How to keep waiting times under control at security checkpoints?

XOVIS PROVIDES REAL-TIME DATA TO IMPROVE PASSENGER SATISFACTION

CHALLENGE

Waiting times can get out of control at security checkpoints. Many stakeholders – from passengers, airport operators, authorities to retailers and airlines – and interests concur at this bottleneck along the passenger journey. Balancing passenger expectations and other goals, they face challenges such as:

- How to expedite security control?
- How to measure performance of individual queues/ lanes and complete sites?
- How to improve collaboration between different stakeholders such as operation teams and government agencies?

SOLUTION

Ceiling-mounted Xovis 3D Sensors count and track all passengers at the security checkpoint anonymously. The Xovis software receives data streams from the sensors and calculates the KPIs. Providing a solid basis for discussions between all stakeholders, the gathered real-time data delivers valuable insights such as:

- Queue length/ waiting time per security queue/ lane and/ or for the entire site
- Process time for entire site, per lane/ screening point and/or for subprocesses
- Passenger arrival patterns
- Passenger outflow rates
- Overflow into other areas such as check-in based on queue detection
- Number of passengers processed

BENEFITS

The KPIs measured at security checkpoints with Xovis 3D Sensors and software solutions empower airports to identify bottlenecks, optimize processes and facilitate communication among all stakeholders:

- The organization in charge of security checkpoints can plan resources such as staff and the number of open security lanes based on accurate live data
- Passengers are consistently in the know regarding waiting times
- Stakeholders have a highly reliable tool at hand to monitor the fulfillment of Service Level Agreements, and responsibilities are consistently clarified
- The measured KPIs enable the comparison of standard and new processes at security checkpoints (e.g. automated vs. conventional screening)

Monitoring crucial KPIs and keeping passengers informed, airport operations, authorities, airlines and other stakeholders manage to balance their individual interests with the satisfaction of their common customer - the passenger.
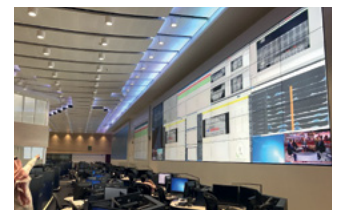
SECURITY CHECK

56 Airports

162 Touchpoints

REFERENCES

ACE	AGP	ALC	ARN	AUH
BCN	BIO	BGY	CDG	CGN
CPH	DEL	DOH	DXB	FCO
ARN	FCO	FRA	FUE	GOT
GRO	GRX	HEL	IBZ	ITM
KIX	LEI	LGW	LPA	LTN
MAD	MLA	MSP	MUC	MVD
OOL	ORY	OVD	PER	PMI
REU	SCQ	SDR	SEA	SFO
STR	SVQ	SYD	TFN	TFS
VCE	VGO	VIE	VLC	XRY
ZRH				

Numerous ceiling-mounted Xovis 3D Sensors can be combined to cover large areas

Operations teams use the data to optimize resource planning

Data such as waiting times can be exported and displayed

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.
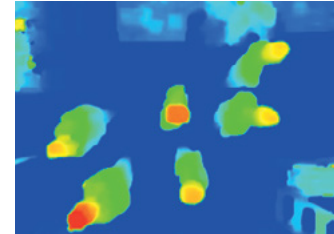
Based on the 3D images computed on the sensor, the software receives data streams from all the installed sensors, calculates and visualizes KPIs such as waiting times and passenger throughput on real-time dashboards. An unlimited number of sensors can be connected into a Multisensor to track passengers 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
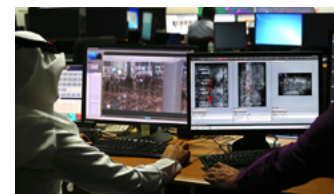

Xovis 3D Sensor, PC2

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