BATHROOMS, TAXI RANKS PEOPLE MOVERS ETC.

Taxi

11 Airports

39 Touchpoints

How Xovis helps optimize the use of assets all over the airport

3D SENSORS CONTRIBUTE TO SOLVE THE LOOMING CAPACITY CRISIS

CHALLENGE

The International Air Transport Association (IATA) expects passenger levels to almost double by 2036. Many airports are landlocked and cannot add new facilities. Instead, they must optimize existing capacities to accommodate passenger growth. A crucial element for the optimization of capacity utilization is a reliabe queue and passenger flow measurement technology that delivers insights such as:

- How does the majority of passengers get to the airport - by train, car or taxi?
- How do changes in digital signage affect passenger flows?
- Are certain areas within airports constantly overloaded with passengers?

SOLUTION

In addition to measuring queue lengths, waiting times and other KPIs at check-in, security etc., the Xovis Passenger Tracking System (PTS) is a versatile tool to balance the use of facilities and maintain a high service quality. Ceiling-mounted Xovis 3D Sensors count and track passengers anonymously, covering large areas. Many airports use Xovis' real-time alert feature to initiate measures such as:

- Passengers are redirected via digital signage in case of overflow
- Bathroom cleaning frequency is based on people counting with 3D sensors
- Queues at taxi ranks are measured, and data is shared with taxi companies

REFERENCES

AUH	CDG	CGN	FRA	JFK
LGW	MLA	MUC	SYD	VIE
ZRH				

Xovis 3D Sensors count and track passengers anonymously through large areas.

Airports use the alert function of Xovis PTS to control the use of assets. For example, an escalator can be slowed down based on the measured fill level, preventing an overflow situation.

BENEFITS

The Xovis Passenger Tracking System (PTS) is one system for all purposes. Its accurate real-time data is the fundament to accommodate fast growth without having to add new facilities. Airports and passengers benefit in many ways:

- Comprehensive passenger flow management based on measured data
- Balanced use of infrastructure, which can help avoid costly investments
- High service level - a key determinant for passenger satisfaction
- A database for the collaboration with taxi companies, cleaning companies etc.
- Reliable data to enhance passenger flow simulation models considerably

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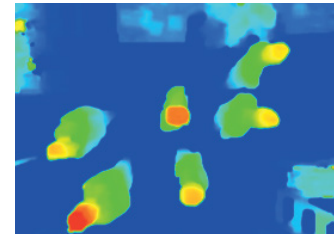
Based on the 3D images computed on the sensor, the software receives data streams from all the installed sensors, calculates and visualizes KPIs such as waiting times and passenger throughput on real-time dashboards. An unlimited number of sensors can be connected into a Multisensor

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.

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.

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
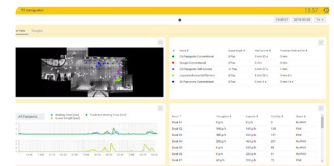
The Xovis software receives data streams from the sensors, calculates and visualizes the KPIs

Web and mobile clients of the software are also available

The data paves the way to streamline processes such as staffing