

Cabin Baggage Analysis via Image Processing

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OPERATIONAL CONTEXT



Carry-on baggage management is a process that directly affects operational flow during boarding and passenger seating.

The number and volume of bags brought into the cabin can directly impact boarding progression and in-cabin stowage.

Overhead-bin capacity becomes particularly critical on narrow-body aircraft, during high-density operations, and on routes to shopping destinations.



How Is The Carry-On Baggage Process Managed?

In the carry-on baggage process, making baggage visible before boarding and traceable throughout the process is important for operational flow. This visibility helps manage in-cabin capacity more effectively and reduces last-minute adjustments during boarding.

The process generally progresses as follows:

- The passenger arrives at the boarding area with carry-on baggage.
- The number and volume of the baggage are visually assessed before boarding.
- The passenger boards according to the boarding sequence and proceeds into the cabin.
- During cabin settling, baggage must be placed in overhead bins or other appropriate stowage areas.
- If cabin capacity is exceeded, last-minute offloading or re-stowage may be required.

How Might We Canvas

Who?

who are the stakeholders that get effected?

Cabin Crews,
Ground Handling
Teams.

What?

what is the problem that needs to be solved?

Failure to identify carry-on baggage volume before boarding, and the resulting operational challenges caused by bags that do not fit in overhead bins.

Why?

why is this problem worth solving?

This leads to boarding delays, operational disruptions, and passenger dissatisfaction.

How?

how can this problem be eliminated?

A system can be developed to detect the number and volume of carry-on bags before boarding, predict capacity overflow in advance, and manage operations proactively.

Challenge:

How might we prevent cabin capacity overflow in advance by detecting carry-on baggage density before boarding?