

## PROBLEM DESCRIPTION



Boarding process in airports is one of the most critical stages of any air travel. Passengers often have to deal with long queues, intense security checks, and cumbersome procedures to verify their documents and luggage. These factors can generate stress and discomfort and make air travel less appealing for passengers.

To address these problems, this project aims to develop a computer vision and AI-based passenger boarding kiosk that can automate and streamline the boarding process. This kiosk will allow passengers to scan their documents, validate their identity, and verify the security of their carry-on luggage, all in one place.

The kiosk will be equipped with cameras and scanners that will allow passengers to scan their ID cards and boarding passes. Once these documents are scanned, the kiosk will extract relevant information and validate it with flight information and the airline database.

To validate passengers' identity, the kiosk will take a 10-second video of the passenger's face and perform a facial validation. This process will compare the passenger's facial image with the image on their ID card and verify if the passenger's identity is valid.

Furthermore, the kiosk will also scan passengers' carry-on baggage to detect any prohibited items, such as lighters or excessive liquids. In case any prohibited item is detected, the kiosk will alert the passenger and direct them to an airline representative to resolve the issue before continuing with the boarding process.

To carry out this project, various Azure services will be used, such as the Azure Form Recognizer to extract information from boarding passes and passenger IDs, the Azure Form recognition digital ID service to extract text and image from ID cards, the Azure Video Indexer service to extract facial photos from passenger videos, and the Azure custom vision service to detect lighters in carry-on luggage.

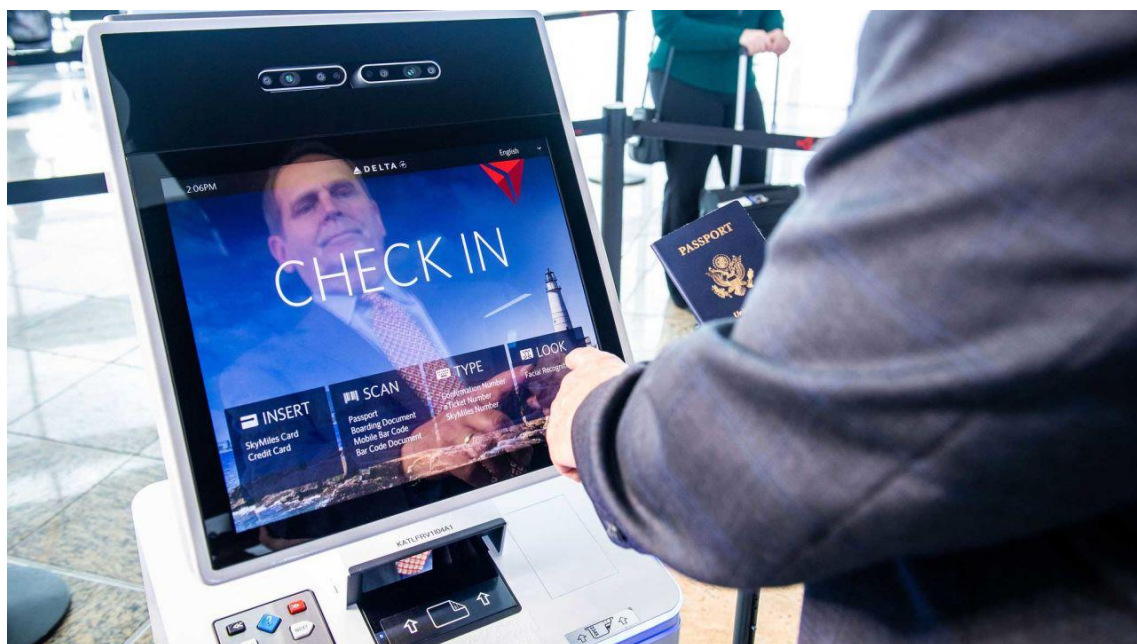
The implementation of this automated boarding kiosk can offer a series of benefits to both passengers and airlines. For example, by reducing the amount of time passengers

have to wait in queues, situations of stress and exhaustion that may arise during the boarding process can be minimized. Moreover, boarding kiosks can also help reduce the amount of personnel required to handle the boarding process, which can help lower airlines' operating costs.

Another important benefit of boarding kiosks is that they can improve security at airports. By using computer vision and AI technology to validate passengers' identity and verify the security of their carry-on luggage, the risks of security incidents at airports can be reduced, which can increase passengers' confidence in the boarding process and improve their overall airport experience.

In addition, boarding kiosks can offer greater flexibility to passengers by allowing them to board at their own schedule and pace. By being able to scan their documents and carry-on luggage in one place, passengers can avoid having to make multiple stops at the airport, which can increase their comfort and reduce their stress.

To ensure the quality and effectiveness of the boarding kiosk, it is essential to carry out a series of rigorous tests and exhaustive validation of the technology. This will include creating a passenger manifest with false information and simulating different validation scenarios to ensure that the kiosk works optimally in all circumstances.



In conclusion, the automated boarding kiosk based on computer vision and AI technology is an innovative solution that can significantly improve passengers' boarding experience at airports. By reducing waiting times and improving the security of the boarding process, this kiosk can contribute to increasing customer satisfaction and improving the efficiency and profitability of airlines. With proper implementation and

rigorous validation, this kiosk has the potential to transform the boarding process and improve the overall experience of travelers worldwide.