CHECK-IN

20 Airports

90 Touchpoints

Swift passport control sways passenger satisfaction

XOVIS MEASURES SEPARATE KPIS FOR DIFFERENT GROUPS

CHALLENGE

As a typical bottleneck along the passenger journey, arrival and departure passport control can interfere with a positive passenger experience. Typically, there are various categories of passengers passing through passport control (Domestic, Crew, International etc.). As a result, a complex queueing situation may occur at passport control. Airports must find solutions to challenges such as:

- How to move passengers as swiftly as possible through passport control?
- How to measure KPIs such as waiting times for various passenger categories?
- How to get an overview of the frequently complicated queueing situation?
- How to improve coordination between all involved airport stakeholders?

SOLUTION

The Xovis Passenger Tracking System (PTS) combines ceiling-mounted Xovis 3D passenger counting and tracking sensors and the Xovis airport software to calculate and visualize the targeted KPIs at passport control. Including an automated queue detection, the system enables airports to allocate queues dynamically and separate different categories of passengers, measuring the following KPIs :

- Queue length/ wait time for Domestic, Crew, International and other groups
- Process time per passport control box and e-gate
- Process throughput for the entire passport control or parts of the site

REFERENCES

ARN	AUH	CDG	CPH	DEL
DOH	DXB	FCO	FRA	GOT
HEL	KIX	MUC	MVD	ORY
PER	SIN	SYD	UIO	VIE

Numerous ceiling-mounted Xovis 3D Sensors can be combined to cover large passport control areas.
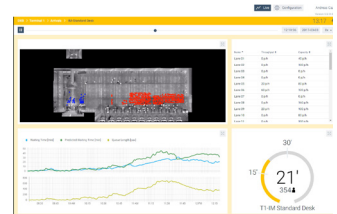
Xovis' automated queue detection allocates queues dynamically to separate different passenger categories. The Xovis dashboard shows queue lengths, waiting times and other KPIs in real-time.

BENEFITS

Xovis' unique capability to provide real-time KPIs such as queue lengths, waiting times and passenger throughput separately for different categories of passenger helps airports expedite passport control via:

- A profound understanding of the queueing situation at passport control
- Actionable real-time data to prevent queues from growing
- Robust basis for optimizing staff planning
- A tool to define the ideal number/ opening hours of passport control boxes
- Enhanced communication between stakeholders (airport, authorities etc.)
- Real-time data to improve passenger flow simulations considerably

Ultimately, a faster passport control leads to less tedious discussions between stakeholders and more satisfied passengers that are likely to spend more.

XOVIS

How does it work?

Long queues make airports look bad and frustrate passengers. Xovis provides airports with a powerful tool to move passengers more smoothly through their facilities, optimize staff and infrastructure planning and ultimately increase customer satisfaction. The combination of Xovis 3D Sensors and software solutions helps improve efficiency all over the airport and prepares the ground for innovative business models.

Counting and tracking passengers anonymously, the Xovis system combines 3D sensors with software solutions to measure the targeted KPIs in real-time. A broad portfolio of Xovis 3D Sensors with ultra-wide viewing angle accommodates the specific architectural conditions of any airport. Mounted on the ceiling, one sensor covers up to 100 m2 or 1100 sq.ft. and can be mounted from 2.2 to 30 m or 7.5 to 98 ft. high. A high-resolution 3D image, often also referred to as a stereo image, of the covered/ recorded area is calculated up to 30 times per second, providing the basis on which every person that is entering the covered area is counted and tracked anonymously.
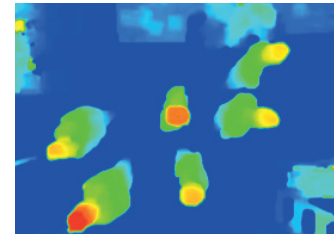
Based on the 3D images computed on the sensor, the software receives data streams from all the installed sensors, calculates and visualizes KPIs such as waiting times and passenger throughput on real-time dashboards. An unlimited number of sensors can be connected into a Multisensor

to track passengers through large areas anonymously continuously. The system also features an automated queue detection that measures waiting times only for passengers excluding staff, meeters and greeters even in unstructured, dynamic multi-queue areas.

Passengers are recognized individually even if they are standing shoulder to shoulder. Constant sample rates of 98% are guaranteed, meaning that 98% of passengers in the covered area are registered. The 3D stereo vision technology does not depend on signal-emitting devices and is highly robust against all kinds of external influences such as shadows, light changes, and heat emissions.

According to the study "Rise to Challenge – The Risks and Opportunities of Digitization for Airports," from Roland Berger, a five-minute delay for 25 percent of passengers at the security checkpoint could induce a drop in retail sales of 2 to 3 percent. People that wait more, spend less.

Power over Ethernet (PoE), combining data connection with power in one cable, and a Mean Time Between Failure (MTBF) of 25 years simplify installation/ maintenance and keep the total cost of operation low. Implementing FPGA technology, the image processing is performed on the sensor. No video stream leaves the sensors and data privacy is guaranteed. Only a constant stream of moving dots, representing the counted passengers, is sent out. Only one server is needed to run the system with up to 600 sensors. The Xovis system can easily be integrated with other software solutions. For example, waiting times can be exported automatically from the system and displayed on screens at the airport or on the airport's mobile app.

3D image computed by Xovis 3D Sensor indicating heights and distances by different colors

Xovis 3D Sensor, PC2
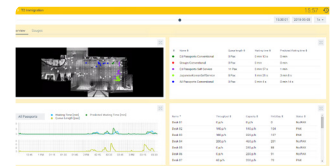
The Xovis software receives data streams from the sensors, calculates and visualizes the KPIs

Web and mobile clients of the software are also available

The data paves the way to streamline processes such as staffing