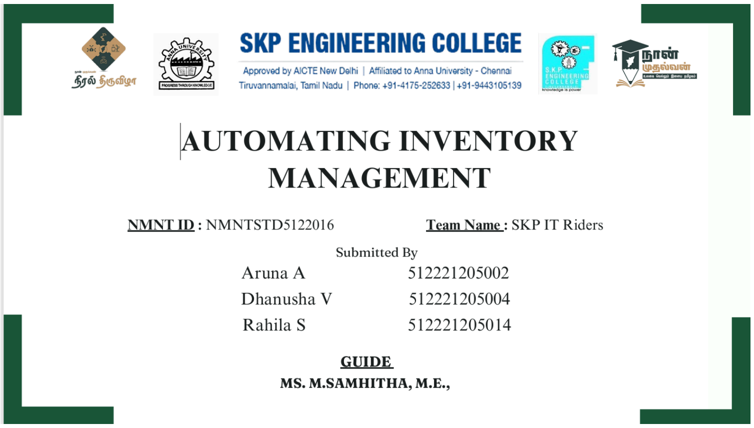

SKP ENGINEERING COLLEGE

Approved by AICTE New Delhi | Affiliated to Anna University - Chennai
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AUTOMATING INVENTORY MANAGEMENT

NMNT ID : NMNTSTD5122016 **Team Name :** SKP IT Riders

Submitted By

Aruna A	512221205002
Dhanusha V	512221205004
Rahila S	512221205014

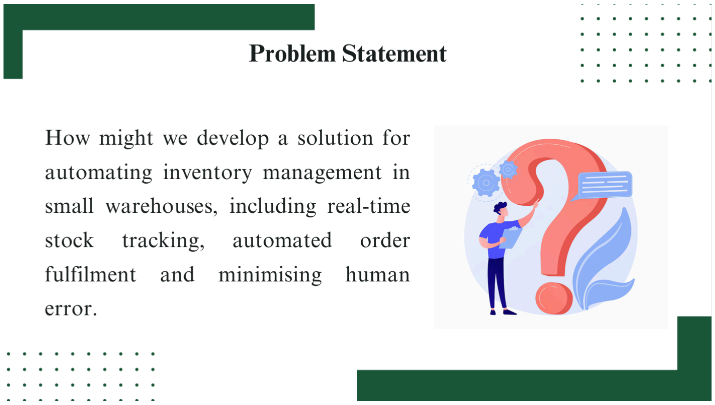
GUIDE

MS. M.SAMHITHA, M.E.,

Slide 1: Title Slide

Script:

"Good [morning/afternoon/evening], everyone. Today, I'm excited to present our project titled *Automating Inventory Management*, developed by Team SKP IT Riders—Aruna, Dhanusha, and myself, Rahila—under the guidance of Ms. Samhitha. This project addresses a critical challenge faced by small warehouses: manual inventory management."



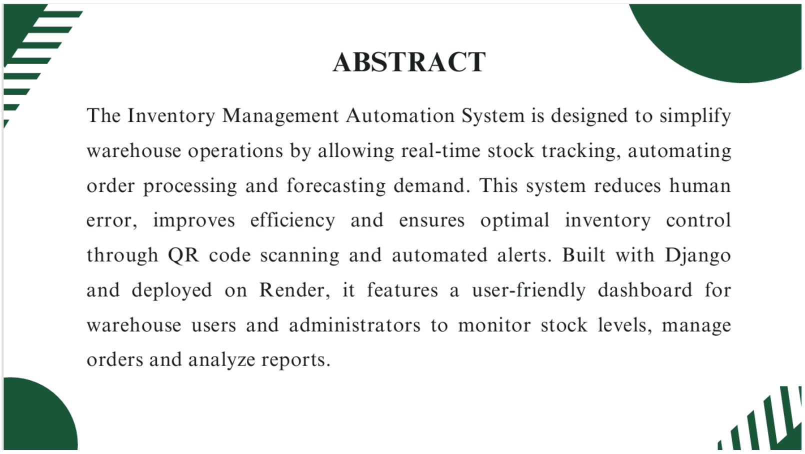
Problem Statement

How might we develop a solution for automating inventory management in small warehouses, including real-time stock tracking, automated order fulfilment and minimising human error.

Slide 2: Problem Statement

Script:

"Small warehouses often struggle with manual processes, leading to errors, delays, and lack of real-time data. Our goal was simple: *How can we automate inventory tracking, streamline order fulfillment, and minimize human errors for small-scale operations?*"



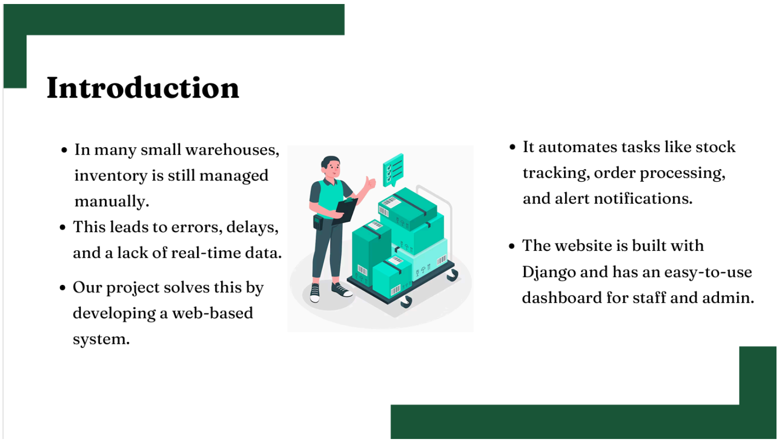
ABSTRACT

The Inventory Management Automation System is designed to simplify warehouse operations by allowing real-time stock tracking, automating order processing and forecasting demand. This system reduces human error, improves efficiency and ensures optimal inventory control through QR code scanning and automated alerts. Built with Django and deployed on Render, it features a user-friendly dashboard for warehouse users and administrators to monitor stock levels, manage orders and analyze reports.

Slide 3: Abstract

Script:

"Our solution is a web-based system built with Django. It uses QR codes for real-time stock tracking, automates order processing, and provides alerts for low stock. The dashboard helps staff and admins monitor inventory effortlessly, reducing manual work."



Introduction

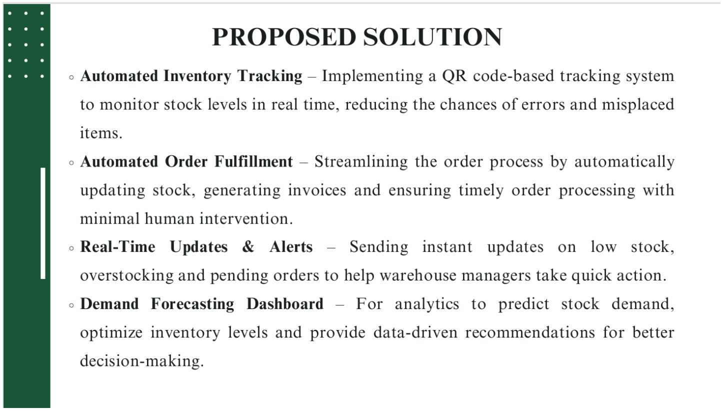
- In many small warehouses, inventory is still managed manually.
- This leads to errors, delays, and a lack of real-time data.
- Our project solves this by developing a web-based system.

- It automates tasks like stock tracking, order processing, and alert notifications.
- The website is built with Django and has an easy-to-use dashboard for staff and admin.

Slide 4: Introduction

Script:

"Manual inventory management is error-prone and slow. Our system replaces paper-based methods with automation—tracking stock, processing orders, and sending alerts—all through a user-friendly website."



PROPOSED SOLUTION

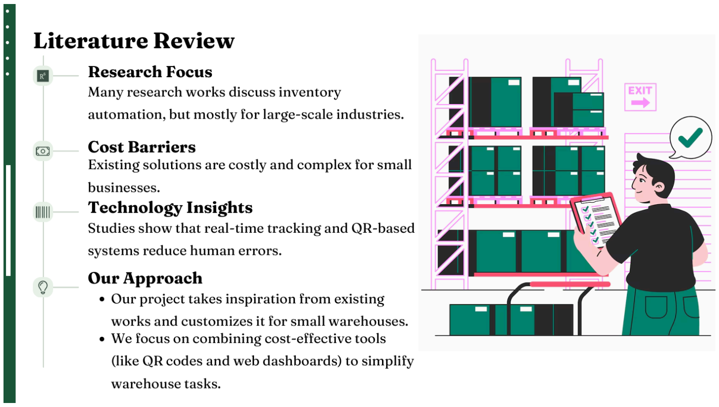
- **Automated Inventory Tracking** – Implementing a QR code-based tracking system to monitor stock levels in real time, reducing the chances of errors and misplaced items.
- **Automated Order Fulfillment** – Streamlining the order process by automatically updating stock, generating invoices and ensuring timely order processing with minimal human intervention.
- **Real-Time Updates & Alerts** – Sending instant updates on low stock, overstocking and pending orders to help warehouse managers take quick action.
- **Demand Forecasting Dashboard** – For analytics to predict stock demand, optimize inventory levels and provide data-driven recommendations for better decision-making.

Slide 5: Proposed Solution

Script:

"We focused on four key features:

1. **QR-based tracking** for real-time updates.
2. **Automated order fulfillment** to reduce delays.
3. **Alerts** for low stock or pending orders.
4. A **demand forecasting dashboard** to predict stock needs."



Literature Review

Research Focus
Many research works discuss inventory automation, but mostly for large-scale industries.

Cost Barriers
Existing solutions are costly and complex for small businesses.

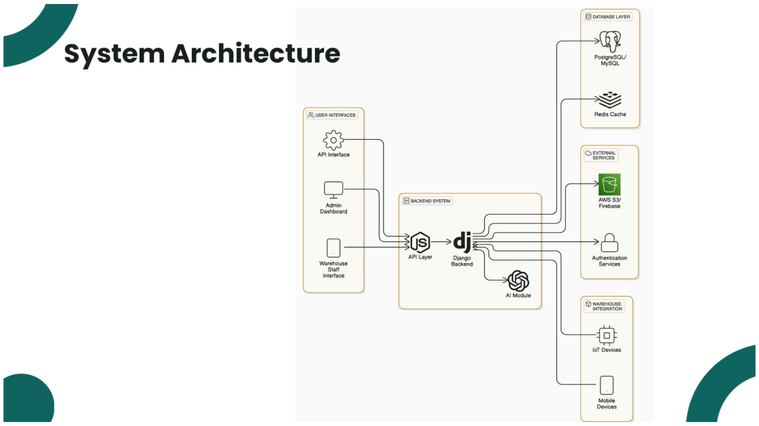
Technology Insights
Studies show that real-time tracking and QR-based systems reduce human errors.

Our Approach
- Our project takes inspiration from existing works and customizes it for small warehouses.
- We focus on combining cost-effective tools (like QR codes and web dashboards) to simplify warehouse tasks.

Slide 6: Literature Review

Script:

"Existing solutions are costly and complex for small warehouses. We took inspiration from research but tailored our system to be affordable, using QR codes and simple dashboards."



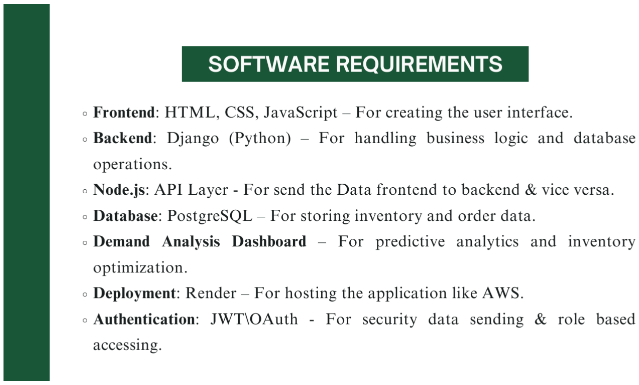
System Architecture

Slide 7: System Architecture

Script:

"Our system has three layers:

- A **frontend** for staff interaction.
- A **backend** (Django + PostgreSQL) for data handling.
- **APIs** to connect these layers securely."



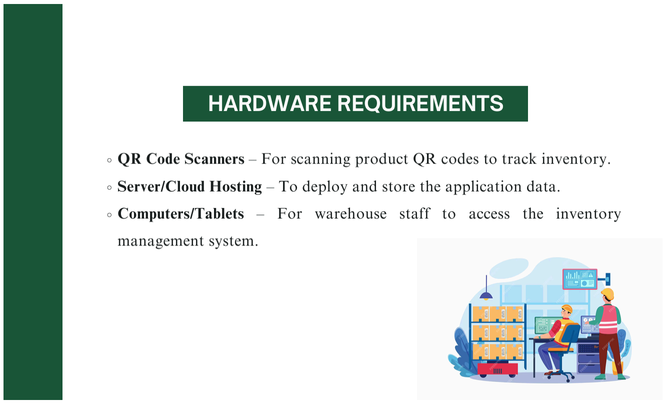
SOFTWARE REQUIREMENTS

- **Frontend**: HTML, CSS, JavaScript – For creating the user interface.
- **Backend**: Django (Python) – For handling business logic and database operations.
- **Node.js**: API Layer - For send the Data frontend to backend & vice versa.
- **Database**: PostgreSQL – For storing inventory and order data.
- **Demand Analysis Dashboard** – For predictive analytics and inventory optimization.
- **Deployment**: Render – For hosting the application like AWS.
- **Authentication**: JWT\OAuth - For security data sending & role based accessing.

Slide 8: Software Requirements

Script:

"We used HTML/CSS/JavaScript for the interface, Django for logic, PostgreSQL for the database, and deployed it on Render—a cost-effective alternative to AWS."



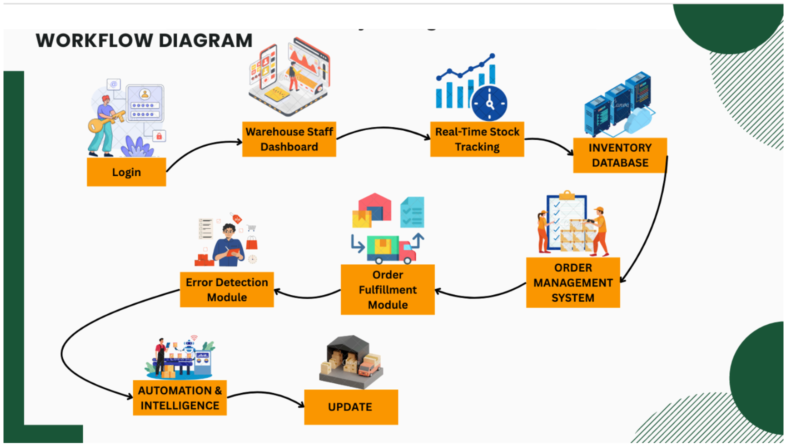
HARDWARE REQUIREMENTS

- **QR Code Scanners** – For scanning product QR codes to track inventory.
- **Server/Cloud Hosting** – To deploy and store the application data.
- **Computers/Tablets** – For warehouse staff to access the inventory management system.

Slide 9: Hardware Requirements

Script:

"The system needs basic hardware: QR scanners, computers/tablets for staff, and cloud hosting setups."



WORKFLOW DIAGRAM

Login

Warehouse Staff Dashboard

Real-Time Stock Tracking

INVENTORY DATABASE

ORDER MANAGEMENT SYSTEM

Order Fulfillment Module

Error Detection Module

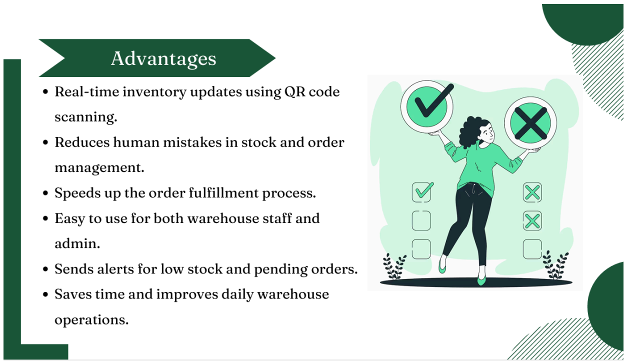
AUTOMATION & INTELLIGENCE

UPDATE

Slide 10: Workflow Diagram

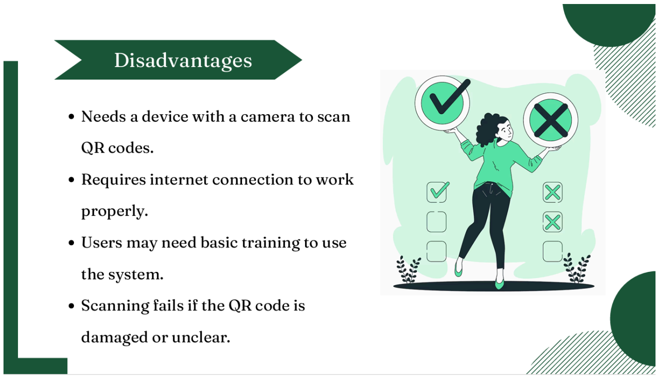
Script:

"Here’s how it works: Staff log in, scan QR codes to update stock, and the system automates orders while detecting errors. Admins oversee everything via the dashboard."



Advantages

- Real-time inventory updates using QR code scanning.
- Reduces human mistakes in stock and order management.
- Speeds up the order fulfillment process.
- Easy to use for both warehouse staff and admin.
- Sends alerts for low stock and pending orders.
- Saves time and improves daily warehouse operations.



Disadvantages

- Needs a device with a camera to scan QR codes.
- Requires internet connection to work properly.
- Users may need basic training to use the system.
- Scanning fails if the QR code is damaged or unclear.

Slides 11–12: Advantages & Disadvantages

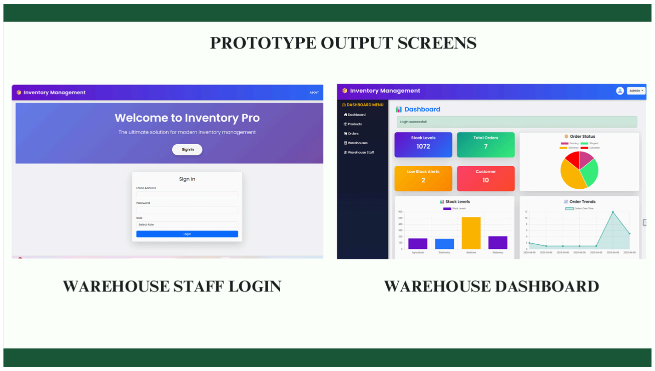
Script:

Advantages:

- Real-time updates, fewer errors, faster orders, and easy-to-use alerts.

Disadvantages:

- Requires internet, QR scanners, and minor staff training."



PROTOTYPE OUTPUT SCREENS

Welcome to Inventory Pro

The ultimate solution for modern inventory management

Login successful!

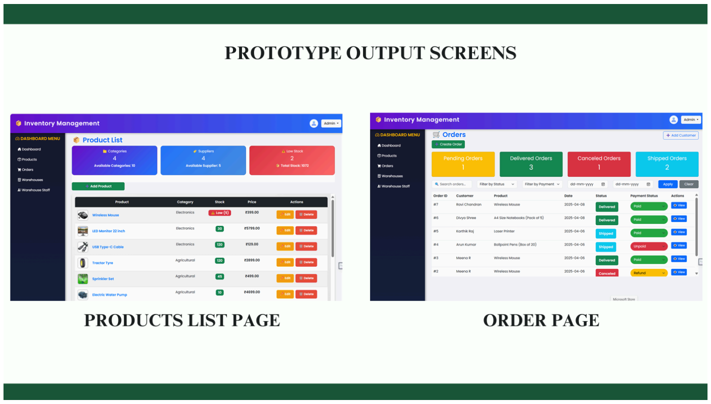
WAREHOUSE STAFF LOGIN

WAREHOUSE DASHBOARD

Slide 13: Prototype Screens (Login & Dashboard)

Script:

"This is the login page—staff enter their credentials to access the system. Once logged in, they see the dashboard with real-time stock levels, total orders, and alerts for low stock."



PROTOTYPE OUTPUT SCREENS

Product List

Categories 4 Available Categories: 10

Suppliers 4 Available Supplier: 5

Low Stock 2 Total Stock: 1072

Product	Category	Stock	Price	Actions
Wireless Mouse	Electronics	Low (5)	₹399.00	Edit Delete
LED Monitor 22 inch	Electronics	30	₹5799.00	Edit Delete
USB Type-C Cable	Electronics	120	₹129.00	Edit Delete
Tractor Tyre	Agricultural	120	₹2899.00	Edit Delete
Sprinkler Set	Agricultural	45	₹499.00	Edit Delete
Electric Water Pump	Agricultural	10	₹4699.00	Edit Delete

PRODUCTS LIST PAGE

Orders

Pending Orders 1

Delivered Orders 3

Canceled Orders 1

Shipped Orders 2

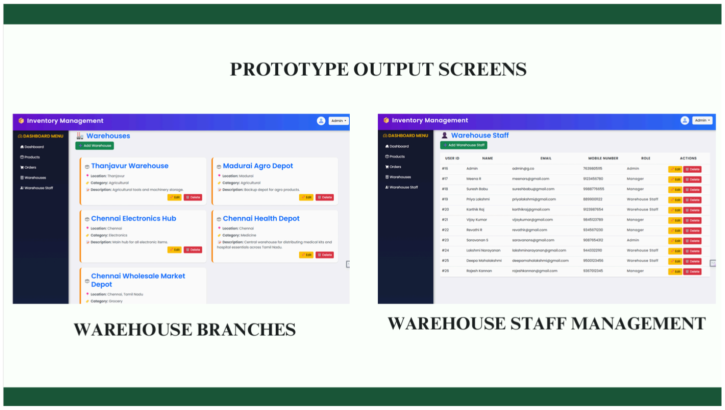
Order ID	Customer	Product	Date	Status	Payment Status	Actions
#7	Ravi Chandran	Wireless Mouse	2025-04-08	Delivered	Paid	View
#6	Divya Shree	A4 Size Notebooks (Pack of 5)	2025-04-08	Delivered	Paid	View
#5	Karthik Raj	Laser Printer	2025-04-06	Shipped	Paid	View
#4	Arun Kumar	Ballpoint Pens (Box of 20)	2025-04-06	Shipped	Unpaid	View
#3	Meena R	Wireless Mouse	2025-04-06	Delivered	Paid	View
#2	Meena R	Wireless Mouse	2025-04-06	Canceled	Refund	View

ORDER PAGE

Slide 14: Order & Product Pages

Script:

"Here's the order page—it shows pending orders, status updates, and lets staff process them quickly. The product list page displays all items in stock with their QR codes for easy scanning."



PROTOTYPE OUTPUT SCREENS

Warehouses

Thanjavur Warehouse
Location: Thanjavur
Category: Agricultural
Description: Agricultural tools and machinery storage.

Madurai Agro Depot
Location: Madurai
Category: Agricultural
Description: Backup depot for agro products.

Chennai Electronics Hub
Location: Chennai
Category: Electronics
Description: Main hub for all electronic items.

Chennai Health Depot
Location: Chennai
Category: Medicine
Description: Central warehouse for distributing medical kits and hospital essentials across Tamil Nadu.

Chennai Wholesale Market Depot
Location: Chennai, Tamil Nadu
Category: Grocery

WAREHOUSE BRANCHES

Warehouse Staff

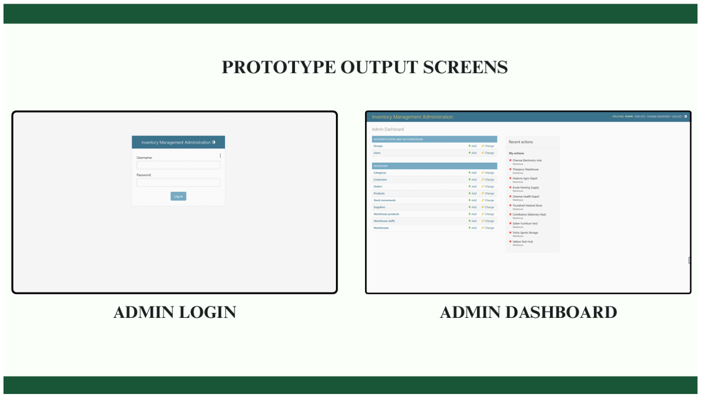
USER ID	NAME	EMAIL	MOBILE NUMBER	ROLE	ACTIONS
#16	Admin	admin@g.co	7639805115	Admin	Edit Delete
#17	Meena R	meenars@gmail.com	9123456780	Manager	Edit Delete
#18	Suresh Babu	sureshbabu@gmail.com	9988776655	Manager	Edit Delete
#19	Priya Lakshmi	priyalakshmi@gmail.com	8899001122	Warehouse Staff	Edit Delete
#20	Karthik Raj	karthikraj@gmail.com	9123987654	Warehouse Staff	Edit Delete
#21	Vijay Kumar	vijaykumar@gmail.com	9845123789	Manager	Edit Delete
#22	Revathi R	revathir@gmail.com	9345671230	Manager	Edit Delete
#23	Saravanan S	saravanans@gmail.com	9087654312	Admin	Edit Delete
#24	Lakshmi Narayanan	lakshminarayanan@gmail.com	9443322110	Warehouse Staff	Edit Delete
#25	Deepa Mahalakshmi	deepamahalakshmi@gmail.com	9500123456	Warehouse Staff	Edit Delete
#26	Rajesh Kannan	rajeshkannan@gmail.com	9367012345	Manager	Edit Delete

WAREHOUSE STAFF MANAGEMENT

Slide 15: Warehouse Branches

Script:

"For warehouses with multiple branches, admins can manage locations here. Each branch has its own stock data, and the system syncs updates across all of them."



PROTOTYPE OUTPUT SCREENS

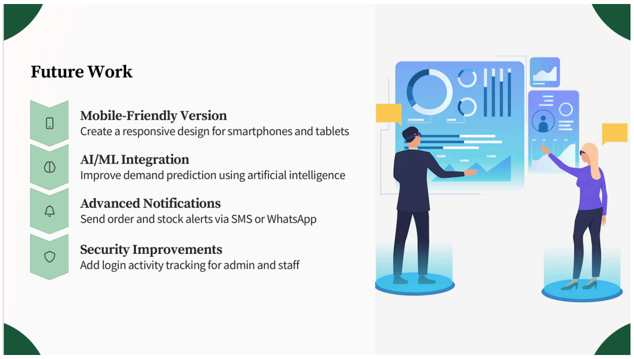
ADMIN LOGIN

ADMIN DASHBOARD

Slide 16: Admin Panel

Script:

"Admins have a separate login. Their dashboard tracks overall inventory, staff activity, and generates reports. They can also add new products or users here."



Future Work

Mobile-Friendly Version
Create a responsive design for smartphones and tablets

AI/ML Integration
Improve demand prediction using artificial intelligence

Advanced Notifications
Send order and stock alerts via SMS or WhatsApp

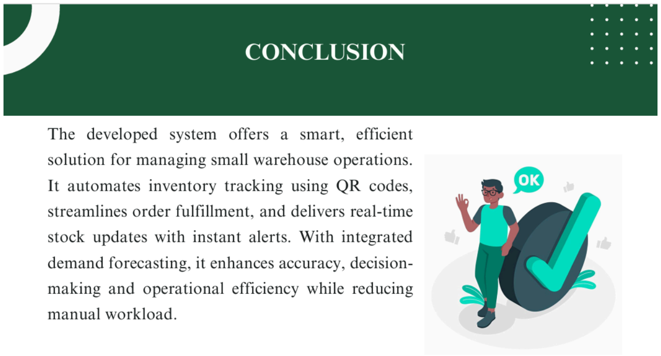
Security Improvements
Add login activity tracking for admin and staff

Slide 17: Future Work

Script:

"We plan to:

1. Add a **mobile app** for on-the-go access.
2. Integrate **AI** for better demand predictions.
3. Enable **SMS alerts** and enhance security."



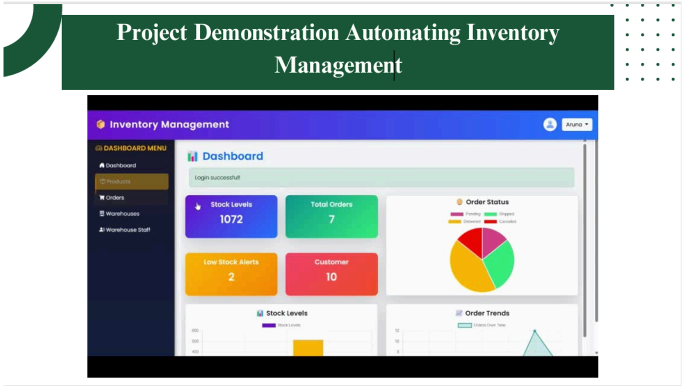
CONCLUSION

The developed system offers a smart, efficient solution for managing small warehouse operations. It automates inventory tracking using QR codes, streamlines order fulfillment, and delivers real-time stock updates with instant alerts. With integrated demand forecasting, it enhances accuracy, decision-making and operational efficiency while reducing manual workload.

Slide 18: Conclusion

Script:

"In summary, our system automates inventory tasks, cuts errors, and boosts efficiency for small warehouses—all at a low cost. It’s a smart upgrade from manual methods.



Project Demonstration Automating Inventory Management

Login successful!

Stock Levels 1072

Total Orders 7

Low Stock Alerts 2

Customer 10

Slide 19: Project Demo Video

Slide 20: Thank You

Script:

"Thank you for your time! We’re happy to take any questions."