

INFODEV

Electronic Designers International



THE NEW DATA PARADIGM

AI-BASED COUNTING AND DETECTION

For Transit Vehicles, Stations and Buildings



INFODEV, THE LEADING PROVEN TECHNOLOGY



In operation since 1993, Infodev EDI is a world leader in direct counting data accuracy in the Automatic People and Passenger Counting Systems industry. As a turnkey supplier, we collaborate with public transport agencies, operators, integrators, and vehicle builders. Our headquarters and production facility are located in Quebec City, Canada, with regional offices in the USA and Europe.

The company is renowned for its reliable technology and dedicated team of professionals. Infodev EDI has conducted nine years of research in artificial intelligence (AI) and leveraged its extensive knowledge of automatic passenger counting to develop its fourth generation of counting technology: an anonymous, high-performance camera-based AI system.

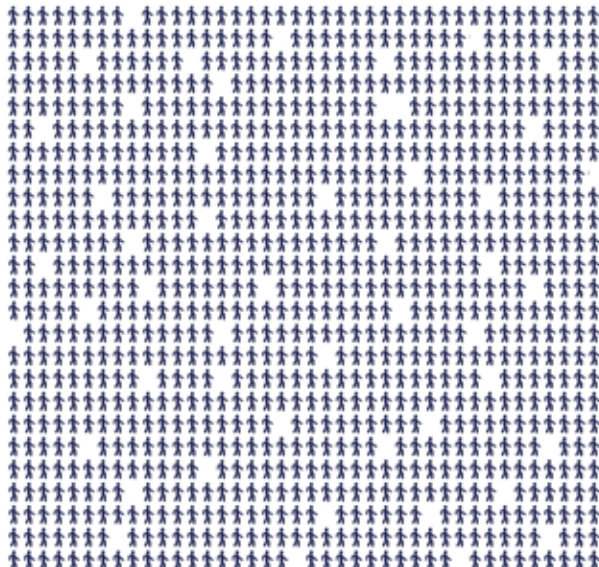
With this innovative AI-based technology, we are now achieving accuracy levels exceeding 99.8% in busy transit situations.

AI-BASED COUNTING COUNTING, DETECTION & TRACKING

Infodev's advanced technology is changing the game for transit agencies, offering a holistic view of ridership data that goes beyond basic passenger counts. With access to qualitative metrics and insights into passenger behavior, agencies can optimize their services and improve the overall travel experience. This innovative system is the future of transit data.

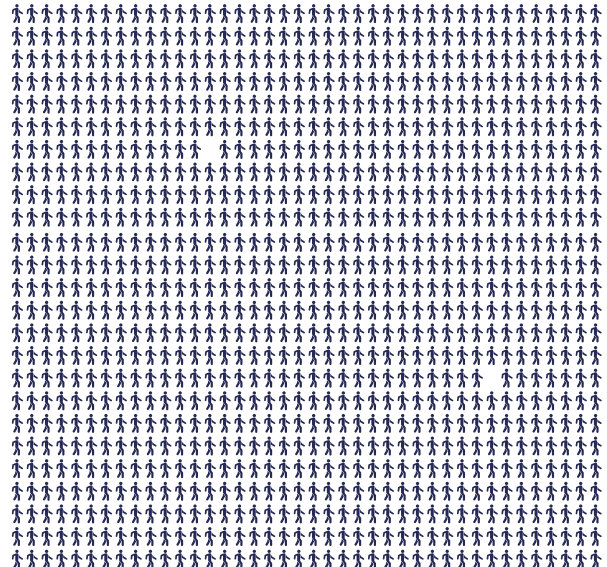
WHAT 95% ACCURACY LOOKS LIKE

You deserve 25X times better.

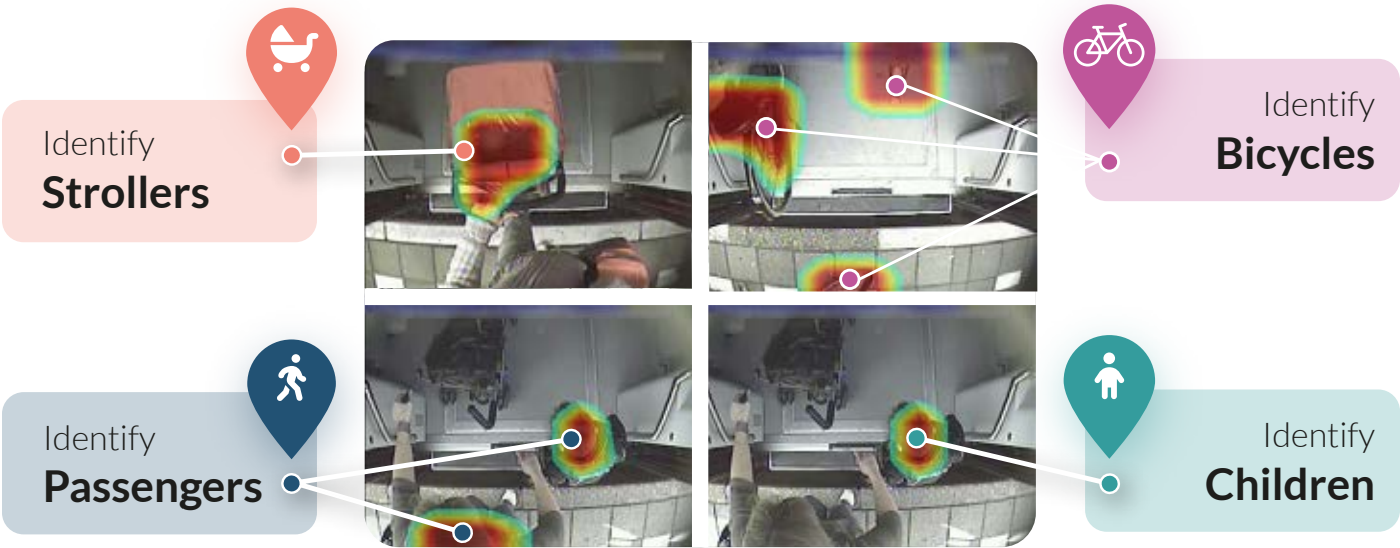


WHAT 99.8% ACCURACY LOOKS LIKE

Infodev's accuracy with its AI-based APC









AUGMENTED APC
COUNTING MORE THAN PASSENGERS



KEY FEATURES AND POSSIBILITIES

Grasping the possibilities and features of all that can be offered with this new technology can be at times hard to grasp. Here's a quick preview of its key features.

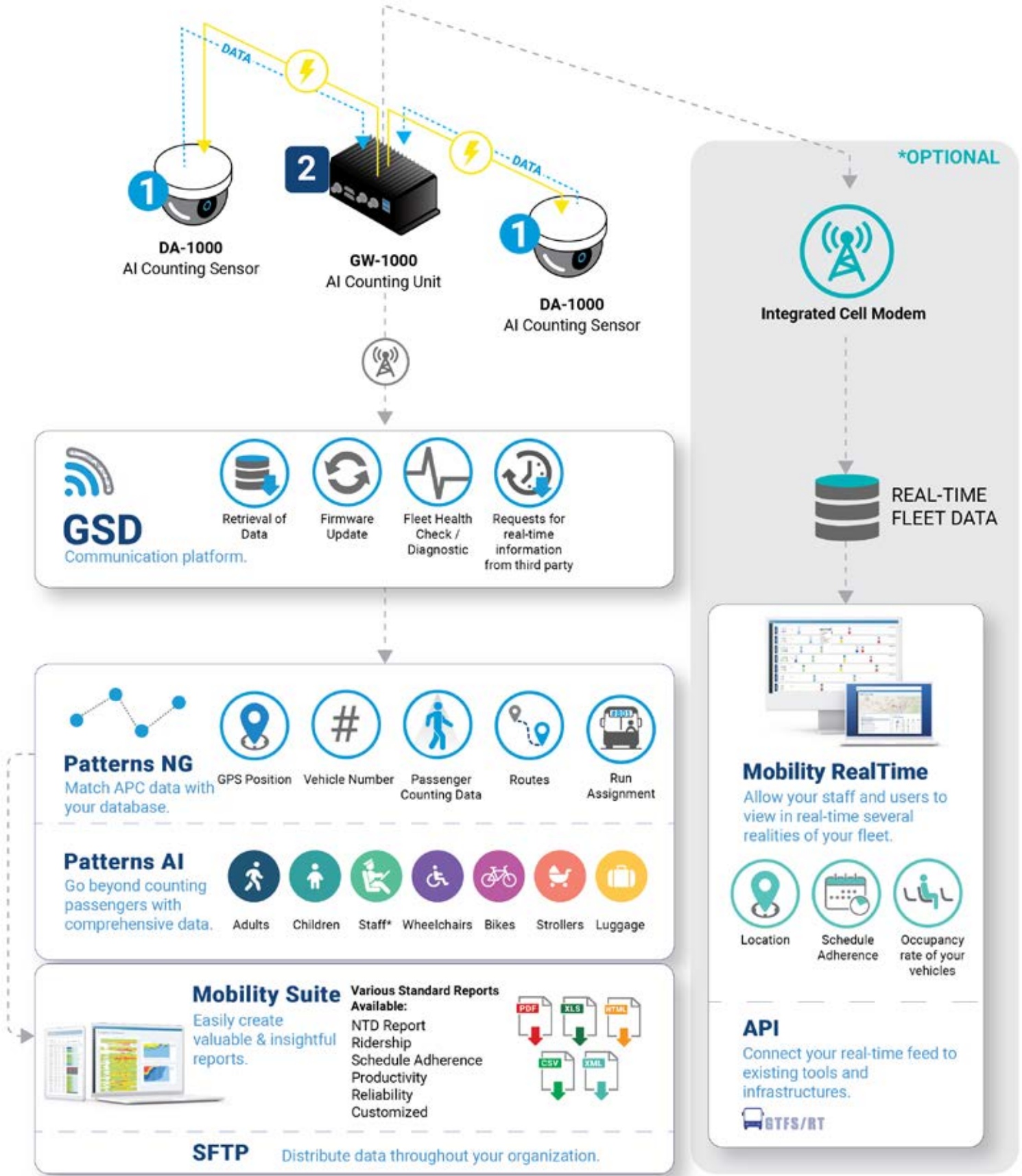
				
COUNTING	ACCURACY	BROADCAST	DETECTION	PRIVACY
Passengers	High Accuracy Level of >99.8% ³ Achieved	 GTFS/RT Real time	Seat and Space Occupancy	GDPR Compliant
Children	No Cumulative Load Error ⁴	API	Specific Items (PPE, Safety Vest, Uniforms, ...)	No Facial Recognition
Objects ¹	True Zero Load Reset Capability ⁴			

Instant Load/
Occupancy^{2, 4}

¹ - Objects commonly seen in transit vehicles such as bicycles, backpacks, strollers, etc.
² - Does not need the Ins and Outs to calculate load
³ - Based on recent installations. May vary on vehicle type, installation, etc.
⁴ - Depends on vehicle layout and system implementation



AI-BASED APC SYSTEM DIAGRAM

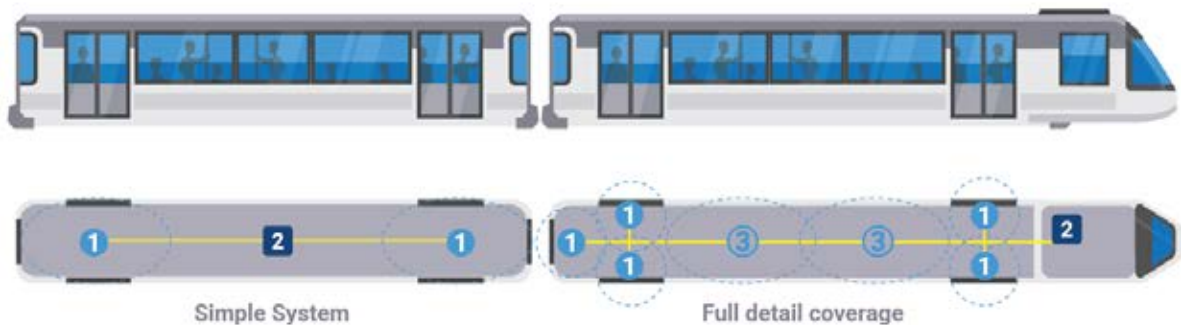


TYPICAL INSTALLATION

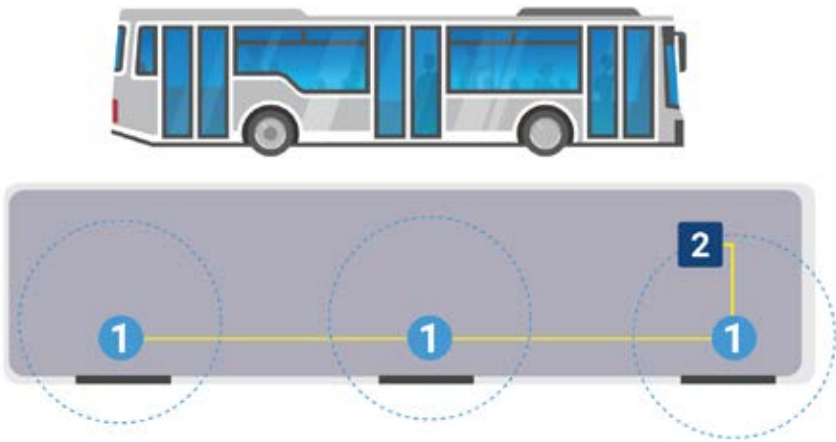
Installation of our AI-Based APC solution is very similar to our typical sensor-based APC installations. We offer two topologies: the regular with only sensors DA-1000 at the entrance for counting and detection, the advanced one with additional sensors inside the vehicle for additional seat management and passenger flow capacities.

A typical topology is shown to demonstrate the general implementation of the product.
The specific installation and layout will vary between projects and vehicle models.

RAIL TOPOLOGY



BUS TOPOLOGY



EQUIPMENT

DA-1000
AI Counting Sensor

GW-1000
AI Counting Unit
Built-in GPS, cellular modem & TCPIP

DA-1000 *
Optional for
Passenger Flow & Seat Management

Approximate field of view



AI-APC DATA MEETS TRANSIT BUSINESS INTELLIGENCE

Our AI-APC systems provide both historical and real-time data. Historical data is perfect for analysis and reporting, while real-time data empowers you to improve service and enhance passenger experience.



HISTORICAL DATA



Accurately track ridership over time.



Create accurate annual ridership reporting.



Get precise metrics on passenger profiles



REAL-TIME DATA



Communicate vehicle occupancy and location to passengers.



Track service on-time performance and share vehicle status with users.



Monitor vehicle positions to identify bus bunching.

From Granular to Macro Data



Temporal

Year
Season
Month
Week
Day of the week
Time period



Geographical

Division
Route
Direction
Trip
Every stop



Logistic

Mode
Service type

CONNECT WITH EXISTING TOOLS

Use Infodev API to access your APC data into existing software and apps.

Infodev EDI's API simplifies the software integration while providing highly accurate results adjusted to transit schedules and overall operations.

Using our API means easy access to all the necessary data to create beautiful and user-friendly apps for users from operations employees to transit passengers.



On-time
Performance



Passenger
Mile



Sensors
Status



Schedule Adherence & Operations

Analyze your schedule adherence, productivity, and maintenance needs.



Passenger per
Revenue Hour



Time
Deviation



Bus
Bunching



Ridership & Occupancy

Calculate your ridership and occupancy levels.



Ins-Outs
(Ons-Offs)



Average
Ridership



Overcrowding
Detection



Total
Ridership



Occupancy
Levels



Seat per Seat
Occupation*



Governmental Ridership Reporting

Transit agencies and operators worldwide are increasingly relying on our APC data for Governmental Ridership Reporting.

Automatically collected and processed ridership data makes your reporting effortless.



NTD

For our USA clients, our data is qualified for NTD reporting.

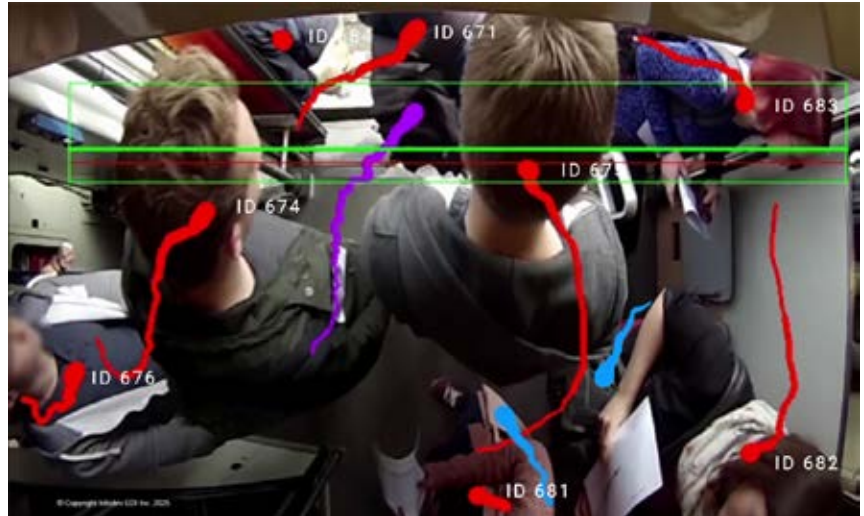
* When the whole vehicle is covered by our DA-1000.

FLOW

PASSENGERS & OBJECTS

From the moment our systems detect and classify a passenger, a child, or an object, it tracks it until it quits its field of view. Here are a few possibilities that this feature can enable:

- Double-back and re-entry detection;
- Analyze the direction in which the passenger is headed (left, right, ...);
- Detection and alert when there is a security issue in a predetermined zone;
- Automatic door detection capabilities;
- Fare evasion detection.



SEAT & SPACE OCCUPANCY FOR PEOPLE & OBJECTS

Our technology enables real-time monitoring of seat availability and car occupancy. Designed with passenger comfort in mind, this new technology provides operators with valuable insights into transit usage patterns, allowing for better management of resources and improved service quality. This information can be transmitted in real time, and displayed on screens.



WHAT CAN BE COUNTED & DETECTED

Our solution is capable of counting, detecting, and tracking visible elements that occurs frequently in a transit environment. Typically, our system does not require additional training to recognize humans and common objects, meaning it is ready to be deployed right away with ease.

OBJECT DETECTION



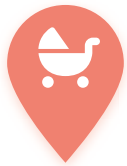
WHEELCHAIRS

Counting wheelchairs on public transit is essential to provide accessible and inclusive transportation for people with mobility challenges. By accurately tracking wheelchair counts, transit agencies can ensure that vehicles are equipped with sufficient space, ramps, and securement mechanisms, thus guaranteeing the safety and convenience of passengers with disabilities.



BICYCLES

Counting bicycles on public transit vehicles is a practical and data-driven approach to managing the coexistence of cyclists and traditional transit passengers, promoting sustainable transportation options, and making informed decisions about infrastructure and policy improvements.



STROLLERS

By tracking stroller counts, transit authorities can allocate appropriate space and facilities, minimizing congestion and potential hazards. This data-driven approach also aids in tailoring services and designing transit systems that cater to the diverse needs of families and caregivers traveling with young children.



BACKPACKS, HANDBAGS AND LUGGAGE

Valuable for optimizing passenger flow and safety. By monitoring the number of these items, transit authorities can plan for sufficient storage space, preventing overcrowding and potential obstructions in the aisles.



OTHER SMALL ITEMS

With our advanced tracking technology, we can adjust the detection parameters to match your transit needs and easily monitor visible items such as key cards or even coffee cups. Contact our team to learn more about the possibilities.



WHAT CAN BE COUNTED & DETECTED

PEOPLE DETECTION



PASSENGERS

Very accurate counting and detection of adult and children passengers.



CHILDREN

Combining children statistics with strollers statistics can inform how your service is used and its performance for families on specific lines, routes or even time of day.

Moreover, in case of emergencies or accidents involving public transit vehicles, an accurate count of passengers, including children, is valuable information for emergency responders to assess the situation and provide assistance.



STAFF

As an optional capability, the system can detect and exclude transit staff from ridership counts when they have identifiable characteristics such as a uniform or safety vest.

INFORMATION RESULTS

Adding information about passengers and objects can help you gain an in-depth understanding of **the profile of passengers using your service, when and how they are using it**. Our Mobility suite provides this new data, which can be accessed through our traditional data output or **through custom reports**.

- Ins, outs and, position at every second
- Quantity of each category for each stop/station
- Occupancy levels
- Ridership Reporting
- GTFS Data

REAL-TIME FLEET STATUS

Adult

Child

Wheelchair

Bike

Strollers

Backpack

Time

Vehicle

TimeStatus

Route

Direction

InfoSource

Occupancy Status

Occupancy

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Example of Real-Time Fleet Status Report with AI-APC data

FAQS



CAN IT BE USED FOR MY NTD/RIDERSHIP REPORTING?

Infodev typically provide a technical engineering report on the accuracy of the APC system in revenue service as part of its standard offer. This package has been used by transit agencies in the past to obtain NTD certification quickly and include evidence to support the NTD certification acceptance process.



CAN IT SENDS DATA IN REAL TIME?

We can definitely provide real-time counts without compromising on privacy. Our system operates in a closed loop and only sends essential data, not images or videos.



IS IT COMPATIBLE WITH MY EXISTING BACK-END ARCHITECTURE?

Yes, whether you are using Infodev or another technology, we can provide APIs, FTPs, and other interfaces. If you currently have Infodev's technology installed, the efforts to add this new data feed into your existing system should be minimal.



CAN WE USE EXISTING CAMERAS OR CCTV SYSTEMS?

Infodev's solution is specifically designed for high performance even in crowded environments, unlike regular CCTV cameras, which were not intended for this purpose. Compatibility with existing CCTV systems needs to be analyzed on a case-by-case basis for medium to large systems.



CAN IT BE USED FOR CCTV?

Yes, it is possible. We have various possibilities depending on client needs.



CAN IT TRACKS ADDITIONAL ITEMS?

Yes, and we invite you to contact our team to let us know your potential needs.



DOES IT NEED CALIBRATION?

Infodev's unique technology does not require any complex calibration nor periodic costly calibration after it is installed. Our technology allows for greater flexibility in location and eliminates the need for height parametrization to provide a simple bolt-on deployment with minimal time.



IS IT ONLY FOR TRANSIT VEHICLES?

This technology can be placed in gates and turnstiles to monitor and count.



HOW CAN I GET ONE?

This technology is now deployed commercially. To schedule a technical presentation and discuss your specific goals and needs, reach out to our sales team.



› **50**
COUNTRIES

› **450**
CLIENTS

› **30**
YEARS OF
EXPERIENCE

Contact us

Infodev EDI head office is located in Quebec City, Canada, with a regional office in USA and Europe. Don't hesitate to contact us for more information regarding our technology and most recent achievements.



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