



CASE HISTORY

AMT Genova Spa

The Future of Urban Mobility: AI Integration in Public Elevators



Constrained by the sea and the Apennines, Genoa extends in an often uneven layout along the ridges surrounding the historic Old Port and across the slopes of the Bisagno and Polcevera valleys. It is a 'vertical city' where narrow streets and traditional pedestrian *crêuze* climb through neighborhoods built into the hillsides. Consequently, between the early 1900s and the early 2000s, many public elevators and funiculars were built, becoming an essential daily transport mode for thousands of passengers.

This comprehensive vertical mobility system stands as an ingenious example of transport engineering, continually evolving through the integration of innovative technologies.

Among these, the implementation of video analytics algorithms for real-time passenger counting inside the cabins marks a true industry first.

Video Analytics for automated Passenger Counting

This system is powered by Aitek's AiVu video analytics platform and employs advanced deep learning techniques to process images from the camera monitoring the elevator car. By counting passengers in real time for every journey, it provides critical data to enhance both operational safety and efficiency.

To minimize the impact on infrastructure and safeguard AMT's investments in remote control systems, the counting solution operational across most city elevators (including **via Montello, piazza Manin, Villa Scassi, via Dino Col, Bolzaneto, Castelletto Levante, Castelletto Ponente, via Bari, Ponte Monumentale, and Quezzi**) utilizes existing cameras. This avoids the need to install additional equipment in the confined space of the elevator cabins.

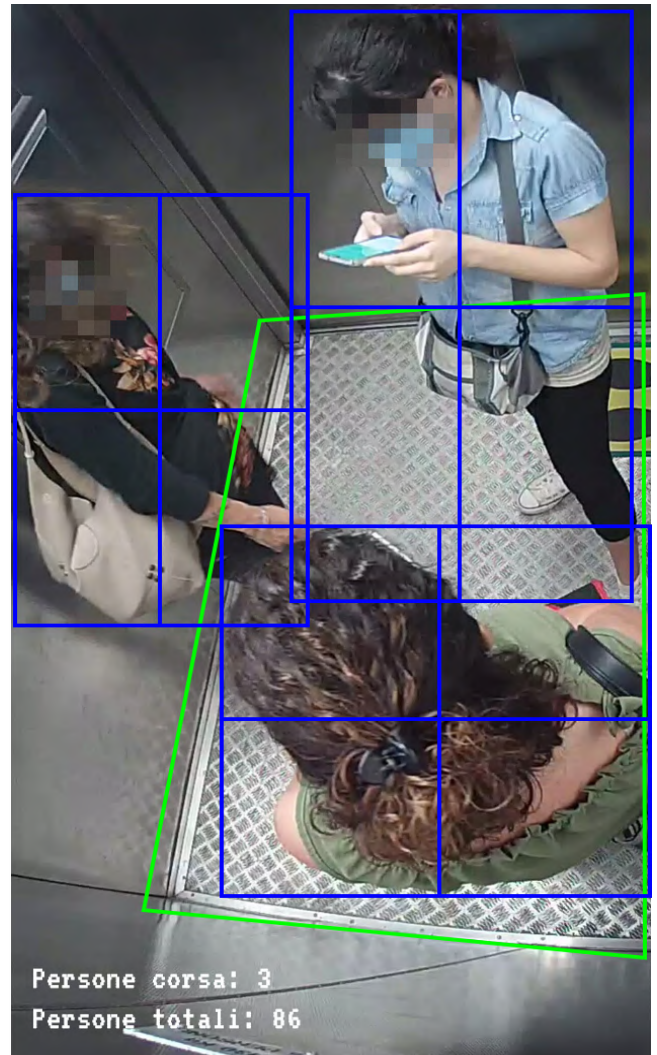
Live streams are processed in real time by video analytics software based on deep learning, an AI technique where algorithms learn from experience and extract information from visual data. Specifically, neural networks are trained to accurately detect and count passengers within the cabins.

As the name suggests, neural networks are engineered to mimic the human brain. The network trained for counting performs much like a human operator, monitoring the entire cabin to record passenger numbers.

Furthermore, the neural network's performance improves with experience: as the number of events – or elevator ride – increases over time, the system achieves exceptionally high detection reliability.

Operationally, the system activates every time the doors close and a run begins. The algorithm processes the images to detect people in the cabin; once the run is completed, the headcount is automatically sent to AMT's management software. These systems use the data to process statistics on total passenger numbers, average occupancy per run, peak usage hours, and other key metrics.

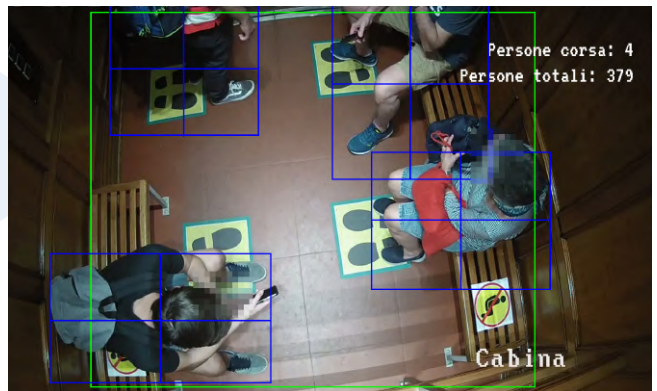
The system is fully compliant with current regulations governing video surveillance and privacy protection on public transport. No personal identification is performed and all processing remains on-site, as only the resulting counts are exported.



A cutting-edge solution

Thanks to the AiVu platform and the twenty-year technological partnership between AMT Genova and Aitek, the city's entire network of special transport systems is now equipped with a cutting-edge AI system for automated passenger counting.

This tool enables service optimization and ensures the highest standards of quality and safety, in line with the mobility and innovation needs of a public transport service designed for smart cities.



NOTE: the interior cabin images are shown only for the publication of this article. In operational use, the counting system does not store footage or make it available for later access.

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