

Project Statement

Problem Description:

Airports are often crowded and busy, leading to delays and confusion during the boarding process. Passengers may struggle to find the correct gate, navigate through the airport, and board the plane efficiently. This can result in delayed flights and increased stress for both passengers and airline staff. The need for social distancing and reduced human contact due to health concerns has also made it important to minimize face-to-face interactions during the boarding process.

Project Objective:

Build a boarding kiosk to utilize computer vision and AI technology to assist airline passengers in boarding planes with minimal human interaction.

System Design & Flow:

- Step 1. Passengers scan their boarding pass and ID card at the kiosk entrance
- Step 2. The kiosk system extract passenger information and validate against customer records (flightManifest)
- Step 3. The kiosk system take 10 seconds video of each passenger and match the photo from passenger's ID card
- Step 4. The kiosk system scans passenger's carry-on luggage to search for any prohibited item.
- Step 5. If all scanning and validation pass, the kiosk system generates welcome messages and lets customers board.
- Step 6. If there is any issue with scanning and validation, display the message "Please see an airline representative for help" and send notification to airline employees with issue details.

System Component and technologies:

- 1. Form and ID scanner.
- 2. Azure recognizer and digital ID services to extract text information.
- 3. Camera/Camcorder to take video
- 4. Azure Video Indexer service for face recognition
- 5. Luggage scanner
- 6. Azure custom vision services to detect prohibited objects.

System Input Data:

- 1. Flight Manifest List for all passengers
- 2. Passenger Boarding Passes
- 3. Passenger ID cards
- 4. 10 seconds Passenger video
- 5. Passenger carry-on item photos.