

Project Objective: Developing an AI-Powered Airport Boarding Kiosk

The objective is to create a computer vision and AI-driven kiosk for seamless passenger boarding in airports, eliminating the need for human assistance.

1. The kiosk, in its operational state, aims to fulfill the following functions:

- Allowing passengers to scan their ID card and Boarding pass.
- Extracting passenger information from the boarding pass and cross-verifying it with the ID card.
- Capturing a 30s video of the passenger, conducting facial recognition to match the live person with the scanned ID.
- Scanning passengers' carry-on baggage to identify any prohibited items and prevent boarding if necessary.
- Displaying a message welcoming passengers to board or suggesting they see an airline representative for boarding issues during validation.

2. Simulated Kiosk Experience Creation:

- Creation of a passenger manifest containing 7 passengers with detailed information.
- Generation of fabricated Digital IDs and boarding passes for passengers in the manifest.
- Inclusion of the project owner's fabricated ID card in the passenger list to test face recognition using the owner's video.
- Utilization 30 second video of the project owner for the Kiosk's facial recognition system.
- Scanning of passenger carry-on items, flagging any prohibited items, specifically lighters.

3. Input Data Sources:

- Flight Manifest List for all 7 passengers
- 7 Passenger ID cards with foto
- 7 Passenger Boarding Passes
- 2 Passenger 30 second videos displaying their faces
- Photos of Passenger carry-on items

4. Solution Strategy:

- Train a model using Azure Form Recognizer service to extract passenger information from Boarding passes.
- Utilize Azure Form Recognition digital ID service for extracting face and personal information from passengers' digital IDs.
- Validate the extracted passenger information from boarding passes against the manifest list.
- Verify a person's identity from the manifest list using their personal ID if their name exists in the manifest.
- Employ Azure Video Indexer service to verify the face photo from the digital ID against the passenger video provided.
- Create a machine learning model using Azure custom vision services for lighter identification from the provided images.
- Test the Azure custom vision model, trained for lighter identification, using the sample carry-on images.
- Display a final validation message (successful or unsuccessful) after completing boarding pass validation as the last step of the project.