

## Automated Passenger Boarding Kiosk

### Description:

We have the business requirements to automate the boarding kiosk pass validation using Azure cognitive services. This will help to speed up some of the pre-boarding steps. We are going to implement some computer vision technologies to do text extraction to validate the boarding pass and video and images validation to validate passenger identity.

### Objectives:

- Validate passenger identity using a video from kiosk and ID provided by passenger (driver license).
- Validate flight boarding pass
- Monitor boarding kiosk experience using the video from the kiosk to perform some sentimental analysis.
- Carry-on baggage clearance to validate that there are no prohibited items (lighter detection).

### Datasets:

#### ID - Driver Licence:

- First Name - [identity verification]
- Last Name - [identity verification]
- Date of Birth - [identity verification]
- Sex - [identity verification]
- Face photo - [identity verification]

#### Boarding Pass:

- First Name - [identity verification]
- Last Name - [identity verification]
- Date - [Flight verification]
- Flight number - [flight verification]
- Origin - [Flight Verification]
- Destination - [Flight verification]
- Seat - [Flight verification]

#### 30 seconds video:

- Face image - [identity verification]
- Sentiment - [Boarding kiosk experience]
- Emotion - [Boarding kiosk experience]
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Lighter Images – Carry-on clearance:

- Training lighter images – [lighter detector]
- Test carry-on images – [lighter detector]

Solution:

- Text extraction using Form Recognizer from the Driver License and Boarding Pass.
- Face extraction using Face API from Driver Licence and Video kiosk. Perform a authentication using the input data from these to sources.
- Object Detection using Custom Vision to identify Prohibit Items (Lighter). Build a model to identify lighter in the carry-on baggage.

Model Metrics:

- Model evaluations: Measure model performance using accuracy, precision and recall.
- Name validation: Extract personal data from ID and boarding pass
- Boarding pass validation: Extract data from boarding pass and match with ID
- Identity Validation: Extract face data from id and match with ID
- Carry-on baggage clearance: Identify lighter items in baggage photos.

Francisco Javier Medel Medina