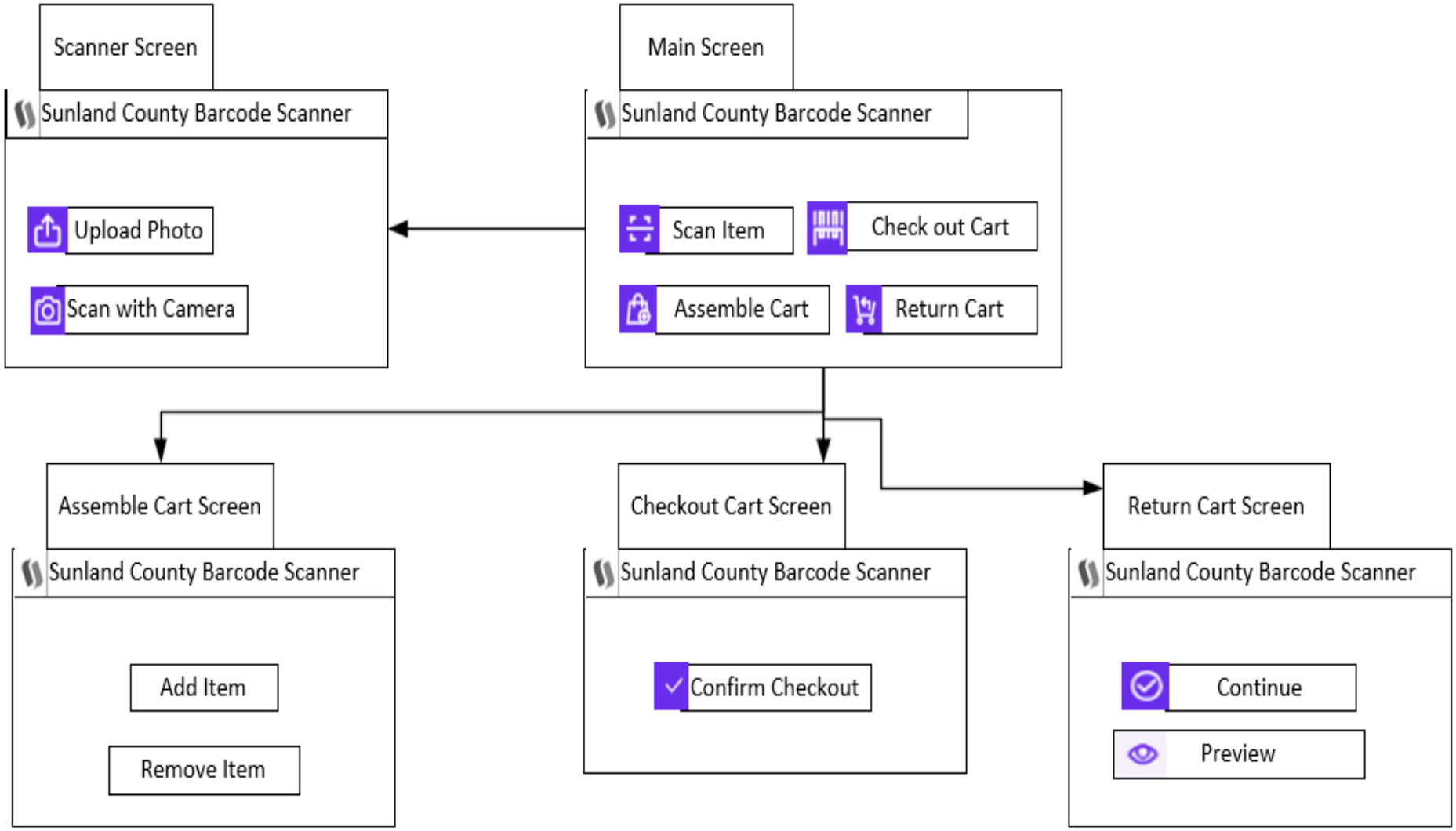
Figure 9-1


Home Page
Dashboard
Audit Report Page
Sunland County Auditor's Office
Audit Report
Add
Edit
Delete
Dashboard Inventory Checkout Requests Users Authority
Sunland County Auditor's Office
Inventory Reports Overview
Reports Overview
Commissioned Items:
1500 units
Decommissioned Items:
500 Units
Dashboard Inventory Checkout Requests Users Authority
Sunland County Auditor's Office
General Overview
Quick Links
Overview
Scan Item
Assemble Cart
Check Out
Dashboard Inventory Checkout Requests Users Authority
Reports Page
Inventory Page
Checkout Page
Sunland County Auditor's Office
Reports
Add
Edit
Delete
Dashboard Inventory Checkout Requests Users Authority
Sunland County Auditor's Office
Inventory
Item List
Open Scanner
Add Item
Delete Item
Scan Item
Assemble Cart
Check Out
Dashboard Items Checkout Requests Users Authority
Sunland County Auditor's Office
Form: Checkout Information
Checkout
Submit
Edit
Delete
Dashboard Inventory Checkout Requests Users Authority
Barcode Scanner Page
Users Page
Requests Page
Sunland County Auditor's Office
Barcode Scanner
Add Item
Edit Item
Delete Item
Scan Item
Open Inventory
Dashboard Inventory Checkout Requests Users Authority
Sunland County Auditor's Office
Users
Add
Edit
Delete
Dashboard Inventory Checkout Requests Users Authority
Sunland County Auditor's Office
Requests
Add
Edit
Delete
Dashboard Inventory Checkout Requests Users Authority
Authority Page
Sunland County Auditor's Office
Authority
Edit Profile
Settings
View Business Information
Dashboard Inventory Checkout Requests Users Authority

9.2 Barcode Scanner Storyboard

This will display the typically used website pages for the new system. There are buttons and headers to show the majority of the actions that can take place on each page. There will be arrows going to and from the pages to show the normal flow of use. Normally users will go from the main screen to one of the other screens, complete an action, then power off the scanner.

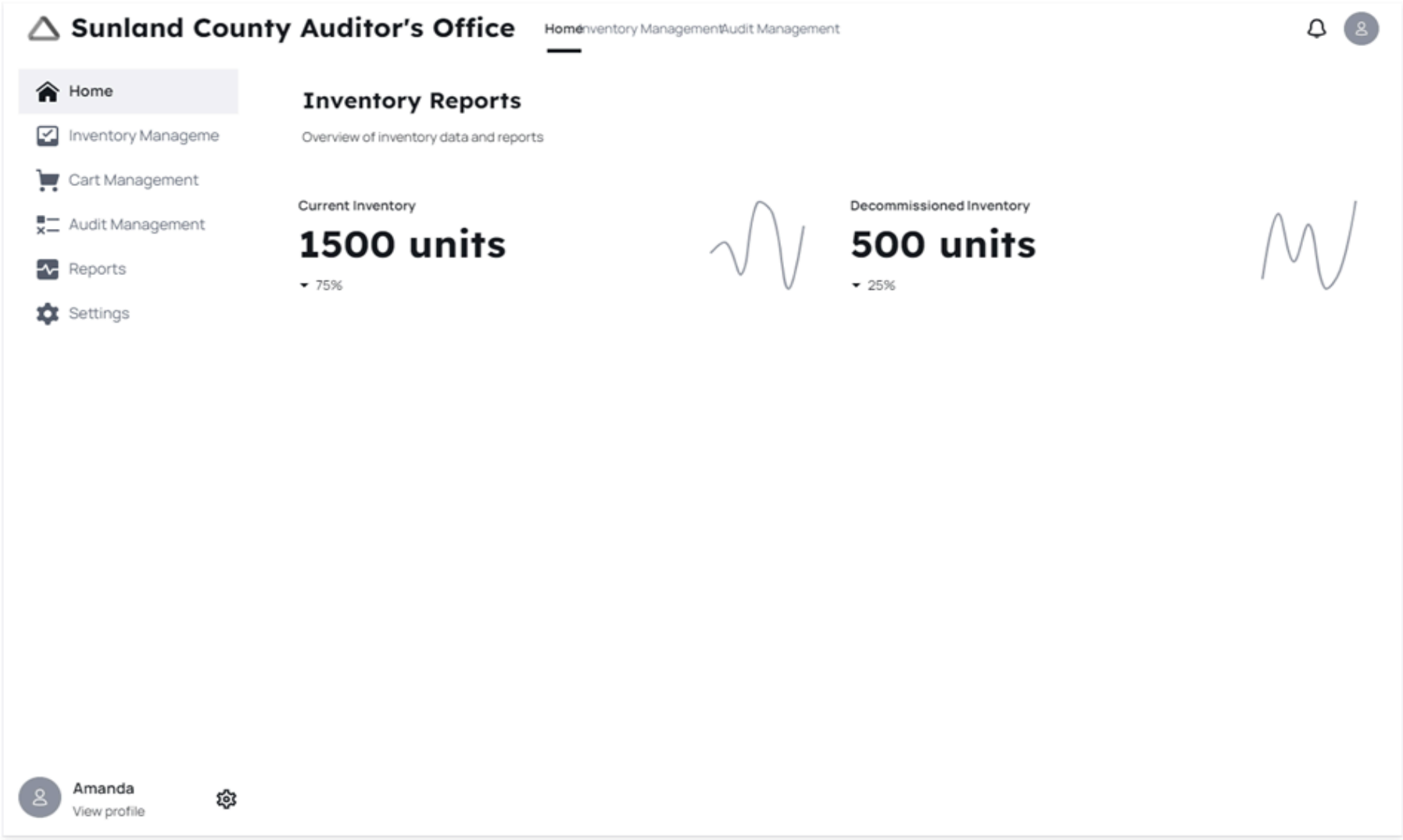
Figure 9-2


Scanner Screen
Sunland County Barcode Scanner
Upload Photo
Scan with Camera
Main Screen
Sunland County Barcode Scanner
Scan Item
Check out Cart
Assemble Cart
Return Cart
Assemble Cart Screen
Sunland County Barcode Scanner
Add Item
Remove Item
Checkout Cart Screen
Sunland County Barcode Scanner
Confirm Checkout
Return Cart Screen
Sunland County Barcode Scanner
Continue
Preview

9.3 Main Dashboard Prototype

The prototype gives a preview of what the final website page will look like to the staff. The main dashboard is used to display the initial page displayed to give the user a brief overview of the inventory. We are shown the current inventory amount, decommissioned inventory amount, and a brief overview of the inventory reports.

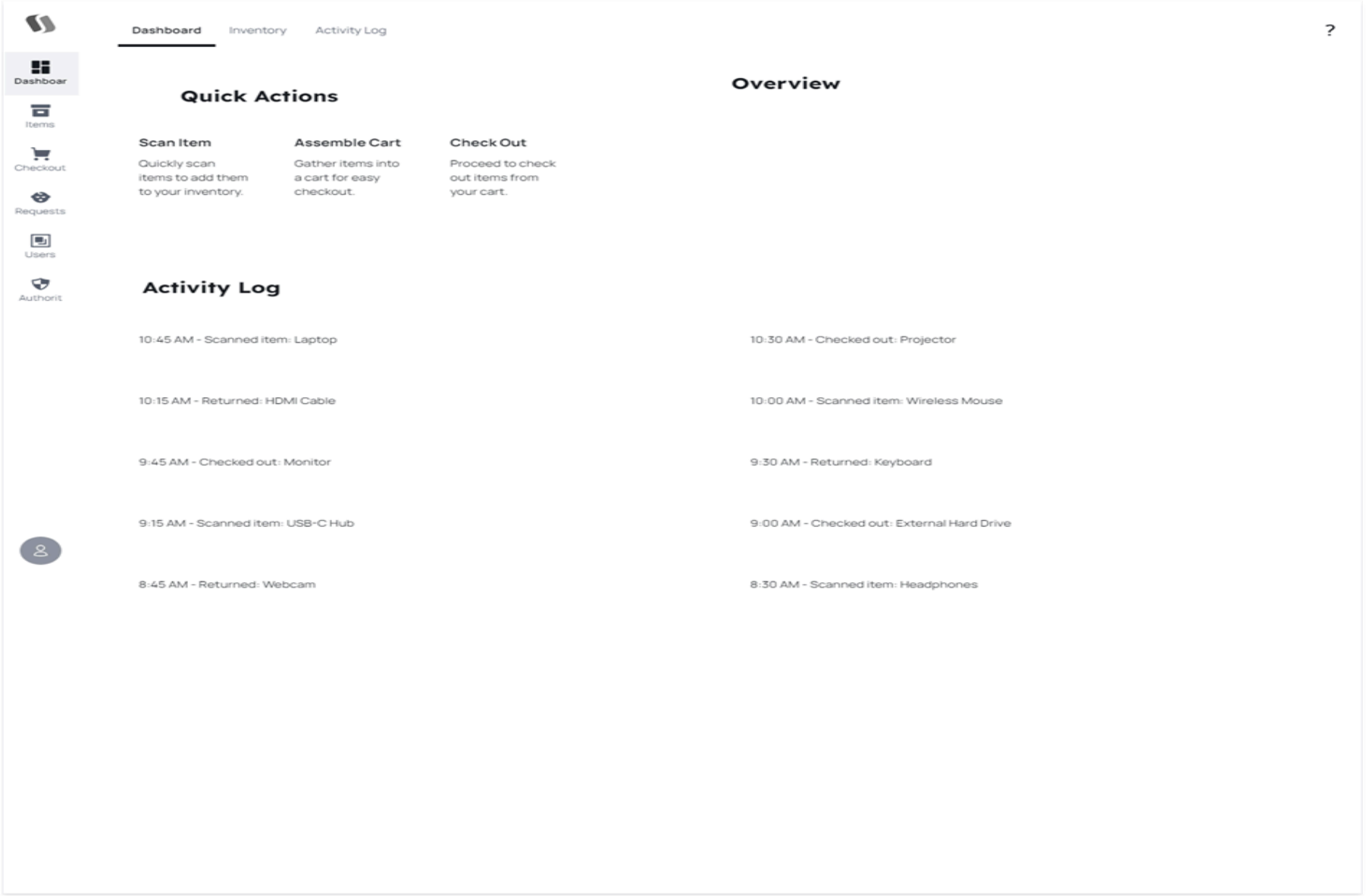
Figure 9-2



9.4 Home Page Prototype

The prototype gives a preview of what the final website page will look like to the staff. The home page is used to display quick actions, a website overview, and summary activity log. There will also be a virtual assistant to aid the staff with the system This will allow the user to review basic information and begin interacting with items with the quick links.

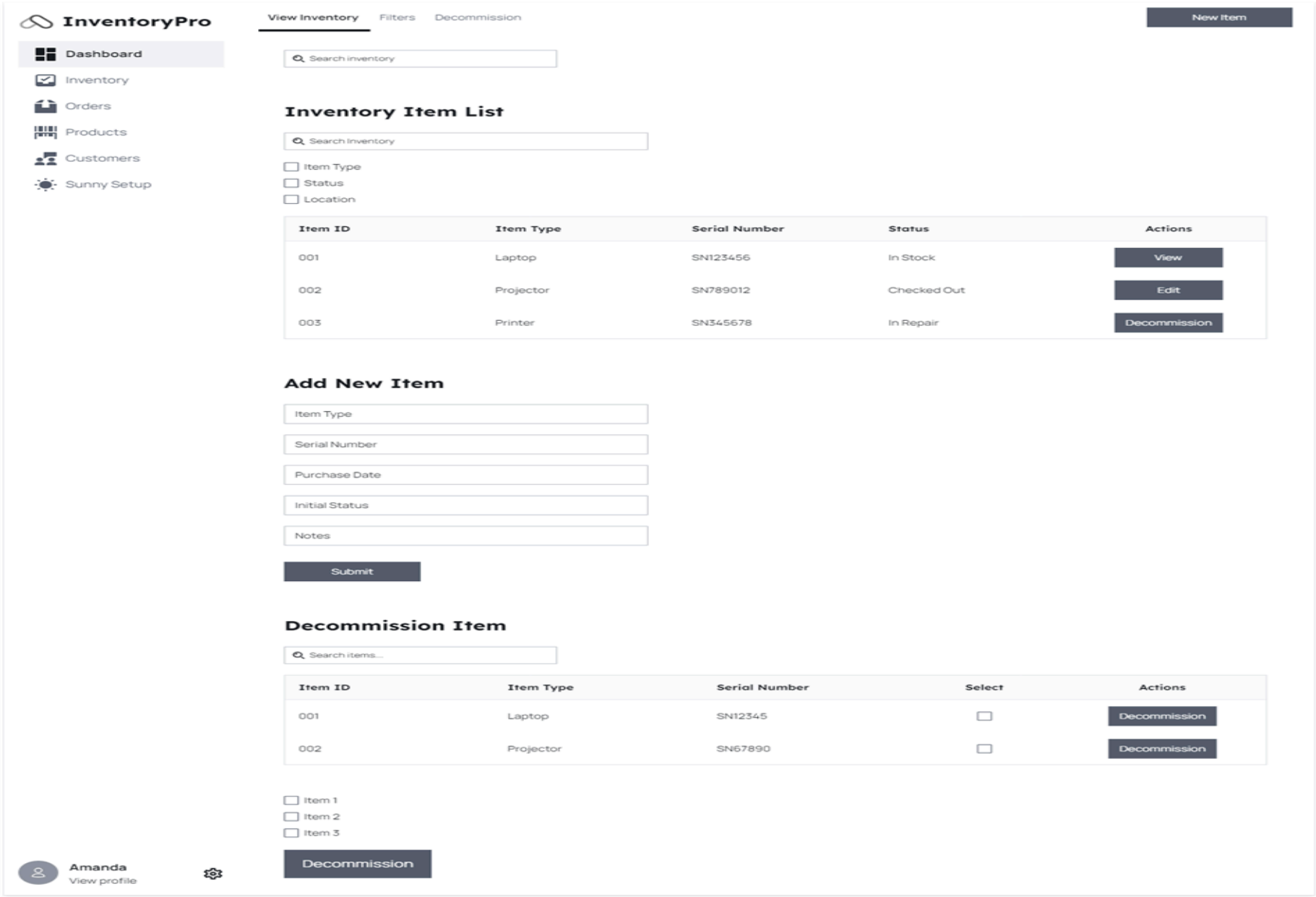
Figure 9-3



9.5 Inventory Management Page Prototype

The prototype gives a preview of what the final website page will look like to the staff. The inventory management page will display the inventory item list, ability to add an item, and the ability to decommission/delete an item. Each section has the sufficient tools and accessibility to do it with ease.

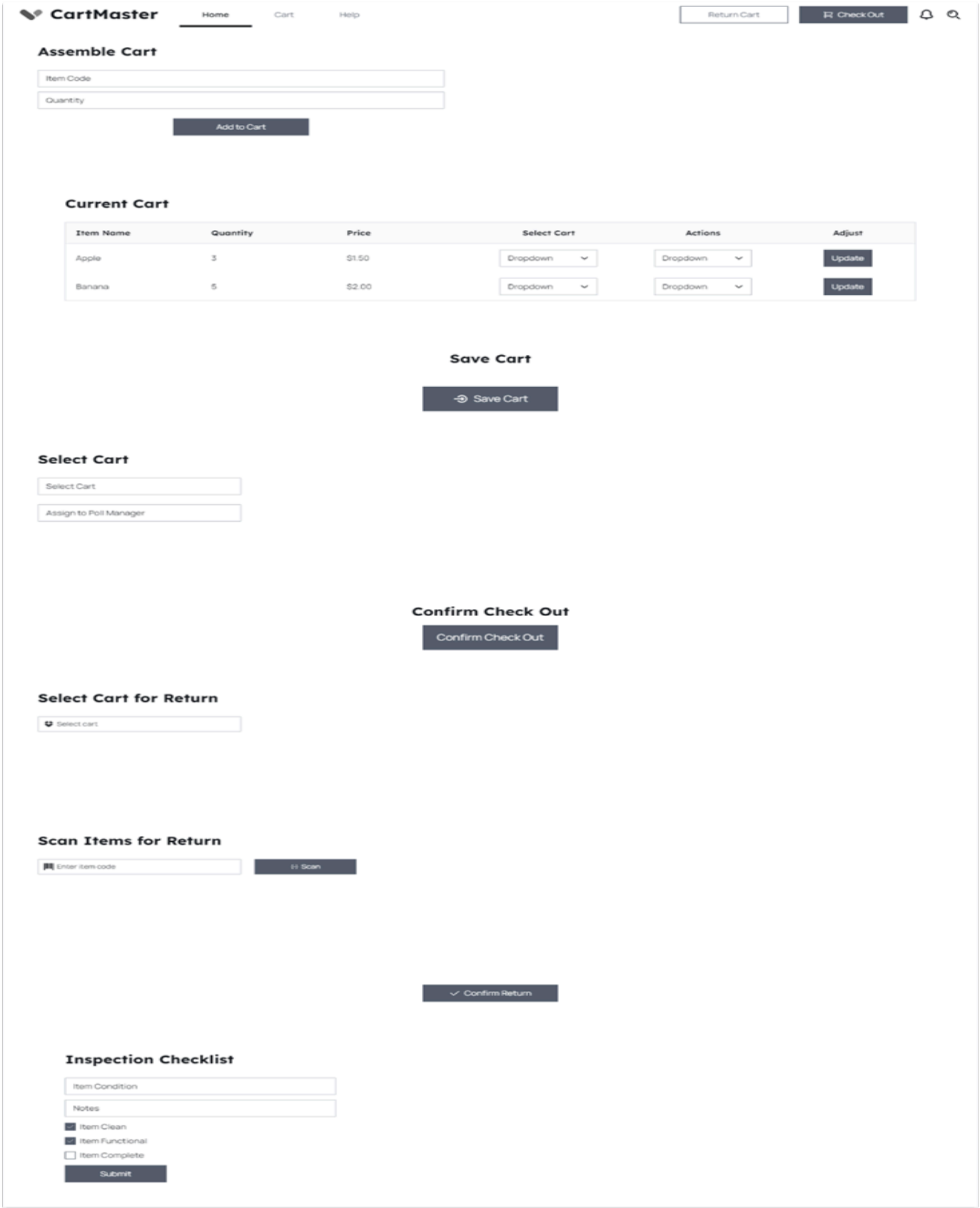
Figure 9-4



9.6 Cart Management Page Prototype

The prototype gives a preview of what the final website page will look like to the staff. The inventory management page will display the inventory item list, ability to add an item, and the ability to decommission/delete an item. Each section has the sufficient tools and accessibility to do it with ease.

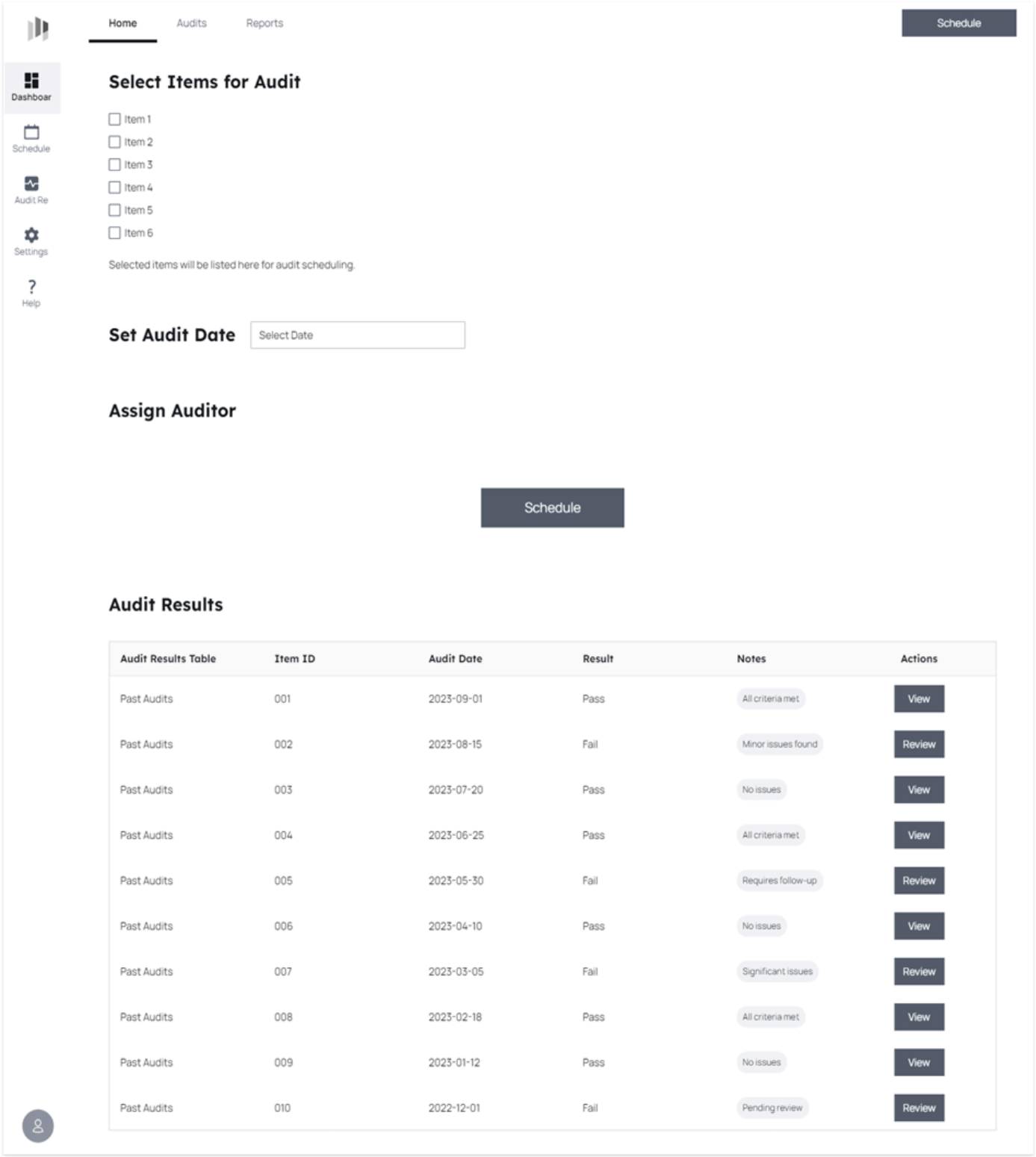
Figure 9-5



9.7 Audit Management Page Prototype

The prototype gives a preview of what the final website page will look like to the staff. The audit management page will display the audit list, ability to add an audit, and the ability to edit/delete an audit. Each section has the sufficient tools and accessibility to do it with ease.

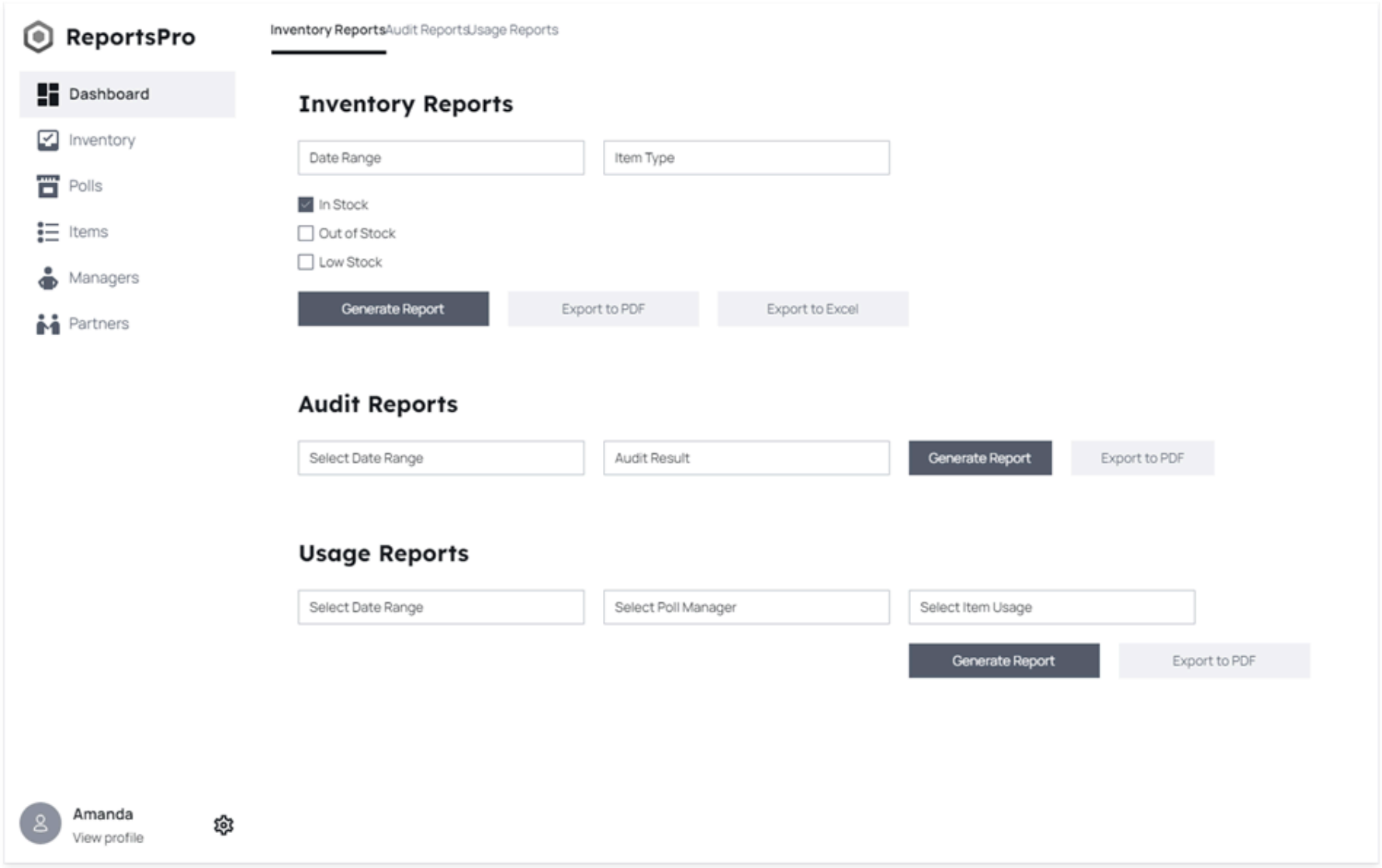
Figure 9-6



9.8 Reports Prototype

The prototype gives a preview of what the final website page will look like to the staff. The reports page will display the inventory report list, audit report list, and usage report list among others. It will allow the user to add to, edit, and delete reports as needed.

Figure 9-7



Section 10: Appendix

10.1 System Request

Project Name: In simple terms, the page contains the voting equipment inventory and logistics management system.

Project Sponsor: Sunland County Auditor The job for reference in this research is that of the Sunland County Auditor's Office.

Business Need:
Sunland County Auditor's Office requires a software solution to address the management of voting equipments' inventory and supply chain. The objectives are to minimize paperwork, increase accuracy, increase efficiency and ensure proper tracking and storage of voting equipment.
Business Requirements:
Inventory Management: Possibility to examine the location and the extent of voting equipment usage.
Logistics Management: Maximize and monitor the delivery and return of voting equipment.
Reporting: Prepare accurate reports regarding the stock position, the transports and the usage of the equipment.
Integration: It is compatible with the systems already in use for data integrity purposes.
Business Value:
- Better organization and handling of the voting equipment.
- Eliminating manual mistakes and cutting the management load.
- Upsurge in efficiency where there is a reduction of errors as well as delivery time.
- Efficiency of using resources in a more efficient manner to cut costs.

Special Issues or Constraints:
- The system has to be built to code and also to reflect the laws and guidelines set by the local governments.
- The solution that will be developed should be extendible, to be able to handle any future increments.
- Employment of enough time and resources to train the staff during implementation and thereafter.

Section 11: Effort Breakdown Table

11.1 Effort Breakdown Table Diagram

			Team Member Name:				
	Final Project Tasks	points	*Will*	*Yaseen*	*James*	*Nick*	*Kauser*
	System Request / CBA (120)						
	System Request	*60*		60			
	CBA	*60*	30	30			
	Presentation/Brochure (120)						
	Presentation	*60*			30	30	
	Brochure	*60*	30		30		
	SRS (250)						
	Customer Statement of Requirements	*30*	*15*	*15*			
	Glossary of Terms	*5*	*5*				
Functional Requirements Specification (145)	*Stakeholders*	*5*		*5*			
	Actors and Goals	*5*			*5*		
	Use case diagram	*20*	*10*			*10*	
	Casual descriptions	*20*	*15*		*5*		
	Use case descriptions	*20*	*10*			*10*	
	Activity diagrams	*25*	*25*				
	Interaction diagrams	*25*			*25*		
	Overview Class diagram and domain list	*25*	*10*			*15*	
	Non-funct. Requirements	*15*			*5*	*10*	
	References	*5*		*5*			
	User Interface design	*50*	*5*	*10*	*1 5*	*20*	
	Team Member Total		155	125	115	110	