**Problem Definition/Statement**

In person check-in process at airport is always time consuming and hassle. Is there any possibility to make this experience smooth and fast using the current cutting-edge technologies?

**1.a (What)**

Our objective in this project is to build a automated and human less process (, i.e., kiosk) with the help of using AI and Machine Learning, using which passengers can check-in fast and save time.

**1.b. Business Considerations (Why)**

Few reasons for developing this solution are as follows:

* Automation
* Use of technology to improve check-in process at airport

**1.c. Technical Considerations (How)**

Few points to follow as technical considerations to start are as follows:

* Cloud technology (e.g., Text Extraction, Computer/Custom Vision, Image Classification and Object Detection)
* Data persistence
* Scalability
* Local government/country rules/regulations

**1.d. Ethical Considerations (How)**

* **Data privacy & security**
  + As your data will be stored on Azure Cloud, you should be knowledgeable and satisfied with Azure Cloud Services' data privacy and security policies.
* **Responsible AI**
  + Building AI solutions of any kind requires responsibility and accountability. If you are bound by the local and country-specific regulations, you must follow them and keep reviewing your strategy during the life of your solution.

**Solution Strategy Walkthrough**

* When the passenger comes to the airport to check-in, the kiosk camera will record video of the passenger for face recognition and sentiment/emotion detection.
* Passenger uploads any government issued ID card (driver license/passport/green card) to establish the identity
* Passenger uploads boarding pass for flight details verification
* Baggage will be scanned to detect any availability of lighter.
* Once all the data provided is validated and verified using Azure cognitive services, a message is displayed on the screen with the validation message and the action to be taken further.

The Azure Cognitive Services and technologies used to build this project are as follows:

* **Azure Video Analyzer/Indexer**: to extract passenger face, sentiment, emotions from uploaded passenger video
* **Azure Face Services** for face detection and face recognition from the Passenger’s uploaded/scanned ID Card to verify with the person model generated using thumbnails extracted from the uploaded video.
* **Azure Form Recognizer** pre-built model to extract information from the passenger ID cards to verify Passenger’s Name, Date of Birth
* **Azure Form Recognizer** to train reading and extracting Passenger information from the uploaded/scanned boarding pass to verify Passenger Name with the name on the ID Card and flight manifest table. Also, verify all the flight details on the boarding pass with the data in the flight manifest table.
* **Azure Custom Vision** to train to identify the presence of lighter in the passenger baggage with the model precision over 75% , the probability threshold of 50% and the overlap threshold of 30%.