

Automated Passenger Boarding Kiosk

Problem Definition:

Pre-flight boarding procedures are critical. If it is manual, requires much attention to various details for validations and more time consuming. What if these procedures are equipped with technology to make this whole experience faster and hassle-free?

1. What is the problem?

Our objective is to build a prototype of passenger boarding kiosk that is automated to assist with pre-flight boarding procedures and automated customer feedback collection which recognizes the passenger ID, boarding pass and Identity. This technology facilitates validations on personal and boarding information, identity and luggage using AI and machine learning.

2. Business Considerations (Why)

- Automated kiosk experience
- Reduce time consumption on validations
- Avoid manual errors

3.1. Technical Considerations (How)

- Cloud technology
- Text extraction
- Face extraction
- Object detection

3.2. Ethical Considerations

- Data privacy & security
- Responsible AI

Solution Strategy:

When the passenger arrives at the kiosk, the text data collected from the boarding pass and digital ID is used to cross-reference with the flight manifest to validate identity and flight boarding using text extraction technology.

The face extracted from digital ID using face extraction technology is used to validate with passenger identity by capturing their video at the kiosk using video indexer and face recognition technology. The validation is successful if the threshold is 65% or higher.

Validations	Data source	Azure Cognitive Service	Attributes used
Name	Boarding pass	Form Recognizer (Custom)	First Name, Last Name
	Digital ID	Form Recognizer (Prebuilt ID)	
	Flight Manifest		
DoB	Digital ID, Flight Manifest	Form Recognizer (Prebuilt ID)	DoB
Flight	Boarding pass, Flight Manifest	Form Recognizer (Custom)	Flight No, Seat No, Origin, Destination, Class, Date & Time
Identity (threshold >= 65%)	Digital ID	Face API, Vision service	Face Pic (ID)
	Live video	Video Indexer	Face thumbnails, emotions & sentiments
Luggage	Public lighter images, test carry-on items image	Custom Vision (Object Detection Model)	Public lighter images, test carry-on items image

Finally, upload all the data (input & validated) to the Azure Blob Storage.