Use Case Diagram

Inventory Management System (IMS)

Generate System-Directed Putaway Tasks

IMS automatically determines optimal putaway tasks and target locations based on slotting rules, category, FEFO, and pick velocity.

Execute Putaway Task

Warehouse Associate

<<include>>

Receive System-Directed Putaway Task

IMS updates inventory, QOH, and ATP once putaway is successfully validated.

Auto-Update Inventory Records

Supervisor

<<include>>

Validate Putaway & Log Movement

Review & Resolve Putaway Exception

<<extend>>

Generate Putaway Exception
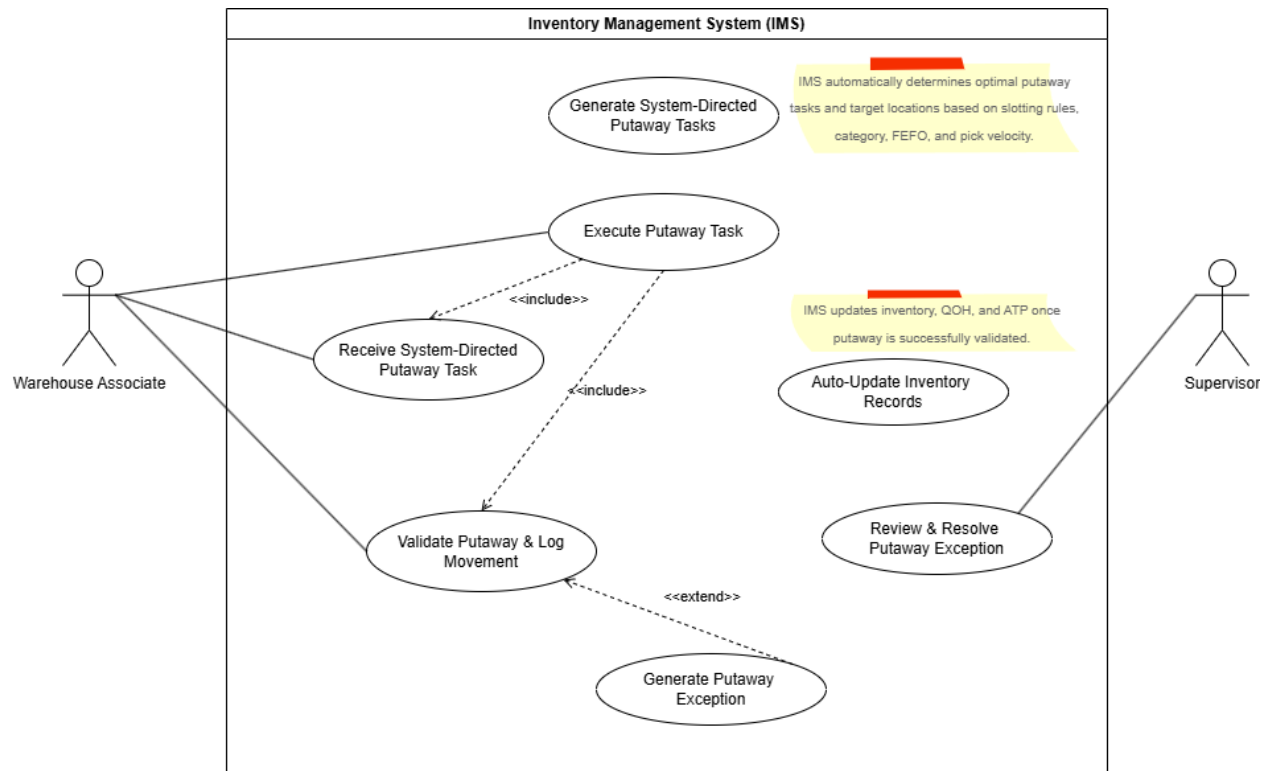
Use Case Specifications & Wireframes

UC-PU-01: Generate System-Directed Putaway Task

Primary Actor

IMS

Supporting Actors

None

Brief Description

Provides system-directed putaway instructions based on SKU characteristics and storage rules.

Trigger

Inbound receiving is completed and items are ready for putaway.

Preconditions

- Items have passed inbound validation
- Storage locations are configured in IMS
- Slotting rules are available

Postconditions

- Putaway task is generated and assigned

Main Success Scenario

1. IMS evaluates SKU attributes (category, temperature, FEFO).
2. IMS determines optimal target location.
3. IMS generates putaway task.
4. Task is sent to associate's handheld device.

Business Rules & Notes

- Slotting logic is rule-based, not AI-driven.
- Manual location selection is not allowed in TO-BE.

SYSTEM-DIRECTED PUTAWAY

Task ID:	SKU:	Quantity:
[PU-78321]	Apples 1kg (SKU-101)	120 units

Recommended Location:

Aisle A | Rack 03 | Bin 12

Scan Location **Scan SKU**

Validation Status:

✓ SKU matches task

✓ Location valid for SKU

Confirm Putaway **Flag Issue**

System Message:

✓ Putaway recorded successfully

UC-PU-02: Execute Putaway Task

Primary Actor

Warehouse Associate

Supporting Actors

IMS

Brief Description

Guides the associate to move inventory from staging to the system-recommended location.

Trigger

Putaway task is received on the associate device.

Preconditions

- Valid putaway task exists
- Item is physically available in staging

Postconditions

- Item is physically moved to target location

Main Success Scenario

1. Associate scans SKU barcode.
2. Associate follows system-directed location.
3. Associate moves items to target location.
4. Associate scans target location barcode.

Business Rules & Notes

- Putaway must follow the system-assigned path.
- Manual overrides require exception handling.

UC-PU-03: Validate Putaway & Log Movement

Primary Actor

IMS

Supporting Actors

Warehouse Associate

Brief Description

Validates SKU-location match and logs putaway movement in real time.

Trigger

Associate scans target location barcode.

Preconditions

- Putaway task is active
- SKU and location are scannable

Postconditions

- Putaway movement is validated and logged

Main Success Scenario

1. IMS verifies SKU-location match.
2. IMS checks FEFO and zoning rules.
3. IMS logs putaway transaction with timestamp.
4. IMS marks putaway task as completed.

Alternate Flows

A1: Invalid Location Detected

- IMS blocks confirmation.
- Exception is generated.

Business Rules & Notes

- Validation occurs before inventory availability.
- Incorrect placements are prevented, not corrected later.

UC-PU-04: Generate Putaway Exception

Primary Actor

IMS

Supporting Actors

Warehouse Supervisor

Brief Description

Creates exceptions when putaway validation fails.

Trigger

SKU-location mismatch or rule violation is detected.

Preconditions

- Putaway validation attempted

Postconditions

- Exception case is created and routed

Main Success Scenario

1. IMS identifies validation failure.
2. IMS generates exception record.
3. IMS notifies supervisor.

Business Rules & Notes

- Exceptions are system-driven only.
- Associate cannot bypass validation.

UC-PU-05: Review and Resolve Putaway Exception

Primary Actor

Warehouse Supervisor

Supporting Actors

IMS

Brief Description

Allows supervisors to resolve putaway exceptions.

Trigger

Putaway exception notification is received.

Preconditions

- Exception exists in IMS
- Supervisor has required permissions

Postconditions

- Exception is resolved or task is reassigned

Main Success Scenario

1. Supervisor reviews exception context.
2. Supervisor approves corrective action.
3. IMS updates exception status.

Alternate Flows

A1: Task Sent Back for Correction

- IMS reassigns putaway task to associate.

Business Rules & Notes

- Supervisor reviews only genuine exceptions.
- Full audit trail is mandatory.

PUTAWAY EXCEPTION REVIEW

Exception ID:

[PU-EX-4421]

Supplier:

Apples 1kg (SKU-101)

Issue Detected:

Scanned location not valid

Location at capacity

Suggested Actions:

☐ Approve alternative system location

☐ Request re-putaway

☐ Escalate to Inventory Control

Supervisor Notes:

Confirm Action

UC-PU-06: Auto-Update Inventory After Putaway

Primary Actor

IMS

Supporting Actors

OMS, Replenishment Logic

Brief Description

Automatically updates inventory and triggers downstream processes after validated putaway.

Trigger

Putaway task is successfully completed.

Preconditions

- Putaway validation passed
- No unresolved exceptions

Postconditions

- QOH and ATP updated
- Inventory becomes available for picking

Main Success Scenario

1. IMS updates QOH for target location.
2. IMS recalculates ATP.
3. IMS triggers replenishment or picking availability.
4. Downstream systems are notified.

Business Rules & Notes

- Inventory updates are immediate.
- No manual intervention is allowed post-validation.