INFODEV
Electronic Designers International

KEEP TRACK OF WHAT MATTERS

AUTOMATIC PASSENGER COUNTING SOLUTIONS

For Buses, Trains, Trams, Subways, Platform Doors and Stations

INFODEV offers a complete Automatic Passenger Counting solution for public transport agencies, integrators, operators and builders.

INFODEV, THE LEADING PROVEN TECHNOLOGY

- Ridership
- Ins & Outs
- Historic Data
- Real-Time Data
- Bus Location
- Train Location
- Energy Analyzer

In operation since 1993, Infodev EDI is the world's leader when it comes to direct counting data accuracy in the industry of Automatic People and Passenger Counting Systems. Infodev EDI is a turnkey supplier working with public transport agencies, integrators, operators and vehicle builders. Our headquarters and production facility are located in Quebec City, Canada with a regional office in Europe.

Infodev EDI is renowned for its cutting-edge technology and dedicated team of professionals. **Infodev EDI's Automatic Passenger Counting systems have achieved many times a verified counting accuracy between 97.5% and 99.5% in trains and buses without the application of any correction factors.** Infodev EDI sensors are integrated in an ultracompact, only 13.5 millimeters to 17 millimeters thick, aluminum bar. Infodev EDI offers TCPIP/PoE and high-performance wireless technologies, thus keeping all antennas inside the vehicles and eliminating a significant amount of costly cabling in the vehicles. **The end result is a high-accuracy, independent or fully integrated, lightweight, rapidly installed and easily maintained Automatic Passenger Counting system.**

New and exciting technologies are currently emerging in Infodev EDI's Innovation Labs. Contact our sales team today to learn more.

TRUSTED BY:

porterbrook

Thameslink Great Northern

SEPTA

SIEMENS

ALSTOM

crosscountry

NEW FLYER

icomera

中国中车 CRRC

And many more...

INFODEV POSSESSES A CUTTING-EDGE EXPERTISE IN ALL THESE SPECIALTIES:

SERVICES

PROJECT MANAGEMENT

INSTALLATION

TECHNICAL SUPPORT

TRAINING

PRODUCT DESIGN, DEVELOPMENT AND PRODUCTION

ELECTRONICS

OPTICS

MECHANICS

FIRMWARE

APPLICATION SOFTWARE

PLANNING YOUR FUTURE AUTOMATIC PASSENGER COUNTING (APC) SYSTEM

The acquisition, installation and commissioning of a new Automatic Passenger Counting system requires effective preparation and supervision. Infodev EDI's dedicated and knowledgeable staff will gladly assist you with the design and implementation of your project and provide you with successful outcomes. In the early stage of a new project, they can help you to:

Step 1
Survey and study the physical particularities of your vehicles and infrastructure;

Step 2
Plan your APC related IT systems, interfaces and reports;

Step 3
Develop a budget and a schedule;

Step 4
Review applicable standards.

APC Data Meets Transit Business Intelligence

Our APC systems provides two types of data, depending on the system architecture you select. With Classical APC system you get Historical Data, perfect for analysis and reporting. With a bonified APC system, you get Real-Time Data which empowers you to improve your passengers experience.

From Granulary 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

HISTORICAL DATA

Accurately track ridership over time.

Create accurate annual ridership reporting.

Provide actionable information to decision makers.

REAL-TIME DATA

Communicate vehicle occupancy and location to passengers.

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

Monitor vehicle positions to identify bus bunching.

CONNECT WITH EXISTING TOOLS

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

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

This means an 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

Bus Bunching

Time Deviation

Schedule Adherence & Operations

Analyze your schedule adherence, productivity and maintenance needs.

Passenger per Revenue Hour

Sensors Status

Passenger Mile

Ridership & Occupancy

Calculate your ridership and occupancy levels

Ins-Outs (Ons-Offs)

Average Ridership

Overcrowding Detection

Total Ridership

Occupancy Levels

Governmental Ridership Reporting

Our APC data is increasinlgly used by transit agencies and operators over the world for Gouvernmental Ridership Reporting.

Automatically collected and processed ridership data makes your reporting effortless.

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

AIMING TOWARDS SUSTAINABILITY

DATA PROVIDED BY OUR SYSTEMS

Occupancy Rate (%)

Maximize the occupancy rate of the roads so that the GH emissions per passenger ratio is as low as possible.

Ridership

Optimize routes based on accurate ridership.

Bus Bunching

Maximize the time spent ont the road and the occupancy rate of each vehicle.

Run Time

Calculate the time spent on the road by vehicles to minimize their GES emission rate.

Energy Consumption

Combine ridership data with vehicle energy consumption.

HOW APC DATA CAN SUPPORT YOUR SUSTAINABILIY INITIATIVES

Reduce GHG emission per passenger mile/ km travelled

- Correlate emission reduction to ridership, schedule adherence, day period, reserved lanes, etc.
- Adress under performing routes to reduce overall emissions.
- Evaluate the impacts and effectiveness of pilot projects (express routes)

Hydrogen & Electric Buses Implementation

- Evaluate which routes are optimal for electric vehicles VS low-emission VS your current fleet.

KEY ADVANTAGES OF OUR APC

No minimum height required for installation.

Sensors cover the entire door's width and are installed directly above the gap.

No lateral or frontal obstruction of the field of view even in high density period.

Unaffected by light sources or speed of passage.

ACCURACY RESULTS

No correction, uncertain counts, profiling, tempering or statistical manipulation applied to the data. ** Real data from various customers between 2008 and 2017.*

TYPE	MANUAL COUNT	INFODEV ACCURACY
Bus	15.554	**99.13%**
Train	2.236	**98.03%**
Bus	1.349	**98.37%**
Bus	4.942	**97.98%**
Train	2.652	**98.11%**
Bus	12.019	**98.23%**
Bus	3.947	**98.91%**
Train	1.830	**98.31%**
Train	9.958	**99.24%**
Train	3.148	**97.68%**
Train	4.579	**98.61%**
Train	11.588	**98.02%**
Train	7.272	**99.29%**
TOTAL:	**81.074**	**98.46 %**

OUR PASSENGER COUNTING SOLUTIONS

ACCURATE AND RELIABLE

- **Accuracy between 97.5% and 99.5% has been proven many times,** provided by unique electro-optical technology that requires no correction factors (ex.: seasonal, per sensor, etc.)
- High-definition sensors that do not count small objects
- Counting data independent of passenger and luggage weight, for each station or stop and for any given period or specific time
- Simple and easy online access to application software, data and customized counting reports
- Certification of counting accuracy using integrated video camera recording
- From single components to all-inclusive fixed price projects

INFODEV'S PASSENGER COUNTING SYSTEMS: DESIGNED TO BENEFIT OUR CLIENTS IN EVERY WAY

Factory Calibrated Sensor Assemblies

Do not require any costly and time consuming recurring manual recalibration or data profiling.

Discreet & Aesthetic

Low thickness, allowing for a customized finish that can be easily integrated with the train's interior fittings.

Modular, Flexible & Simple Architecture

Installation on any vehicle door configuration with minimal cabling.

Low Maintenance

Effortless and simple, so you can invest your money elsewhere.

Quick & Easy Installation

Ingenious "bolt-on design" that allows for surface or recessed mounting of the counting system.

Compact Passenger Counting Computers

Hidden behind the vehicle's inside panels or easily surface-mounted inside the vehicle.

Optical Door Detection

No interface with door opening systems required.

Standalone or Fully Integrated Systems

Infodev EDI's equipment installed in the vehicle can operate independently of other on-board equipment or easily interfaced with it.

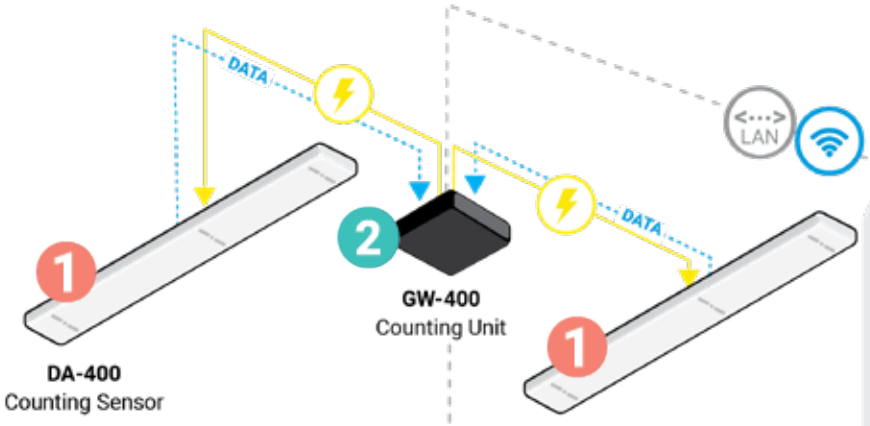
From Basic to Complete Software Portfolio

Software and web apps developed in-house by our team of experts.

Antennas Installed Inside the Vehicle

High sensitivity GPS modules and high performance RF modems eliminate complications related to outside antennas.

APC SYSTEM DIAGRAM



*OPTIONAL

RTL
Real-Time Load Unit

Retrieval at fixed interval and every stop.

REAL-TIME FLEET DATA

GSD
Communication platform

- Retrieval of Data
- Firmware Update
- Fleet Health Check / Diagnostic
- Requests for real-time information from third party

Patterns NG
Match the counting data with your data base

- GPS Position
- Vehicle Number
- Passenger Counting Data
- Routes
- Run Assignment

Visual Fleet
Allows your staff and users to view in real-time several realities of your fleet.

- Location
- Schedule Adherence
- Occupancy rate of your vehicles

WebReports
Easily Create Valuable & Insightful Reports

Various Standard Reports Available:
- Ridership
- Schedule Adherence
- Productivity
- Reliability
- Customized

COUNTING SENSORS

DA-400 SERIES

Infodev EDI's unique electro-optical technology uses an intelligent digital signal processing algorithm to accurately count passengers boarding and alighting public transit vehicles.

Our sensors uses their own invisible light source, in such a way that they are not affected by environmental conditions, nor by speed of passage or passengers standing idly under the sensor.

Once installed, our highly accurate sensors and system parameters do not require any costly post-processing on counts, data adjustment or correction factors commonly seen with other counting technologies used to enhance the system accuracy, making the cost of ownership very low. A diagnostic LED is also integrated within the sensors to report any problems.

The sensors special design can be easily adapted for quick surface mounting or inside panel placement on the overhead door panel. This type of installation gives the maintenance team easy access to the sensors for servicing.

The counting data produced by our sensors are associated with specific doors, time and location of every stop. This detailed combined data makes it possible to generate customized and very specific reports that provide a strong base for profitable decisions.

- Wide beams covering the door's entrance;
- No blind spots;
- Classic colors selection or color matched to the overhead panel; ○ ● ◐ (?)
- Length of the bar and number of integrated sensor elements depends on door width;
  250 mm, 420 mm, 673 mm, 800 mm
- 15 mm to 17 mm thick
- Integrated optical door detection;
- Industry Standard Certifications.

DA-400 - recess model - 250 mm

GW SERIES

GATEWAY COUNTING COMPUTERS

These compact on-board counting computers are fully autonomous or can be easily connected to other existing on-board computers. They are installed inside the vehicles. The built-in power supply can adapt to a wide range of voltages.

At each stop or station, the Gateways receive the signals from the DA-400 and transform them into counting data. The data is then stored in the Gateway's memory until it receives a download command. The data is usually transferred via a wireless module (or GSM or LAN) directly to the ground data analysis server or on-board computer. This saves on cabling costs and installation time.

The compact Gateways are easily hidden behind the vehicle's inside panels.

Communication Options

- Ethernet-LAN/PoE;
- 802.11 b/g;
- Cellular GPRS/GSM;
- WiFi ;
- Wireless long-range, multi-car;
- Serial RS-485/RS-232;
- Underground localisation system;
- Other options available.

GW-400 for Buses

GW-400 for Rail

THE NEW GENERATION OF DETECTION

AI Based Counting & Seat Management.

Answer Common Questions From your Passengers

Are there any seats available?

Is the compartment full?

Is there any space left for luggage?

Which door should the user be boarding from?

How many people are in each vehicle and each compartment?

Are there a lot of users with bikes using the service?

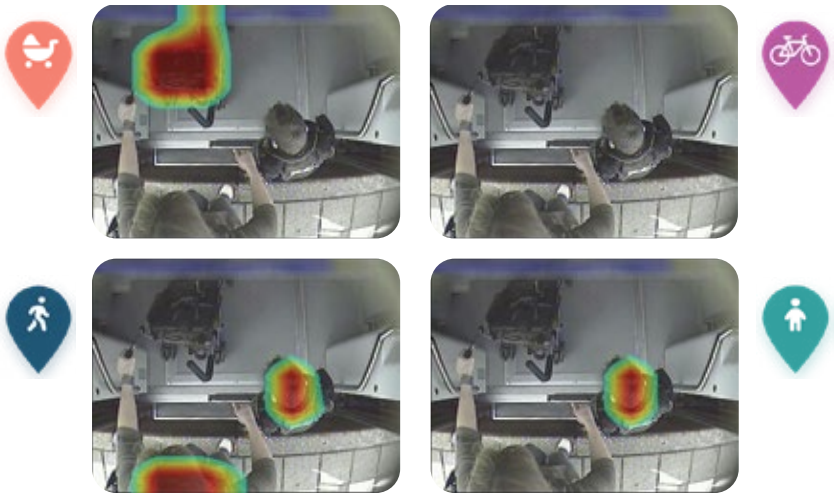
Introduction

Infodev EDI is proud to present its new detection technology; AIIIM®. Based on AI technology, **our new system combines our proven APC algorithms with an advanced AI approach, putting Infodev's at the forefront of innovation.**

Infodev technology captures multiple images of each train, bus or vehicle compartments, and it does so every second. Those images are processed and analyzed in real time with Infodev A.I. based detection algorithms to **measure the number of passengers standing, the number of free seats available and also to detect objects**, such as luggage. This is realized for every compartment or vehicle.

Our real time counting data is highly valuable for both your passengers and your crew, while our counting historic data is a must for planning your operations.

With AIIIM®, you can access valuable information you need in order to make appropriate decisions for your operations.



SOFTWARE & APPS
OVERVIEW

in:soft RESEARCH INC.

WebReports NG

Efficiently Create Valuable & Insightful Reports:

A powerful and flexible web reporting tool that will provide detailed presentations of transit operations. Tables and graphs are used to analyze and forecast the counting data and schedule adherence. In addition, it gives access to a wide variety of performance reports (KPIs) specially designed in collaboration with experts and clients through the years.

* This software works in sync with Patterns

Visual Fleet NG

Visualize in Real-Time the Status of Your Fleet:

This latest Infodev EDI's Web application allows transit operation teams to visualize their fleet in real-time. Various data about location, schedule adherence and occupancy rates are displayed on a city map in real-time.

The data available through this Web app is an essential tool for smart cities and transit organization to help improve passenger's experience.

Patterns NG

Useful Data When You Need It

15 years of practical deployment has allowed Infodev EDI to create Patterns. A software that pairs the data from the APC system to the client's database information. It resolves the difficult challenge of reading and matching schedule, trips and routes from external database with the data collected by the APC System (boarding and alighting counts as well as GPS positions).

Already Have Your Own Software Running? Or Want to Build Your Own?

Infodev EDI's Application Programming Interface (API) uses Infodev expertise in processing and matching data to deliver accurate, powerful, versatile and easy to use information. Infodev EDI's API simplifies the software integration process, while providing highly accurate results adjusted to transit schedules and overall operations.

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

INFODEV
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Contact us

Infodev EDI head office is located in Quebec City, Canada, with a regional office in Europe. For more information regarding our technology and our most recent achievements, please contact us.

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