

Targeted at end-users and administrators, this manual provides clear instructions for employees to authenticate, view their equipment history, and return items using the Python client, as well as guidance for administrators on using the Oracle APEX interface for inventory management, maintenance scheduling, restocking, system monitoring, and backup procedures.

User Manuals & Guides

IFS325 Individual Assignment Documentation

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End-User (Employee Client) Documentation

Application Purpose:

Provides employees with a focused interface to view their assigned equipment and perform smooth, secure check-ins without needing full administrative access.

Usage Procedure:

1. Authentication: Launch the app, enter assigned EMPLOYEE_ID and password.
2. Viewing Equipment History:
 - Current Equipment: Lists active check-outs with booking and item IDs plus dates.
 - Usage History: Displays comprehensive historical transaction logs.
3. Returning Equipment:
 - *Manual Return*: Input the relevant BOOKING_ID from current equipment and submit return.
 - *QR Authentication*: Using the webcam, scan the QR code on the employee ID badge; the app automatically processes the return. Confirm success or failure is displayed post action.

Administrator Guide

Access: Login through the APEX application URL with administrator credentials.

Core Functions:

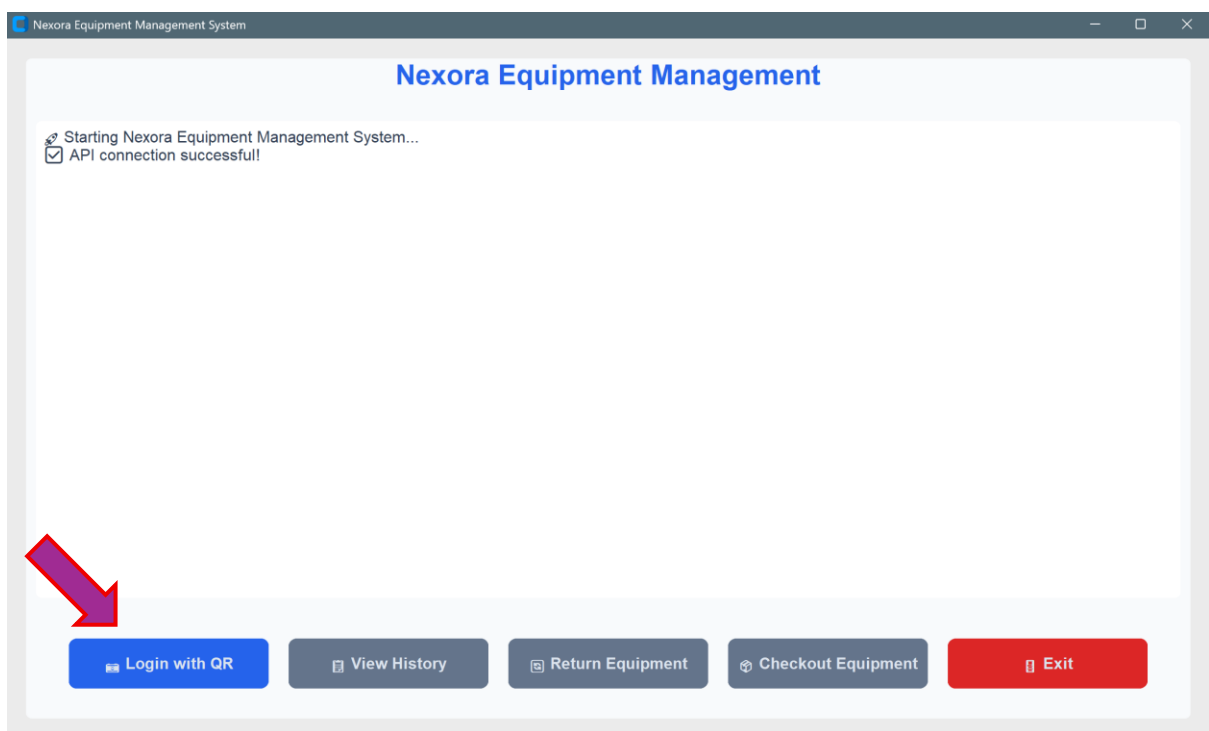
- Dashboard: View aggregate system health including inventory status, low-stock alerts, and usage trends.
- Inventory Management: Search, add, update, and monitor equipment records. Auto-generate QR asset tags for new items.
- Equipment Check-Out: Assign equipment to employees, ensuring stock validation.
- Maintenance & Restock: Track items under repair or maintenance and manage restocking processes with alert-based triggers.

System Management

- Backups: Integration with Oracle RMAN backup scripts is crucial for data resilience and disaster recovery.
- Monitoring: API interactions from Python clients are logged in NEXORA_API_LOGS to support troubleshooting and auditing.

Employee Python Application Workflow

- **Login:**
 - Launch equipflow_app.py from PyCharm or command line to open the application interface.
 - Press the **Login via QR code** button to activate the webcam.
 - Scan your employee QR code badge; upon successful login, your name and department will be displayed.

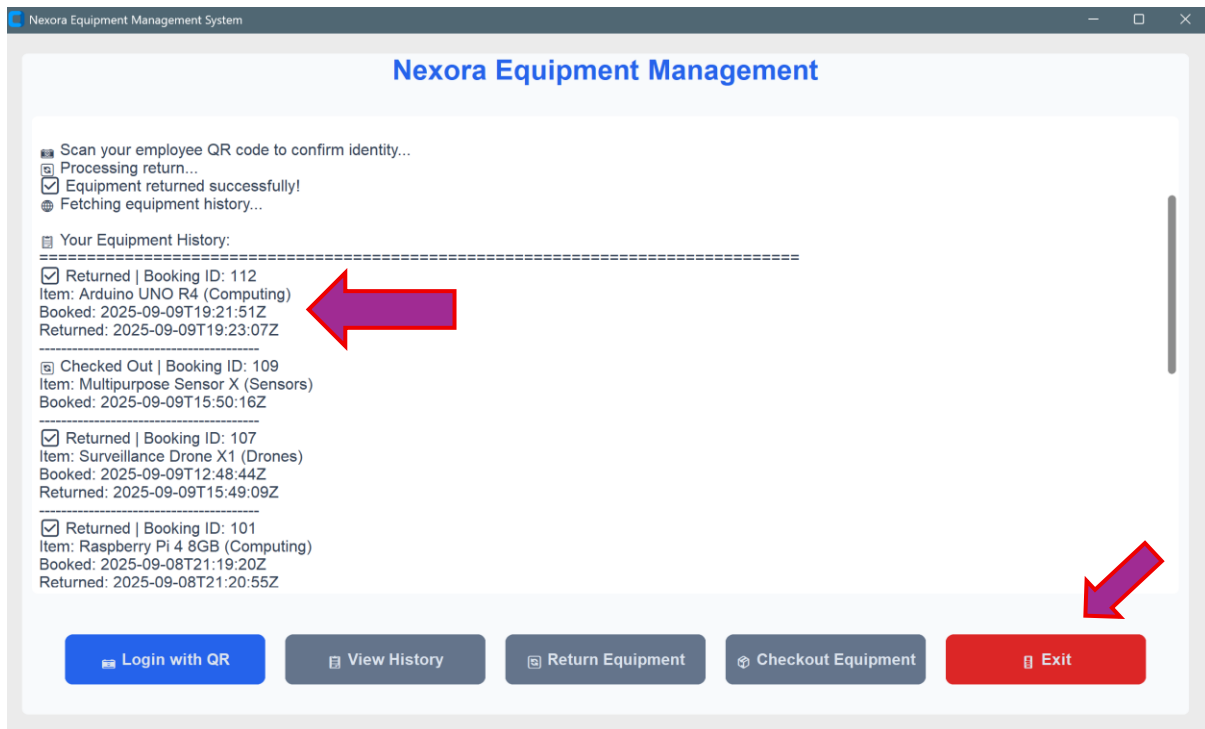


- **Interface Functions:**
 - The application displays five main option buttons:
 - Login via QR code
 - View equipment history
 - Return equipment
 - Checkout equipment
 - Exit application
- **Equipment Checkout or Return:**
 - Press the corresponding button to open a form in a new tab.

- Select equipment from drop-down menus listing available or currently checked-out items.
- Add return/check-out notes and specify equipment condition (e.g., good or damaged).
- Use the confirmation buttons within the form to finalize the action.

The screenshot shows the 'Nexora Equipment Management System' interface. On the left, a sidebar displays a login status: 'Starting Nexora Equipment Management System...', 'API connection successful!', 'Scan your employee QR code to login...', 'Logged in as Employee ID: 1567', 'Welcome, Alexis Peters!', and 'Department: IT'. Below this are buttons for 'Login with QR' and 'View History'. The main area on the right is titled 'Checkout Equipment'. It features a list of 'Available Equipment' with radio buttons for selection: '12V Rechargeable Battery (ID: BAT123, Qty: 3)', '20 000mah Power Unit (ID: 20KPU, Qty: 6)', 'Arduino UNO R4 (ID: UNOR4, Qty: 8)' (which is selected), 'Creality K1 3D Printer (ID: CREALK1, Qty: 2)', 'DJI Mavic Air 2s Drone (ID: DJIMAV2, Qty: 2)', 'ESP32 WROOM-32 Dev Board (ID: ESP32-WROOM, Qty: 16)', and 'GPS Module (ID: GPSM, Qty: 6)'. Below the list is a text area for 'Checkout Notes' containing the text 'New Item that was restocked.'. Underneath is the 'Equipment Condition' section with two radio buttons: 'Good Condition' (selected) and 'Already Damaged'. At the bottom right, a red arrow points to the 'Confirm Checkout' button, with a 'Cancel' button next to it.

The screenshot shows the 'Nexora Equipment Management System' interface with the 'Return Equipment' dialog box open. The sidebar on the left shows the login status and a 'Return Equipment' button. The dialog box has a 'Booking ID' dropdown menu set to '112'. Below this is a text area for 'Return Notes' containing the text 'Minor defaults'. Underneath is the 'Equipment Condition' section with two radio buttons: 'Good Condition' and 'Damaged' (which is selected). At the bottom right, a red arrow points to the 'Confirm Return' button, with a 'Cancel' button next to it.



- **Verification and Feedback:**

- The application performs API calls to Oracle APEX endpoints to update inventory and transaction data.
- Users receive confirmation messages in the interface.
- The updated inventory status can be verified through the Oracle APEX administrative web portal.

NEXORA_USAGE_HISTORY

Columns

Data

Indexes

Constraints

Grants

Statistics

Triggers

Dependencies

DDL

Sample Queries

+ Insert Row

Columns...

Filter...

Count Rows

Load Data

Download

Refresh

	BOOKING_ID	ITEM_ID	EMPLOYEE_ID	DATE_BOOKED	DATE_RETURNED	STATUS	RETURN_NOTES
	64	CREALK1	3900	6/5/2024	6/10/2024	RETURNED	
	65	DHT11	1567	6/10/2024	9/7/2025	RETURNED	Returned via app: Retur...
	66	DJIMAV2	3133	6/15/2024	9/7/2025	RETURNED	Returned via app: Postm...
	4	DFRSPU	3900	9/8/2025	9/8/2025	RETURNED	Returned via app: Postm...
	103	IMX219	2478	9/8/2025		CHECKED_OUT	Checked out via app: Ch...
	104	DJIMAV2	2478	9/8/2025	9/9/2025	RETURNED	Checked out via app: Ret...
	105	10WSOLP	1789	9/9/2025	9/9/2025	RETURNED	Checked out via app: Ret...
	108	DFRSPU	2198	9/9/2025	9/9/2025	RETURNED	Checked out via app: Ret...
	3	NPKIND71	1567	9/7/2025	9/8/2025	RETURNED	Returned via app: Postm...
	107	DRONEX1	1567	9/9/2025	9/9/2025	RETURNED	Checked out via app: Ret...
	109	SENSORX	1567	9/9/2025		CHECKED_OUT	Checked out via app: Ne...
	110	20KPU	2198	9/9/2025	9/9/2025	RETURNED	Checked out via app: Ret...

1 cells selected

1 - 20

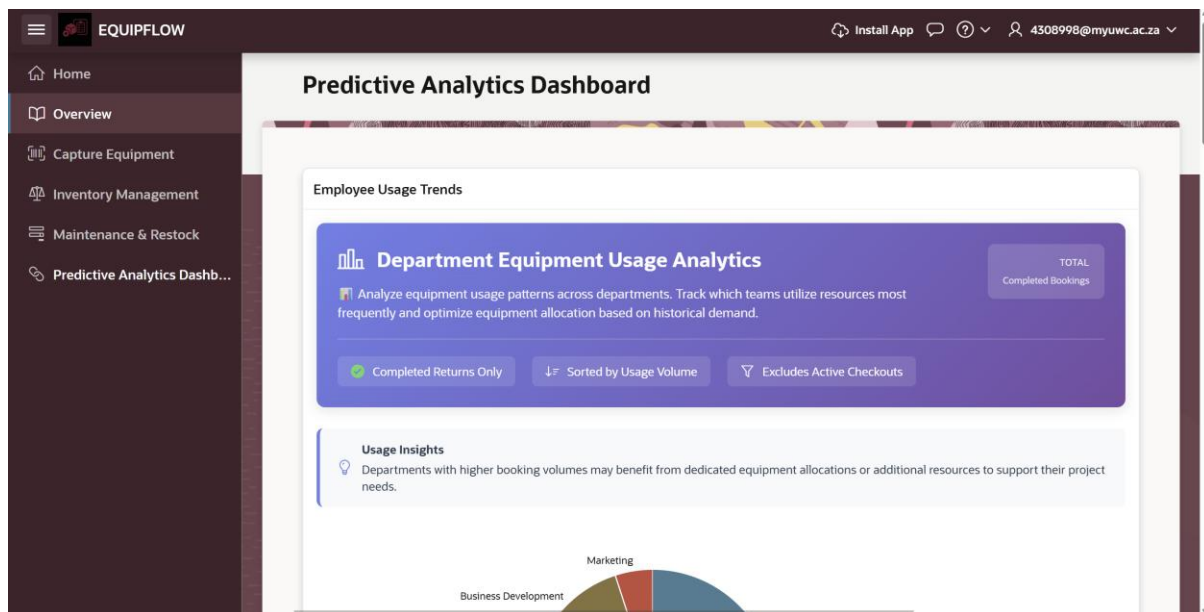
Additional Oracle APEX Web Portal Features for Administrators

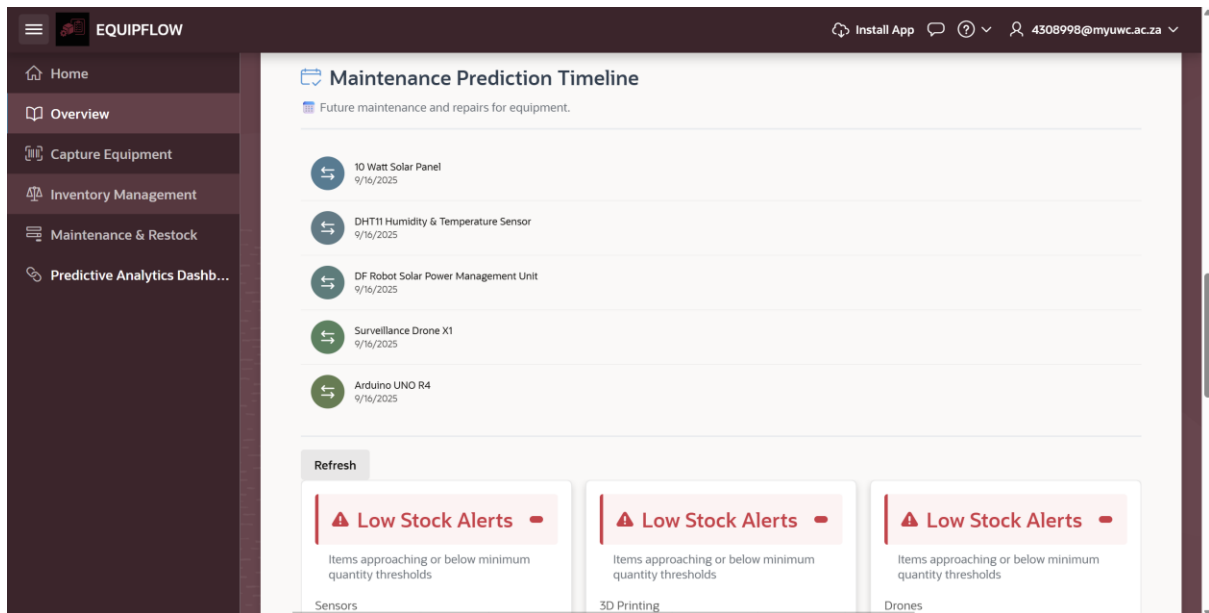
In addition to the Python client application, administrators are highly encouraged to access the Oracle APEX web portal to take full advantage of advanced equipment management, analytics, and monitoring functionalities. The rich feature set available in Oracle APEX complements the client application by providing centralized controls and insights through an intuitive browser interface.

Key Dashboards and Functionalities Available in Oracle APEX

Predictive Analytics Dashboard:

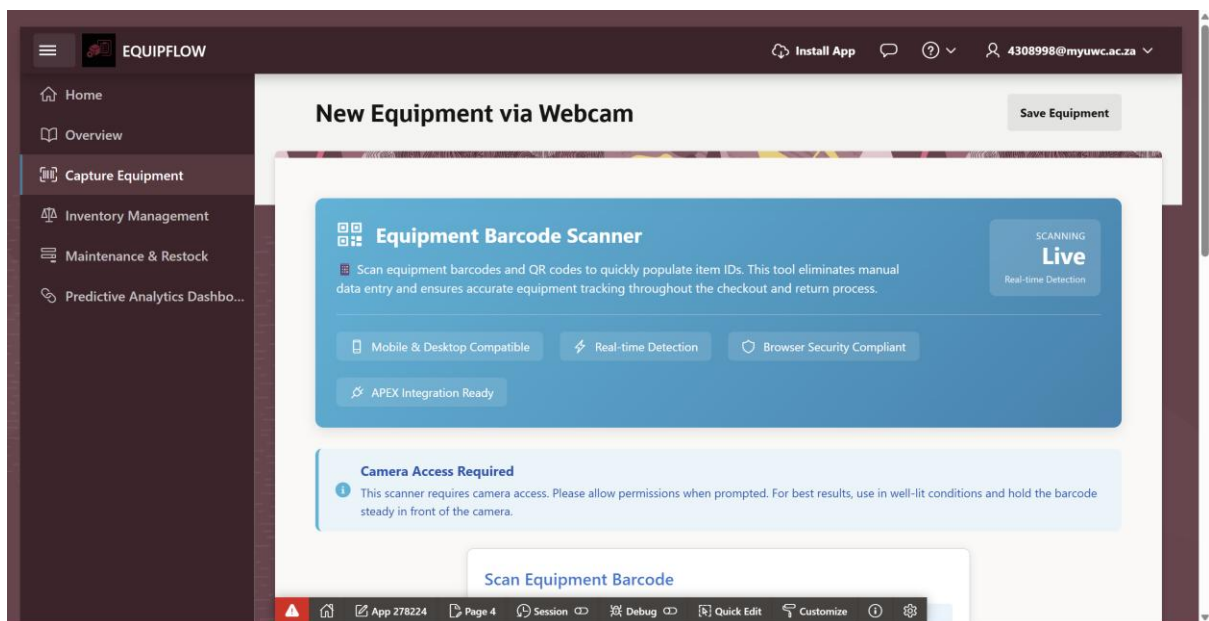
This dashboard presents visual predictive models and trend analysis related to equipment utilization, helping decision-makers proactively plan procurement and allocation strategies.

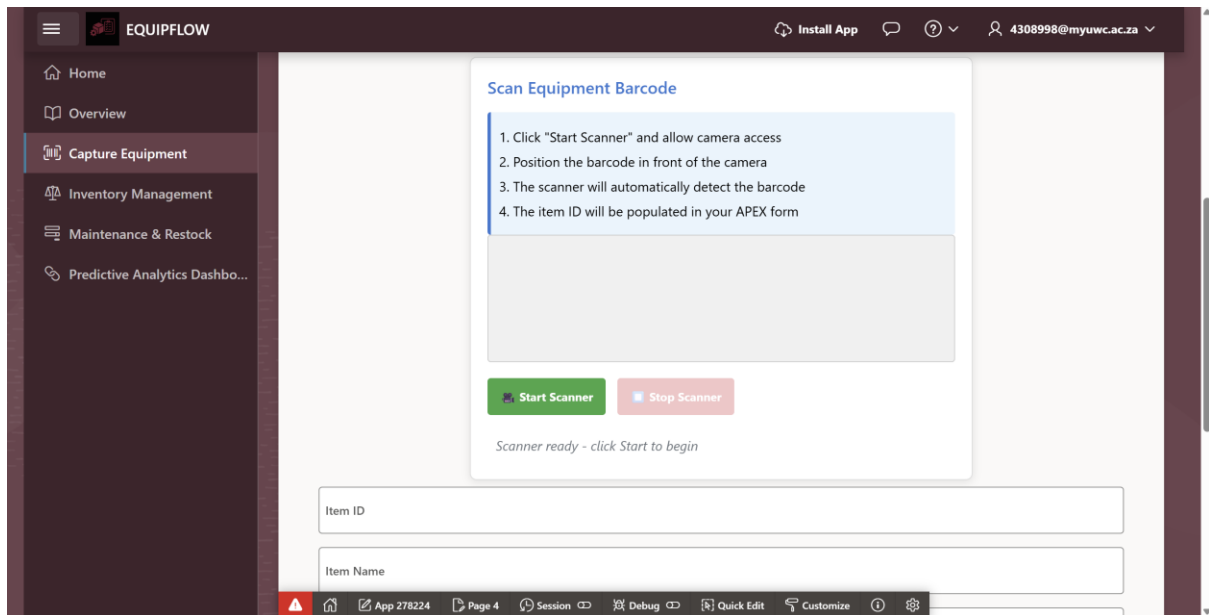




New Equipment Capture via Webcam:

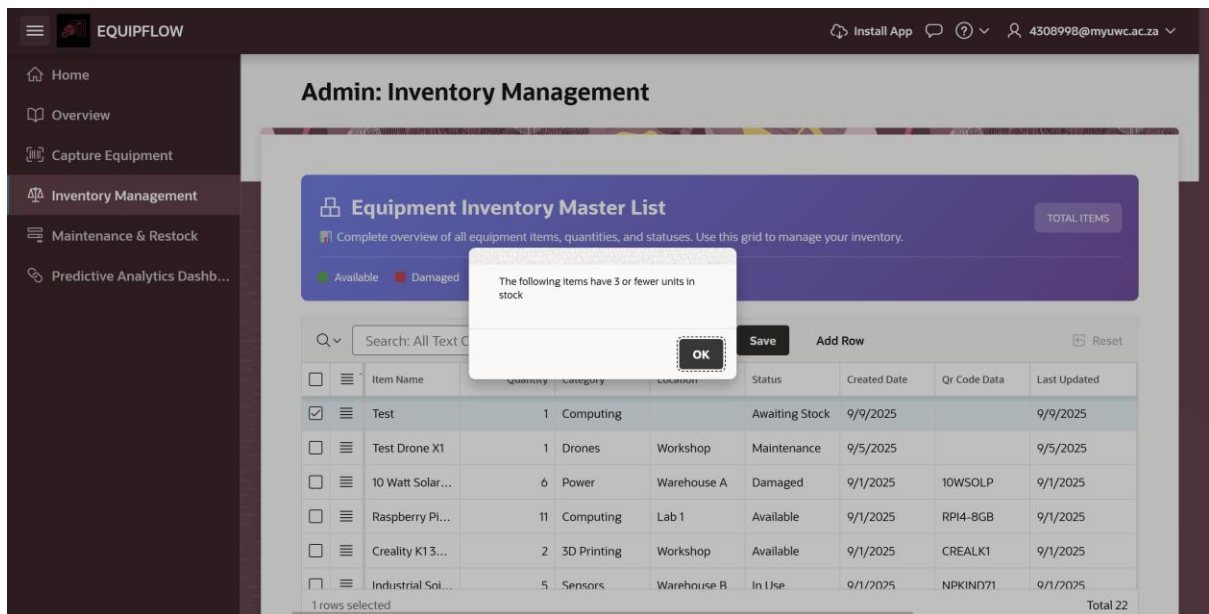
Admins can add new inventory items by scanning equipment QR codes directly through a webcam connected to their workstation. This automation streamlines asset registration and QR tag generation.





Inventory Management with Low Stock Alerts:

The inventory module displays all equipment records, highlighting items that have fallen below predefined stock thresholds (ALERT_THRESHOLD). This immediate visibility facilitates timely restocking actions.



EQUIPFLOW

Home

Overview

Capture Equipment

Inventory Management

Maintenance & Restock

Predictive Analytics Dashb...

Install App

?

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Low Stock Alert

Q

Go

Actions

Item Name	Quantity	Location	Stock Status
Test	1		Critical
Multipurpose Sensor X	1	Warehouse B	Critical
Test Drone X1	1	Workshop	Critical
Creality K1 3D Printer	2	Workshop	Low
Surveillance Drone X1	2	Workshop	Low
DJI Mavic Air 2s Drone	2	Workshop	Low
Jetson Nano	3	Lab 2	Low
IMX219 Camera Module 160 FoV	3	Lab 1	Low
12V Rechargeable Battery	3	Warehouse A	Low

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Equipment by Category

Maintenance and Restock Scheduling:

Maintenance scheduling tools allow tracking of items marked as damaged or under repair, enabling administrators to plan maintenance activities and update statuses. Restock management helps generate purchase requests automatically when inventory reaches critical levels.

EQUIPFLOW									
<ul style="list-style-type: none"> Home Overview Capture Equipment Inventory Management Maintenance & Restock Predictive Analytics Dashb... 	<div> <div>Manager: Check-Out & Reserve</div> <div> <div>Equipment Alerts & Issues</div> <div> <div>Critical items requiring attention: Low stock, damaged equipment, maintenance needs, and pending restocks.</div> <div> <div>Low Stock</div> <div>Damaged</div> <div>Maintenance</div> <div>Awaiting Stock</div> </div> <div>ACTIVE ALERTS</div> </div> </div> </div>								
Item Id	Item Name	Quantity	Status	Category	Location	Maintenance Due Date	Damage Report Date	Repair Due Date	Status Description
DRONEX1	Surveillance Drone X1	2	Damaged	Drones	Workshop		9/9/2025	9/16/2025	Damaged
10WSOLP	10 Watt Solar Panel	6	Damaged	Power	Warehouse A		9/9/2025	9/16/2025	Damaged
UNOR4	Arduino UNO R4	8	Damaged	Computing	Lab 1		9/9/2025	9/16/2025	Damaged
DFRSPU	DF Robot Solar Power Management Unit	8	Damaged	Power	Warehouse A		9/9/2025	9/16/2025	Damaged
DHT11	DHT11 Humidity & Temperature Sensor	21	Damaged	Sensors	Warehouse B		9/9/2025	9/16/2025	Damaged
CP1600V	CP1600V 16W Solar Panel	4	Damaged	Power	Warehouse				Damaged

EQUIPFLOW

Home

Overview

Capture Equipment

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Predictive Analytics Dashb...

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Maintenance Scheduler

Maintenance Scheduler

UPCOMING
Maintenance Tasks

Schedule preventive maintenance, track repairs, and manage equipment service intervals. Ensure optimal performance and reduce downtime with scheduled maintenance.

Preventive Maintenance

Repair Scheduling

Service Reminders

Maintenance History

Quick Tip

Schedule maintenance during low-usage periods to minimize equipment downtime. Set reminders for recurring maintenance tasks.

Item ID

Reason

oracleapex.com/ords/r/hexora/equipflow157471278224/predictive-analytics-dashboar...