GORiA

Case Study

Smart City Solution

Taoyuan International Airport

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Overview

Gorilla Technology designed a host of edge AI and video analytics solutions for Taoyuan International Airport in Taiwan. This case review highlights the different edge AI products deployed and how they performed.

Taoyuan International Airport

Taoyuan is the 11th busiest airport by international passenger traffic.[1] It is Taiwan's largest international airport handling 42.3 million passengers, 1.2 million vehicles and 2.1 billion kilograms of freight annually.[2]

In 2017 Taiwan was hosting the International Universade Games as well as the World Congress on Information Technology (WCIT) event bringing in thousands of participants. Following on the heels of recent airport attacks in Belgium and Turkey, Taoyuan Airport administrators were looking to increase safety while maintaining a high-level of service to its travelers.

[1] https://aci.aero/Data-Centre/Monthly-Traffic-Data/International-Passenger-Rankings/Year-to-date/

[2] https://web.archive.org/web/20170202150722/http://www.caa.gov.tw/APFile/big5/download/ao/1485160713545.pdf

Project Goals

The Airport administration had some clear objectives when they approached Gorilla:

1. Monitor suspicious activities.

   If there was someone from a police or Interpol watchlist detected, staff needed to know immediately and track down their whereabouts.

2. Search for specific travelers.

   In addition to suspicious individuals, occasionally a passenger who checked in fails to arrive at their gate. Staff needed a way to locate them if they went missing.

3. Monitor vehicle access in restricted areas.

   Work vehicles that operate on the tarmac had a couple collisions the year before. Airplanes and supply vehicles on the runway needed to operate safely and efficiently. Likewise, vehicles needed to be identified to aid police in investigations

4. Maintain passenger satisfaction throughout the airport.

   Taoyuan staff needed to have a way to get feedback from their users that they were doing a good job throughout this increased period of security.

5. Disease Monitoring

   Staff also needed to keep track of how many people were wearing surgical masks, as large numbers may indicate an outbreak of some kind.

Environmental Challenges

The Taoyuan Airport is an expansive and large space. With the increase in passengers, ground staff and flight workers for the 2017 international events, keeping track of unauthorized access or suspicious activities was difficult.

Moreover, the surveillance system set up could record events and suspicious activities, but going through the footage to pinpoint an individual or vehicle was cumbersome and took too long. The administration needed a way to make their system more proactive, so that security could be deployed immediately when something was detected.

The system also needed to work with foreign intelligence agencies to immediately track down suspects on wanted lists and keep the entire airport safe.

Solution

Gorilla implemented several key solutions to improve the various issues at the airport.

Face Search Capabilities for Wanted Terrorists and Missing Passengers

Gorilla setup customized a video search solution so that security can instantly go through the camera footage to find a wanted suspect or a missing passenger. The system could scan large amounts of footage in under a minute across multiple camera sources.

Vehicle Tracking for Suspicious Activity

If a known criminal arrives or flees the airport, security can search through the camera footage by license number and vehicle color to discern the route taken and inform police officers.

License Recognition and GPS Tracking for Tarmac Supply Vehicles

The tarmac supply vehicles were fitted with GPS sensors to track their exact location around the runway and boarding areas. License Plate Recognition was also deployed to further verify that a vehicle is where it should be.

Tablet-based Traveler Satisfaction Surveys at Key Locations

Touch-screen tablets were placed around counters, restaurants and lavatories to gauge customer satisfaction. The results could be monitored by staff to locate any problems, and the tablets could also broadcast airportwide alerts.

Mask detection

To monitor possibility of disease and collect data on seasonal illnesses.

Results

The deployed face and vehicle recognition systems, boosted the safety of the airport, shortened response times and it even led to Taoyuan being named as the 15th best global airport.[3]

The main takeaways from the project are as follows:

50% Reduction in Response Times

Search 200,000 records / 1 min

Conclusions

The projects undertaken by Gorilla for Taoyuan Airport show that edge AI and video analytics have the power to manage high-volume, high-density environments with accuracy. These kinds of solutions can benefit security personnel and increase overall safety for travelers.

[3] https://www.worldairportawards.com/worlds-top-100-airports-2018/

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