Use Cases

for

Air Supply-Pilot

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version
Use Cases for AS-P	12/10/18	Original	1.0
Use Cases for AS-P	26/10/18	Updates: • Some changes on ASP-UC1 and ASP-UC2 • Added use case for user profile management (ASP-UC4) • Added use case for tracking orders (ASP-UC8)	1.1

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Use Case ASP-UC1: Order Supplies

Primary Actor: Clinic Manager

Supporting Actors: None

Trigger: Triggered manually by clinic manager

Description:
The Air Supply-Pilot (AS-P) allows clinic managers to order clinic supplies from Queen Mary Hospital through the web application. Users browse the catalogue to order items and specify the order priority. After placing the order, the system will log the order and pass it to the warehouse.

Stakeholders and Interests:
- *Clinic Manager*: Wants to browse through and find medical supplies. Wants to place orders quickly and set its priority. Wants to receive email notifications when orders are dispatched.
- *Warehouse Personnel*: Wants priority queue of orders and details of each order by clinic managers.
- *Hospital Authority*: Wants details of all orders for audit.

Preconditions:
PRE-1: Clinic manager is logged in.

Postconditions:
POST-1: Unique order ID is generated.
POST-2: Order details are logged.
POST-2: Priority queue of orders is updated.
POST-3: Inventory is updated.
POST-5: Status of order is set to *"Queued for Processing"*.

Main Success Scenario:

1. Clinic manager requests to order supplies and system displays the full catalogue. For each item, system also displays its image and description.
2. Clinic manager selects a category and system filters the catalogue according to the selected category.
3. Clinic manager enters a quantity for an item, and system adds the item to the basket.

Clinic manager repeats steps 2 - 3 until they have added all desired items to basket.

4. Clinic manager opens basket and the system displays a review of selected items.
5. System provides order priority selection and clinic manager selects an option.
6. Clinic manager places order. System generates a unique order ID, logs the order details, adds it to priority queue for warehouse personnel, and updates the inventory.
7. System sets order status as *Queued for Processing*.

Extensions:

***a.** Clinic manager logs out before completing order:
1. System clears basket and does not record the order.

2a. Clinic manager uses search bar:
1. System searches for items which matches users' input.
2. System displays matching items only.

Rejoin normal flow at step 2.

4a. The items inside the baskets exceeds drone's capacity:
1. System notifies clinic manager that it has exceeded loading capacity.
2. Clinic manager removes some item from the basket.

Rejoin normal flow at step 5.

4b. Clinic manager decides to browse catalogue again:
1. Clinic manager clicks to go back.
2. System returns user to the catalogue, with the basket remaining unchanged.

Rejoin normal flow at step 2.

5b. Clinic manager decides to remove an item from order:
1. Clinic manager selects an item to remove.
2. System removes selected item from basket.

Rejoin normal flow at step 5.

5c. Clinic manager wants to change an item's quantity:
1. System displays editable quantity field for each product.
2. Clinic manager edits the field with new quantity or uses (+/-) buttons to edit.
3. System updates new quantity value in the order.

Rejoin normal flow at step 5.

Frequency of Occurrences: Almost continuous

Business Rules: BR-3, BR-8, BR-10

Special Requirements:

- Adding / removing / editing quantity of items in basket should take no longer than 3 seconds to process.
- Confirmed orders should be added to priority queue within 10 seconds.

Technology and Data Variations List: None

Assumptions:

1. Clinic managers specify true priority when ordering.
2. Warehouse always has enough stock to satisfy orders.

Notes and Open Issues:

- What other functionalities for better efficiency in basket management?
- What other filter functions besides name search?

Use Case ASP-UC2: Orders Dispatching

Primary actor: Dispatcher

Supporting actor: None

Trigger: Triggered manually by the dispatcher

Description:

Dispatcher will be using the Air Supply-Pilot (AS-P) Dispatching System to dispatch the orders that have been packed by the warehouse personnel. In the end of dispatching session, the system will send email notification to clinic managers regarding the orders dispatched.

Stakeholders and Interests:

- *Dispatchers*: Wants an easy to use and smart dispatching system. The more effective the system, the faster the dispatching process would be.
- *Clinic Managers (orderer)*: Wants the order to be delivered according to the priority of order they specified. Wants to view the current status of order. Wants to be notified regarding the orders detail. A faster delivery process is always preferable.
- *Health Authority*: Wants an accurate detailed information of the dispatched orders.
- *Supplying Hospital*: Wants the order to be dispatched safely and accurately to the clinic managers (orderer).

Preconditions:

PRE-1: Dispatcher's identity has been authorized.

PRE-2: At least 1 order exists in the dispatch queue.

Success Guarantee (Postconditions):

POST-1: Orders' status that have been dispatched changed to *Dispatched.*

POST-2: Dispatched orders are removed from dispatch queue.

POST-3: Clinic managers related to the dispatched orders receives a shipping confirmation.

POST-4: All the dispatched orders' detailed information are recorded in the system.

Main Success Scenario:

1. System provides a list of orders to be dispatched on the available drone from the dispatch queue.
2. Dispatcher starts a new dispatching session by opening that list of orders.
3. The system's route planning service automatically prepare the itinerary file of these orders.
4. Dispatcher loads the orders from the list of orders to the drone.
5. Dispatcher downloads the itinerary file from the system.
6. The dispatcher uploads the itinerary file to the drone and the drone starts the delivery run.
7. Dispatcher closes the dispatching session.
8. The system updates the order(s) status to be *Dispatched,* log all the information, and remove them from the dispatch queue.
9. The system will send each order's shipping confirmation to the Clinic Managers' email to inform their orders have been dispatched.

Extensions: -

Frequency of Occurrence: Almost continuous

Business Rules: BR-4, BR-7, BR-8, BR-9, BR-10

Special Requirements:

- The drone should begin delivery run as soon as the dispatcher has loaded all the orders and uploaded the itinerary file.

Technology and Data Variations List:

3a. The itinerary file must be in CSV format.

7a. The itinerary file will be uploaded to the drone manually by the dispatcher.

Assumptions:

1. There is no race condition in the dispatching process.
2. All orders are in good condition and neatly packed inside a light-weight container.

Notes and Open Issues:

- Most effective way for the dispatcher uploads the itinerary file to the drone?
- How much flexibility in modifying the dispatching queue should be given to the dispatcher?

Other Use Cases

ASP-UC3: User registration

The user receives an email containing a registration token from the administrator. The user will use the token to get access to the registration page. Then, the user should fill their personal details, user id, and password in the form. Upon registration, the system will automatically the email column with the email that receives the token. User clicks the submit button to finish the registration of their account.

ASP-UC4: User profile management

System will provide a feature for user to update their profile. Users can change their personal details including first name, last name, last name, email address, and password, but not username. System will notify the user if there are any invalid changes, e.g. empty fields or invalid email address.

ASP-UC5: Order cancellation from clinic manager

Clinic manager can cancel their order only if the status is still "*queued for processing"*. To do the cancellation, the clinic manager should go to his/her order list and choose the order he/she wants to cancel. The system will then remove the order from the queue and will not be further processed.

ASP-UC6: Order received confirmation (by clinic manager)

Upon receiving the order from the drone delivery, clinic manager sends a confirmation through the system that the order has been received. The system will update the status of the order and save necessary information in the orders log.

ASP-UC7: Orders picking and packing

Warehouse manager received all the orders from the clinic managers in their respective area. The system will arrange the orders in a queue based on order priority, or order date if 2 orders have the same priority. Then, the warehouse personnel will pack all the orders based on the queue. After

that, the warehouse manager will print the order's shipping label and stick it to the package. Finally, the system will update the status of the orders and queue the package is queued for dispatch.

ASP-UC8: Orders tracking

Clinic managers will be able to track their order through a view that will be provided by the system. The system will list all the orders, including the orders in process, and some information regarding the orders. For order that is in process, clinic manager would be able to see the current status of the order.

Business Rules

BR-1: User must have an HA email address
To register, the user must own an HA email address. Admin will only send the token for registration to user's HA email address.

BR-2: Users can be uniquely identified
User must have a distinct username. During registration, user must input a unique username. This username can no longer be changed afterward.

BR-3: Every order can be uniquely identified
Every order should be assigned with a distinct order id to differentiate it with another order.

BR-4: Higher priority orders must be processed first
Any order with a higher priority level must be processed first before the lower ones. This is to ensure the higher priority order will be handled as fast as possible.

BR-5: An order cannot be cancelled once processed in the warehouse
After placing an order, clinic manager can only cancel the order if the order status is still "*Queued for Processing*". Other than that, cancellation is no longer allowed.

BR-6: Every package must have a shipping label
For every order, a shipping label containing information about the order must be stick at the lightweight container that carry the order.

BR-7: Every completed order's information must be retained
Every detailed information about the order, starting from online ordering to dispatch, must be recorded. This will later be used for audit.

BR-8: Every drone must not carry orders more than 25 kg
Every drone should carry at least 1 order during the flight. These orders must not exceed the 25 kg weight limit.

BR-9: Drone's route must have the shortest round-trip distance
For efficiency purpose, drone should be routed as short as possible to deliver all orders it carries.

BR-10: Clinic Manager must be well informed regarding the order status
Clinic manager must be able to track and monitor the status of his/her order.