Spot.AI

User Manual

Contents

1.Introduction

Welcome to the User Manual for our Trolley Tracking and Monitoring System. This system is designed to enhance operational efficiency and provide comprehensive tracking and monitoring of trolleys within the Factory premises. The system integrates with the ERP for automatic data entry and offers real-time tracking, monitoring, and reporting capabilities.

Project Objectives

The primary objectives of this project are as follows:

1. **Automatic Entry of Trolley Number**:
   - The system will automatically enter the trolley number against the Schicht Cooler with details such as Batch Number from ERP, Set Number, Cooler Number, and Date Time Stamp.
2. **Tracking Trolley Movement**:
   - The system will track the movement of trolleys within the Factory premises. It will provide date and time stamp information for trolleys within the Schicht Cooler, Factory Trolley Exit Area, Weathering Area, and Machinery Area.
3. **Monitoring Time Thresholds**
   - The system will monitor the time thresholds that need to be spent at different locations within the factory premises. This ensures that trolleys are moving efficiently through the required stages.
4. **Data Storage, Alerts, and Recommendations**:
   - The system will store all tracking and movement data. It will also generate alerts and provide recommendations based on the data to improve operational efficiency and address any issues promptly.
5. **Floor Map Details**:
   - The system will provide floor map details with the current location of trolleys based on the last captured information. This helps in easily locating and managing trolleys within the factory premises.

2.Solution

Our solution leverages advanced Camera Vision Analytics and Optical Character Recognition (OCR) to track and monitor trolleys within the Factory premises. The key components and functionalities of our solution are outlined below:

1. **Camera Vision Analytics and OCR**:
   - Our system uses camera vision analytics and OCR to capture and process trolley information automatically.
2. **Geofenced Area Monitoring**:
   - Cameras are strategically placed on top of the Schicht Cooler to capture trolley information as they enter the geofenced area.

- o The system automatically assigns a Cooler Number, Set Number, and Batch Number, along with a date and time stamp, to each trolley.

3. **Location and Timestamp Updates**:
   - o Each time a trolley passes through different locations (e.g., Factory Trolley Exit Area, Weathering Area, Machinery Area), the system updates the date and time stamp along with the location information in our database.
   - o This information is accessible through our web application in real-time.

4. **Monitoring Capabilities**:
   - o The factory team can monitor trolley movements, production output based on trolley count, identify faulty batches, and track the current location of each trolley via our web application.

5. **Verification at Third-Party Locations**:
   - o Trolley counts at third-party locations are verified by observing trolleys exiting the factory plant using our vision algorithm.

6. **Data Storage and Access**:
   - o All captured data is stored securely in our Orion cloud.
   - o Users can access this data through our web application, generate reports, view alerts, and perform analytics on the collected data upon request.

3.Log In

Steps to Login

1. **Enter URL**:
   - o Open a web browser and enter the URL.

2. **Enter Credentials**:
   - o Enter your username in the 'User Name' field.
   - o Enter your password in the 'Password' field.

3. **Remember Me**:
   - o Check the "Remember me" checkbox if you want the browser to remember your credentials for future logins. This will allow the website homepage to load directly next time.
   - o If you do not check the "Remember me" checkbox, the browser will not remember your credentials, and you will be prompted to log in again next time.

4. **Forget Password**:
   - o If you forget your password, click on the "Forget password" link. This functionality allows you to reset your password by following the instructions provided.

5. **Sign In**:
   - o Click on the "Sign In" button. Upon successful login, you will be redirected to the dashboard page.

4.Dashboard

The dashboard provides a comprehensive overview of the current status and key metrics related to the trolleys and cameras within the factory premises. Users can monitor various aspects through ten different cards and access detailed information in two specific departments.

Cards

1. **Total Healthy Cameras**:
   - Displays the count of healthy cameras out of the total 15 cameras.
   - An unhealthy camera indicates that no feed is being received from it.
2. **Total Registered Trolleys**:
   - Shows the count of all registered trolleys in the system.
3. **Untraceable Trolleys**:
   - Indicates the count of trolleys that are currently untraceable.
4. **Total Alerts**:
   - Displays the count of alerts generated for the present day.
5. **Current Batch Number**:
   - Shows the ongoing batch number being processed.
6. **Current Active SC (Schicht Cooler)**:
   - Indicates the count of currently active Schicht Coolers.
7. **Total Near SC**:
   - Displays the count of trolleys near the Schicht Cooler.

8. **Weathering Room**:
    o Shows the live count of trolleys in the weathering room.
9. **Loading Area**:
    o Displays the live count of trolleys in the loading area.
10. **Avg TAT (M to C)**:
    o Shows the average time taken by trolleys to reach the cutting machine in the last 24 hours.

Weathering Room

The Weathering Room section provides detailed information about trolleys within the weathering room.

1. **Categories**:
    o The trolleys are categorized into three time-based groups: 10–14 hours, >14 hours, and <10 hours.
2. **Live and Exited Count**:
    o Displays the current count of trolleys inside the weathering room and those that have exited in the last 24 hours.
3. **Alerts**:
    o Trolleys exceeding the 14-hour limit or exiting before the 10-hour limit will be highlighted and alerted in the live column.

Exception Trolleys

This tab shows trolleys that have not followed the expected sequence. The conditions for exceptions are:

o **Condition 1**: SC to WRE Exception False - Live Count Increases
o **Condition 2**: WR to WREX Exception False - Live Count Decreases and Exit Count Increases
o **Condition 3**: WRE to WRE Exception True - Exited
o **Condition 4**: WREX to WREX Exception False - Exited
o **Condition 5**: !SC to WRE Exception True - Live Count Increases
o **Condition 6**: Cut to WREX Exception True - Live Count Increases
o **Condition 7**: WREX to WRE Exception True - Live Count Decreases and Exit Count Increases

Production Details

- The user can view details of the most recent five batches.
- This includes the batch number, start and end times, and the trolley count for each batch.

5.Monitor

The Monitor page allows users to keep track of trolley counts and camera statuses through two main views: Table View and Map View. By default, the Table View is selected.

Table View

In the Table View, there are two tables:

1. **Live Camera Feed Table**
   - **Columns**: S. No, Camera, Trolley Count
   - **Description**: This table lists all 15 cameras and shows the live count of trolleys detected by each camera.
2. **Trolley Utilization Table**
   - **Columns**: S. No, Camera, Trolley Count
   - **Description**: This table focuses on Schicht Cooler cameras, displaying the shift-wise count of trolleys detected by each camera.
   - **Shift Dropdown**: Allows users to select one of three shifts to view the corresponding trolley count.

In the Map View, users can see a visual representation of camera points and trolley trends:

1. **Camera Points**
   - **Status Indicators**:
     - **Active (Green)**: Indicates that the camera has detected trolleys in the last 24 hours.
     - **Inactive (Orange)**: Indicates that the camera has not detected any trolleys in the last 24 hours.
     - **Unhealthy (Red)**: Indicates that no feed is being received from the camera.
   - **Mouse-over Details**: Hovering over a camera point displays the live count of trolleys detected by that camera.
2. **Trolley Trend**
   - **Pie Chart**: Represents the live count of trolleys detected by the camera, giving a visual summary of trolley distribution.

6.Weathering Room

In the Weathering Room section, users can view assets, charts, and tables related to trolley activity.
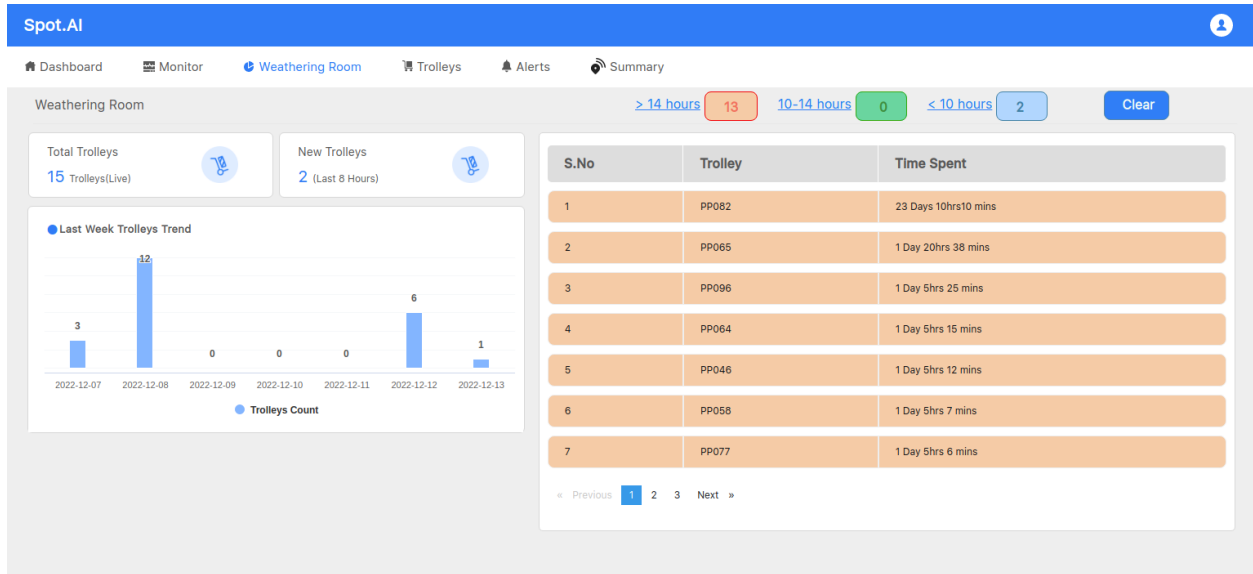
Total Trolleys

This section shows the live count of trolleys currently inside the weathering room.

New Trolleys

This section displays the count of trolleys that have entered the weathering room in the last 8 hours.

Last Week Trolleys Trend

- **Graph**: Displays the trolley trend over the last seven days, including the count of trolleys that exited each day.

Table

The table provides detailed information about the trolleys inside the weathering room, categorized by the time spent:

- **Columns**:
    - **S.No**: Serial number.
    - **Trolley**: Trolley identifier.
    - **Time Spent**: The amount of time each trolley has spent inside the weathering room.
- **Color Coding**:
    - **Red**: Trolley idles for more than 14 hours.
    - **Green**: Trolley idles for 10-14 hours.
    - **Blue**: Trolley idles for less than 10 hours.
- **Category-wise Count**:

o Displayed in the navigation bar on the right side of the table.
o Users can filter trolleys based on the time spent:
- **>14 Hours**: Shows trolleys that have spent more than 14 hours inside the weathering room.
- **10-14 Hours**: Shows trolleys that have spent 10-14 hours inside the weathering room.
- **<10 Hours**: Shows trolleys that have spent less than 10 hours inside the weathering room.

7.Trolleys

The Trolleys page has two tabs: "Trolleys" and "Untraceable Trolleys". The "Trolleys" tab is selected by default, where users can filter data, view trolley images, and see history data.
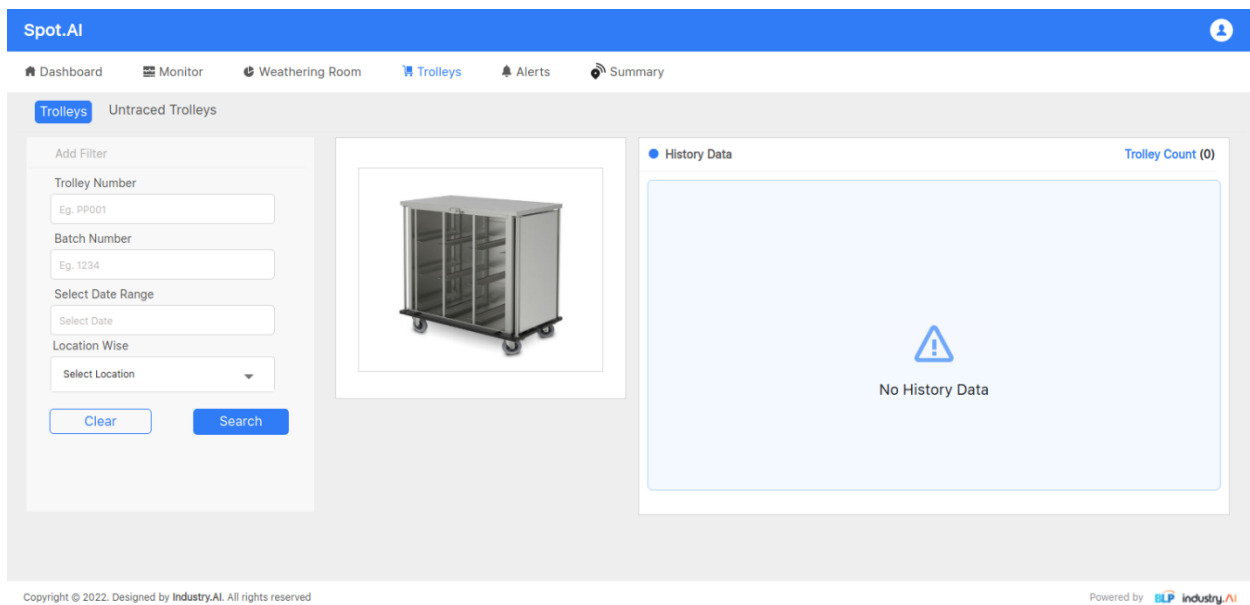
Filters and Search
Trolley Number Field

- **Function**: Enter the trolley number to view its history.

Batch Number Field

- **Function**: Enter the batch number to see all trolleys from that batch in the history data table.

Date Range

- **Function**: Select the date range to view history data for trolleys.

Location Dropdown

- **Function**: Select a location to view trolley details specific to that location.

Search Functionality

- **Search Criteria**: Users can search by trolley number, batch number, and location, but all searches require a date range.
- **Search Button**:
  - Enter the trolley number and date range.
  - Enter the batch number and date range.
  - Enter the location and date range.
  - Click on the "Search" button to display related data in the history data table.
- **Clear Button**: Clears all selected conditions in the filter.

History Data Table

- **Display**: Shows data based on the given filter conditions.
- **Trolley Count**: The count of unique trolleys is visible at the top.
- **Unique Trolleys**: Only unique trolleys are displayed in the data.

Untraceable Trolleys Tab

S.No	Trolley	Camera	TimeStamp
1	PP060	Not Detected	Not Tracked
2	PP057	SchichtCooler21	Oct 12, 2022, 3:55:15 PM
3	PP078	Weathering Room exit cutting in	Oct 13, 2022, 4:14:44 AM
4	PP047	Weathering Room exit cutting in	Nov 5, 2022, 11:53:20 PM
5	PP037	Loading check	Nov 14, 2022, 10:35:34 AM
6	PP004	Loading check	Nov 18, 2022, 12:20:49 PM
7	PP082	Weathering Room entry2	Nov 21, 2022, 2:37:07 AM
8	PP041	Weathering Room entry2	Nov 26, 2022, 7:54:47 AM
9	PP051	Loading check	Dec 1, 2022, 8:59:08 AM
10	PP091	Loading check	Dec 2, 2022, 9:07:34 AM
11	PP031	Loading check	Dec 2, 2022, 4:09:22 PM
12	PP061	Weathering Room entry1	Dec 3, 2022, 6:16:00 AM
13	PP008	Weathering Room entry1	Dec 4, 2022, 5:06:26 PM
14	PP053	Loading check	Dec 7, 2022, 8:24:06 PM
15	PP094	Weathering Room entry1	Dec 8, 2022, 9:21:23 AM
16	PP068	Loading check	Dec 8, 2022, 11:20:57 AM
17	PP032	Loading check	Dec 8, 2022, 2:46:47 PM
18	PP080	Loading check	Dec 8, 2022, 4:00:02 PM
19	PP011	Loading check	Dec 9, 2022, 7:57:10 AM
20	PP086	Loading check	Dec 9, 2022, 3:47:25 PM
21	PP042	Loading check	Dec 9, 2022, 8:50:25 PM
22	PP067	Loading check	Dec 10, 2022, 7:46:53 AM
23	PP050	Loading check	Dec 10, 2022, 10:22:20 AM
24	PP065	Weathering Room exit loading	Dec 12, 2022, 4:08:54 PM
25	PP071	SchichtCooler21	Dec 12, 2022, 11:26:00 PM

« Previous 1 2 Next »

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- **Navigation**: Click on the "Untraceable Trolleys" tab to view untraceable trolleys in the table.

8.Alerts

The Alerts page allows users to view and manage alerts based on categories and dates. It includes an alerts table, category dropdown, date picker, and a clear button. By default, the table displays all alert categories.

S.No	Timestamp	Category	Trolley	Description	Acknowledged
1	Dec 14, 2022, 12:45:00 PM	Camera Inactive		SchichtCooler19 is inactive	No
2	Dec 14, 2022, 12:45:00 PM	Camera Inactive		Cutting_Machine2 is inactive	No
3	Dec 14, 2022, 12:45:00 PM	Camera Inactive	PP047	The Weathering_Room_exit_cutting_in is inactive	No
4	Dec 14, 2022, 12:45:00 PM	Camera Inactive	PP041	The Weathering_Room_entry2 is inactive	No
5	Dec 14, 2022, 12:45:00 PM	Camera Inactive		Cutting_Machine1 is inactive	No
6	Dec 14, 2022, 12:45:00 PM	Camera Inactive	PP008	The Weathering_Room_entry1 is inactive	No
7	Dec 14, 2022, 12:45:00 PM	Camera Inactive		SC_Pathway is inactive	No
8	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP019	The trolley has exceeded 14 hours in the weathering room	No
9	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP058	The trolley has exceeded 14 hours in the weathering room	No
10	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP096	The trolley has exceeded 14 hours in the weathering room	No
11	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP065	The trolley has exceeded 14 hours in the weathering room	No
12	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP025	The trolley has exceeded 14 hours in the weathering room	No
13	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP046	The trolley has exceeded 14 hours in the weathering room	No
14	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP035	The trolley has exceeded 14 hours in the weathering room	No
15	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP089	The trolley has exceeded 14 hours in the weathering room	No
16	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP077	The trolley has exceeded 14 hours in the weathering room	No
17	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP066	The trolley has exceeded 14 hours in the weathering room	No
18	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP088	The trolley has exceeded 14 hours in the weathering room	No
19	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP064	The trolley has exceeded 14 hours in the weathering room	No
20	Dec 14, 2022, 12:45:00 PM	Weathering rule violation	PP082	The trolley has exceeded 14 hours in the weathering room	No
21	Dec 14, 2022, 12:45:00 PM	No Movement From-SCHT	PP030	Trolley is spending more than 3 hours in schichtcooler	No
22	Dec 14, 2022, 12:45:00 PM	Trolley Missing	PP058	The trolley is inactive for last 1 Day 5 Hours. Last location is Weathering_Room_exit_loading	No
23	Dec 14, 2022, 12:45:00 PM	Trolley Missing	PP086	The trolley is inactive for last 4 Days 20 Hours. Last location is Loading_check	No
24	Dec 14, 2022, 12:45:00 PM	Trolley Missing	PP088	The trolley is inactive for last 1 Day 4 Hours. Last location is Weathering_Room_exit_loading	No
25	Dec 14, 2022, 12:45:00 PM	Trolley Missing	PP065	The trolley is inactive for last 1 Day 20 Hours. Last location is Weathering_Room_exit_loading	No

« Previous 1 2 3 4 Next »

Filters and Search

Category Dropdown

- **Function**: Select a category from the dropdown menu to filter alerts. The alerts table updates based on the selected category.

Date Picker

- **Function**: Select a date to filter alerts. The alerts table updates based on the selected category and date.

Clear Button

- **Function**: Clears all selected categories and dates. Clicking the "Clear" button resets the filters.

Alerts Table

- **Default View**: Shows all alert categories by default.
- **Columns**: Includes an Acknowledgement column where users must select Yes/No from the acknowledgement status dropdown.

List of Alerts

Sequence Related Alerts

1. **Monitoring of Sequences**:
   o Alerts ensure that every trolley with a filled tag follows one of the specified sequences:
     ▪ Filled tag at Schicht Cooler, weathering room, packing line.
     ▪ Filled tag at Schicht Cooler, weathering room, rejected.
     ▪ Filled tag at Schicht Cooler, rejected.

Time Bound Alerts

2. **Alert Conditions**:
   o **Focus Area**: Alert if a trolley remains in the focus area in front of Schicht Cooler for more than a specified number of minutes.
   o **Weathering Room Entry**: Alert if a trolley has not reached the weathering room within 4 hours of getting a filled tag.
   o **Weathering Room Duration**: Alert if a trolley remains in the weathering room for more than 14 hours (turns red).
   o **Camera Detection**: Alert if a trolley has not been detected by any camera for the last 24 hours.

9.Summary

The Summary page provides an overview of alerts and trolley detections. It features two tabs: Summary and Trolley-Latest Detections. By default, the Summary tab is selected.

Tabs

Summary Tab

- **Alerts Details Table**: Displays alert categories for the current day.
    - **Date Selector**: Allows users to view alerts for a different day by selecting the date.
- **Trolley Distribution Table**: Shows all registered trolleys and their last detected location count.

Trolley-Latest Detections Tab

- **Table**: Displays all registered trolleys along with the latest detection camera location and the previous detection location.
- **Search Trolley Number Field**: Allows users to search for a specific trolley by entering the trolley number.
- **Camera Dropdown**: Allows users to filter the table based on camera location.
- **Clear Button**: Clears the selected categories and dates, resetting the filters.

Using the Summary Page

1. **Viewing Alerts**:
   o Navigate to the Summary tab.
   o Use the Date Selector at the top of the Alerts table to view alerts for a specific day.

2. **Viewing Trolley Distribution**:
   o Check the Trolley Distribution table for the count of registered trolleys and their last detected locations.

3. **Using Trolley-Latest Detections**:
   o Select the Trolley-Latest Detections tab.
   o Use the Search Trolley Number field to find a specific trolley.
   o Use the Camera dropdown to filter results by camera location.
   o Click the Clear button to reset the filters.

| S.No	Trolley	Camera	TimeStamp	Previous Camera	Previous Camera Time
1	PP092	Rejected Area	Dec 14, 2022, 12:39:11 PM	SchichtCooler18	Dec 14, 2022, 12:29:00 PM
2	PP098	SchichtCooler20	Dec 14, 2022, 12:29:45 PM	Rejected Area	Dec 9, 2022, 3:18:31 PM
3	PP059	SchichtCooler17	Dec 14, 2022, 12:29:30 PM	Loading check	Dec 13, 2022, 9:00:02 PM
4	PP044	Loading check	Dec 14, 2022, 11:07:22 AM	Rejected Area	Dec 14, 2022, 1:21:10 AM
5	PP016	Loading check	Dec 14, 2022, 11:05:43 AM	SchichtCooler19	Dec 10, 2022, 9:25:30 AM
6	PP090	Loading check	Dec 14, 2022, 10:13:35 AM	Weathering Room entry2	Dec 8, 2022, 1:06:46 PM
7	PP054	Rejected Area	Dec 14, 2022, 9:05:11 AM	Loading check	Nov 14, 2022, 7:47:14 AM
8	PP072	Weathering Room exit loading	Dec 14, 2022, 7:43:21 AM	Weathering Room exit loading	Dec 14, 2022, 7:43:21 AM
9	PP076	Weathering Room exit loading	Dec 14, 2022, 7:40:34 AM	Weathering Room exit loading	Dec 14, 2022, 7:40:33 AM
10	PP009	Weathering Room exit loading	Dec 14, 2022, 4:08:31 AM	Loading check	Dec 4, 2022, 11:34:25 AM
11	PP027	Weathering Room exit loading	Dec 14, 2022, 3:48:05 AM	Loading check	Dec 10, 2022, 10:29:37 AM
12	PP030	SchichtCooler17	Dec 14, 2022, 1:56:00 AM	Rejected Area	Dec 13, 2022, 11:40:45 PM
13	PP036	Loading check	Dec 13, 2022, 11:11:02 PM	Rejected Area	Dec 10, 2022, 7:09:40 AM
14	PP100	Rejected Area	Dec 13, 2022, 8:59:52 PM	SchichtCooler19	Dec 12, 2022, 11:47:45 PM
15	PP062	Rejected Area	Dec 13, 2022, 8:59:22 PM	SchichtCooler22	Dec 12, 2022, 11:21:15 PM
16	PP040	Loading check	Dec 13, 2022, 8:43:52 PM	SchichtCooler19	Dec 12, 2022, 11:23:01 PM
17	PP014	Loading check	Dec 13, 2022, 8:39:10 PM	SchichtCooler20	Dec 13, 2022, 12:07:15 AM
18	PP063	Loading check	Dec 13, 2022, 8:34:39 PM	Weathering Room exit loading	Dec 13, 2022, 12:10:23 AM
19	PP001	Loading check	Dec 13, 2022, 8:33:09 PM	Weathering Room exit loading	Dec 13, 2022, 12:10:20 AM
20	PP007	Loading check	Dec 13, 2022, 8:33:02 PM	Weathering Room exit loading	Dec 12, 2022, 11:36:59 PM
21	PP015	Loading check	Dec 13, 2022, 8:31:43 PM	Weathering Room exit loading	Dec 12, 2022, 3:26:02 PM
22	PP005	Loading check	Dec 13, 2022, 8:29:47 PM	Weathering Room exit loading	Dec 12, 2022, 11:50:04 PM
23	PP048	Loading check	Dec 13, 2022, 8:28:08 PM	Weathering Room exit loading	Dec 12, 2022, 11:51:48 PM
24	PP074	Loading check	Dec 13, 2022, 8:28:02 PM	Weathering Room exit loading	Dec 12, 2022, 11:51:48 PM
25	PP049	Loading check	Dec 13, 2022, 8:25:42 PM	Weathering Room exit loading	Dec 13, 2022, 12:03:36 AM

« Previous 1 2 3 4 Next »

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10.Architecture

Important Parameters that can be Tracked:

1. Trolley No
2. Set No
3. Cooler No
4. Batch Number from ERP
5. Date and Time Stamp at each Location for a trolley
6. In and Out Time while moving to and fro from third Party
7. Alerts and Notifications
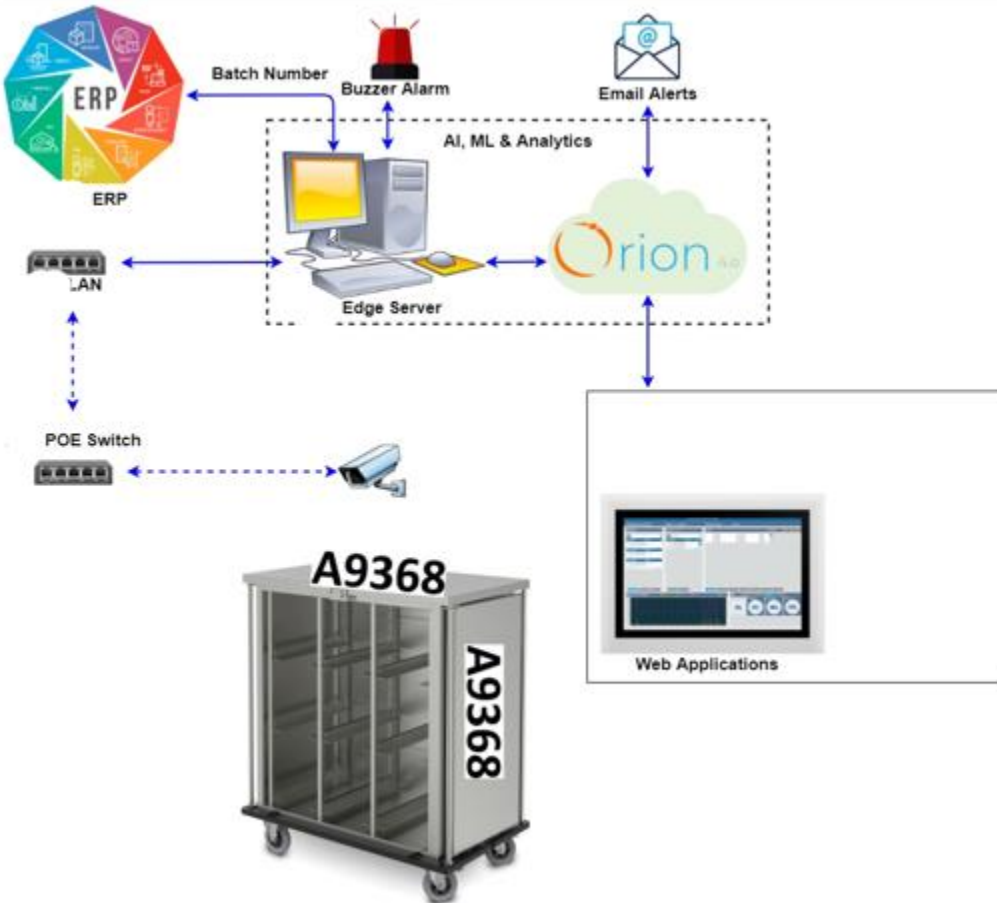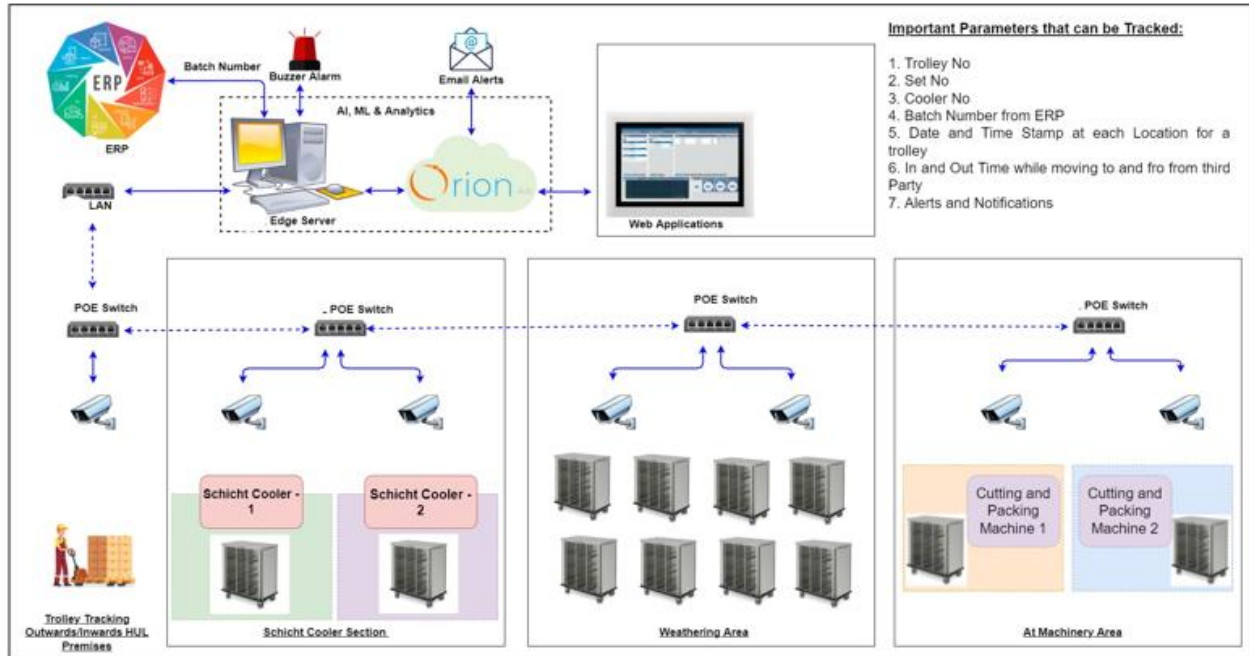
11.Logout

The log-out process in the application is straightforward. Follow the steps below to log out of your account:

Steps to Log Out

1. **Locate the Profile Icon**:
    o In the top right corner of the application interface, you will see a profile icon.
2. **Click the Profile Icon**:
    o Click on the profile icon to reveal a dropdown menu.
3. **Select the Logout Option**:
    o In the dropdown menu, you will find the **Logout** button along with the version of the application.
    o Click the **Logout** button to log out of your account.

…………………….Thank You…………………