**Automated Passenger Boarding Kiosk**

Description:

In this project, we are going to build an automated passenger boarding kiosk using Azure cognitive services that will assist some of the pre-flights boarding procedures. Variety of different computer vision processes such as authentication and text extraction will be done in this kiosk with the help of azure cognitive services.

Objectives:

* Identity validation using video from kiosk, id card and boarding pass information
* Flight validation using boarding pass
* Boarding kiosk experience using a video from kiosk
* Lighter detection in carry-on baggage using lighter images

Dataset:

* 30 seconds video from kiosk:
  + Face picture – [for identity verification]
  + Sentiment – [for Boarding kiosk experience]
  + Emotion – [for Boarding kiosk experience]
* Boarding pass:
  + First Name – [for identity verification]
  + Last Name – [for identity verification]
  + Seat – [for flight validation]
  + Date – [for flight validation]
  + Flight No – [for flight validation]
  + Origin – [for flight validation]
  + Destination – [for flight validation]
* Driving Licence ID card:
  + First Name – [for identity verification]
  + Last Name – [for identity verification]
  + Date of Birth – [for identity verification]
  + Face picture – [for identity verification]
  + Sex – [for identity verification]
* Lighter Images:
  + Public lighter images – [Lighter detection in carry-on baggage]
  + Test carry-on images – [ Lighter detection in carry-on baggage]

Solution:

1. Text Data Extraction -> Form Recognizer -> Boarding pass , Digital ID : Extract text within these two input data
2. Face Data Extraction -> Face API -> Digital ID , Video from kiosk : Extract human face within these two input data for authentication purposes
3. Object Detection -> Custom Vision -> Lighter images : Build a model to detect lighter in carry-on baggage

Model metrics and evaluation:

For model evaluation, different metrics such as recall, and precision will be calculated for models

**Data Flow Diagram**

Identity Verification

**First Name First Name**

Driving License

**Last Name Last Name**

**Date of Birth Seat**

Boarding Pass

**Face Picture Date**

**Sex Flight No**

A picture containing text, newspaper

Description automatically generated **Origin**

**Des**

Flight Verification

Table

Description automatically generated

**A picture containing decorated

Description automatically generated**

Boarding Kiosk Experience

30 Seconds video from kiosk

**Face Picture**

**Sentiment**

**Emotion**

**A person taking a selfie

Description automatically generated**

Lighter Images

Carry-on baggage Verification

**Public lighter images**

**Carry-on Item images**

**Architecture Diagram**

Driving License

Form Recognizer Extract required information for Identity verification

Face API Detect human face for identity verification

Boarding Pass

Form Recognizer Form Recognizer Extract required information for boarding verification

Lighter Image

Custom Vision Design a model to detect lighter in carry-on baggage

Video From Kiosk

Video Analyzer / Face API Detect human face from video and

sentiment analysis