

## PROBLEM DEFINITION/STATEMENT

The rapid growth of air passengers and air freight flows supported by globalization has increased the importance in the global system of airports. The traffic handled by an airport is directly influenced by the population. Hence, the demand for a quick, easy, convenient, and secure airport check-in process arises. Today, passengers need to arrive at the airport 2 hours before flight for proper check-in process to avoid missing their flight. What if airports are well equipped with technology to ease this whole experience?

## WHAT

Our aim is to build an automated passenger boarding kiosk with pre-flight boarding procedures without any human assistance. This automated system will showcase the power of computer vision in executing a wide variety of business processes within airline boarding operations.

## WHY (BUSINESS CONSIDERATION)

Here are a few reasons we are developing the solution: Automation, Time saving, use of technology to improve the boarding experience, and Security.

## HOW (TECHNICAL CONSIDERATIONS)

The following are some technical and ethical considerations: Cloud technology, Image classification, Object detection, Text extraction technology, Form recognizer, Scalability, Secure environment, API management, Auditing and local government requirement, Facial recognition, Sentiment Analysis, Confidence rating, Data privacy & Security, and Responsible AI.

## DATA INPUT LOCATION

Data Input source: Flight Manifest, Passenger's ID card, Boarding pass, Luggage, video showing their face for facial recognition and sentiment analysis.

## SOLUTION STRATEGY WALKTHROUGH

- When a passenger walks to the front of the kiosk, the identity of the passenger will be established with the face recognition technology using **Azure's Video Indexer Service**.
- Whilst the passenger runs their identification card by a scanner, identity validation is done to confirm match with facial recognition. **Azure's Form Recognition Digital ID Service** will be applied and verification with facial recognition will be done with Azure Video Indexer Service.
- The identification scanner also picks up information such as name, date of birth, and gender from the ID card. The information will be matched with the flight boarding pass and manifest list with **Azure Form Recognizer Service**.
- On a green light beep from an LED system, the passenger goes ahead to run their boarding pass on the scanner. A red beep will mean a mismatch with reason shown on an LCD.
- Passenger's luggage will pass through **Azure's Custom Vision Service** via a camera for lighter identification.
- Upon successful validation, passenger's image, personal details, and flight details are displayed on an LCD with a goodwill message: "Safe Trip, [INSERT CUSTOMER FIRST NAME]"
- Additionally, passenger's emotion is identified for negative or positive feedback.
- For maximum security, model performance is expected to read at least 90%.