Reducing fare evasion at public transport accesses.

Axis network cameras combined with a video analytics application to automatically detect fare dodgers.

Organization:
Ferrocarrils de la Generalitat de Catalunya (FGC)

Location:
Barcelona, Spain

Industry segment:
Transportation

Application:
Fraud prevention

Axis partner:
AWAAIT

Mission

Commuter and regional train operator Ferrocarrils de la Generalitat de Catalunya, FGC is a company that belongs to the Government of Catalonia and operates several train routes. FGC wants to minimize the number of people who do not pay to use this public transport, while also reducing the number of spot ticket inspections of paying passengers.

Solution

AWAAIT, a company that develops innovative solutions, is fine-tuning DETECTOR, the technology it has devised to reduce fare evasion (a.k.a. fare dodging) on public transport systems. DETECTOR combines video analysis using Artificial Intelligence with a mobile application to enable inspectors to identify people who enter the transport network without paying.

Result

Implementing DETECTOR led to a significant reduction in fare evasion for FGC. The system allows inspections to be carried out very selectively and efficiently, which reduces the need for random ticket inspections of paying passengers and consequently results in higher passenger satisfaction.

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"A radical forward move in ticket inspection technology that has allowed us to step up our fight against fare evasion."

Mr. Oriol Juncadella, Director FGC-Operator.

Tailgating

Fare dodging is not a new problem. It is an offence committed by some that angers the many who have legitimately paid for their ticket. Ferrocarrils de la Generalitat de Catalunya (FGC) and AWAAIT, a company that specializes in applied AI and an Axis partner, have successfully developed a real-time detection and alert system that has a strong deterrent effect against fare dodging on public transport.

DETECTOR is a support tool for inspectors that dramatically reduces attempts at fare dodging. DETECTOR generates real-time alarms that are sent to transport inspectors so that they can intercept suspects and check if they have a valid ticket.

The initial objective of this technology is to detect anyone who does not use a ticket to access the platform at station entrances. The perpetrators usually go quickly through the barrier just behind someone who has used a ticket in the short time that the barrier remains open for safety reasons, a practice known as tailgating.

Real-time detection

The DETECTOR system comprises an AXIS P3224-V MKII camera connected to a local computer that supervises the barrier area using AI algorithms and that generates an image sequence alert when it detects a potential fare dodger. This graphic warning is automatically and immediately sent to an inspector's mobile device so that suspected offenders can be intercepted before they reach the platform and check if they have a valid ticket or pass.

The DETECTOR management tool provides real-time passenger flow and ticket evasion statistics, offers follow-up of interventions, and, in the future, will generate recommended inspection itineraries to optimise the effect of ticket checks. The system facilitates cooperation between several teams of inspectors, who can be deployed and efficiently coordinated in a wide range of stations. AWAAIT is fine-tuning analysis modules to provide real-time alerts of vandalism in the visual field covered by its cameras.

Deployment of a pioneering project

Implementing this system has led to a reduction in fare dodging on FGC, which was already initally low. As a selective inspection system, which enables checks to be carried out only on people who are suspected of committing an offence (fare dodging), it is advantageous for passengers who do pay, who see that they are not spot checked and they do not have to stop to show their ticket.

This project received financing from the European Union under the H2020 programme (SME-Instrument). It was also a finalist in the UITP (International Association of Public Transport) global awards in the 'Technical and operational excellence' category in 2015.

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de la Generalitat
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