

sae

INTELLIGENT TRANSPORTATION MANAGEMENT SYSTEM (CAD/AVL)



ADVANCED ITMS AND PASSENGER INFORMATION PLATFORM

GMV's **sae** connects passengers' expectations of real-time, reliable information and transport providers' urge of forging customer loyalty and cutting costs.

Our experience and continual innovative drive has made GMV the leading supplier of Intelligent Transportation Management Systems and Passenger Information Systems, now taken up by over 400 transport operators from 100 cities in countries like the United States, Spain, Malaysia, Poland, Morocco, Sweden and Mexico.

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gmV[®]
INNOVATING SOLUTIONS

PRODUCT HIGHLIGHTS

Increase ridership by improving the punctuality and reliability of the transportation services. Additionally, **sae's** passenger information engine generates accurate and real-time information and spreads it through the channels that passengers demand today.

Return of Investment is achievable through the efficiencies and cost reduction that **sae** brings to Transport Providers' operations team. Having the right information at the time when it is needed will help making the right decisions.

Interoperability is ensured as GMV is compliant with all the relevant industry standards to share information across systems, either supplied by GMV or third parties. This feature allows for **sae's** integration in multimodal environments and smart mobility initiatives.

OPERATIONS CONTROL CENTRE

Today's transport operators need **tools enabling them to manage the huge amount of daily services and dispatches**. GMV's **sae** consists of a series of modular applications providing for all the following:

System configuration, meeting the needs of both complex transport consortiums and smaller operators.

Operations planning, scheduling and dispatching enable operators to manage the complete life-cycle of operations including unexpected situations such as vehicle break-downs or unexpected driver absences.

Real-time decision making and monitoring allows the operator to improve service performance in real time by taking complex regulation decisions, thus correcting operational anomalies such as early/late running, bunching or creating temporary detours upon traffic jams.

Business Intelligence tool, which includes a comprehensive set of predefined historical reports, service playback features as well as real time table and graphical representations of service parameters.

Two-way communication system in order to establish voice and data communications with the driver. This system offers both group (several buses) and individual voice and data communications, where the groups can be static or dynamic.

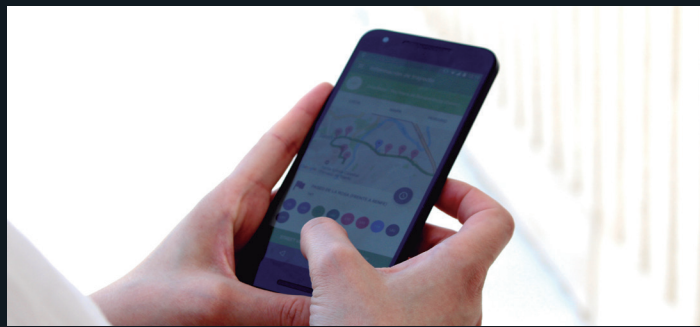
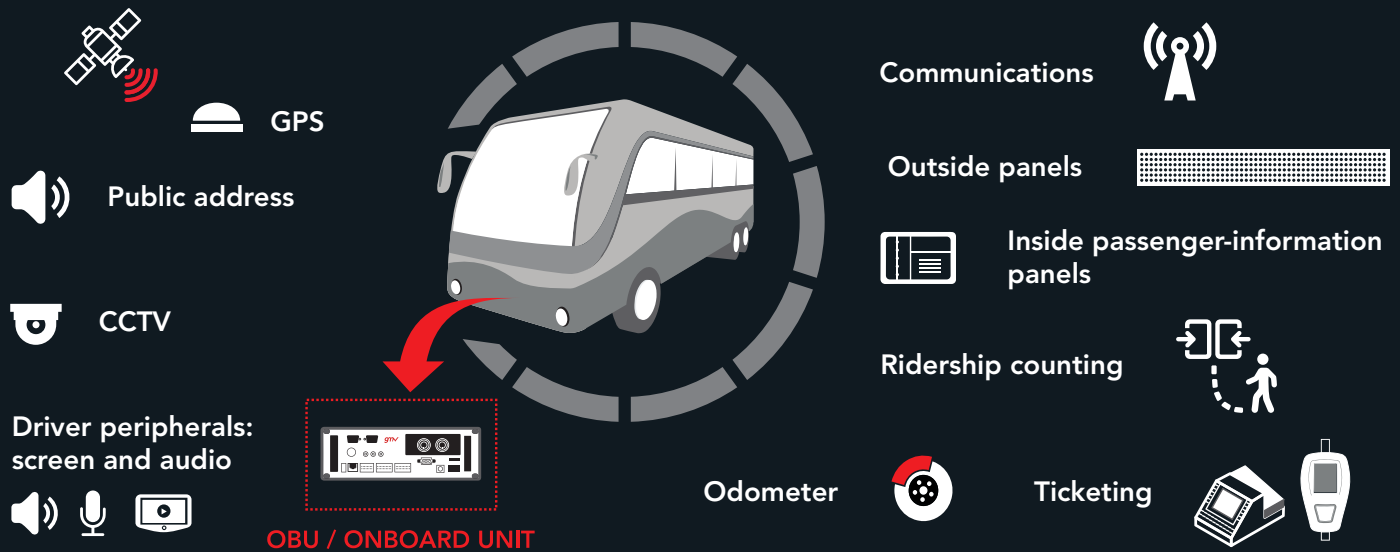
Management of alerts and incidents of all types guarantees that any incident affecting the proper operation of the vehicles will be notified at the control center in accordance to the operating procedures. These may include service related alerts as well as others having a mechanical nature coming from the in-vehicle hardware, passenger displays and vehicle components.

OPERATION COSTS
REAL-TIME PASSENGER INFORMATION
ALERTS MANAGEMENT
MULTI-FLEET
PASSENGER COUNTING
ECO DRIVING
TRANSPORT ON DEMAND
SAFETY & SECURITY
BUSINESS INTELLIGENCE
WEBS & MOBILE APPS
OPEN STANDARDS
SERVICE REGULATION



IN-VEHICLE DEVICES

GMV provides a wide array of in-house developed on board units in order to meet every customer needs. These state-of-the-art computers support the needs of transport providers as they centralize the information exchange with the Operations Control Center and manage the data from the rest of in-vehicle systems such as passenger information boards, public address, fare collection systems, passenger counting, CAN bus, odometer, etc.



PASSENGER INFORMATION SYSTEMS (PIS)

Accurate information about transport services is available in real time through different media, on board, at stations and terminals, customized webs, mobile webs and APPs.

In order to provide improved accessibility to travel information, GMV's **sae** makes it available through the public address systems both on board and at stations and terminals.

COMPLIANCE WITH INDUSTRY STANDARDS

sae's modular and open architecture allows its integration with third party systems based on its compliance with various standards of this sector (SIRI, ITxPT, GTFS, TransXChange, NeTEx and CAN bus among others) as well as ad-hoc protocols developed based on customer demands.

ADDITIONAL FEATURES

Fare Collection Systems

GMV's **sae** integrates with Fare Collection Systems both in the back-office, to synchronize the transport network configuration, and in the vehicles in order to update the FCS equipment with information about the current service (line, route, stops) for the correct fare charging.

Passenger Counting

The in-vehicle system can be easily upgraded to integrate passenger counting sensors. That information will be seamlessly managed and offered to the Operations Control Centre where decisions about real-time capacity or routes design are taken.

Traffic Priority / Green Wave

Upon the integration with the city Traffic Control Centre, GMV's **sae** generates configurable green light requests in order to prioritize public transportation buses over private vehicles.

Eco-Driving

GMV's in-vehicle devices retrieve driving quality information from the CAN bus, allowing the transport company to take decisions aiming the increase of passenger comfort, reducing maintenance cost, promoting environmental-friendly driving habits and lately improving safety for passengers and drivers. This feature is a current trend in the requirements of transport service providers since it supports them in their quest for continuous improvement.



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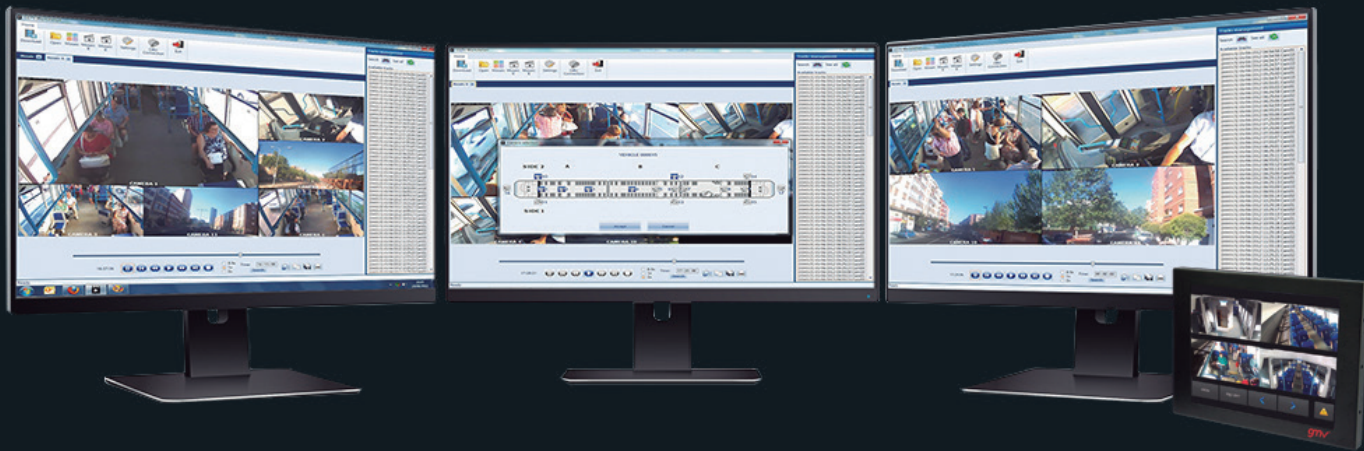
Transport on demand

Provides the service provider with the balance between streamlining the operating costs and providing responsive service based on passenger needs. GMV's Transport on demand system is made by different modules that can be deployed independently or integrated with **sae** ITMS, namely passenger trip booking, real-time scheduling, dynamic routing and service dispatching.

Security

CCTV Video surveillance both on board and at the stations and terminals provides enhanced security to the passengers, reduces risks and helps to understand past accidents and avoid future ones. Video feed is sent in real time to the Control Centre and also stored in the buses.

Any emergency detected in the system rises an automatic call to the concerned emergency response department.



GMV-ITS IN FIGURES



+20

YEARS SERVING TRANSPORT
INDUSTRY



250

FULL TIME EMPLOYEES



145

TURNS AROUND THE WORLD
MANAGED PER DAY



>2M

VEHICLES WITH GMV
FIRMWARE INSIDE



1,240

ON STOP DISPLAYS

750K Passengers per day
knowing the ETA of the next
vehicle



1,700M

PASSENGERS PER YEAR

54 Passengers per second
buying and validating tickets
in our systems



21,000



2,700



9,500

34,000

VEHICLES WORLDWIDE



750

CUSTOMERS WORLDWIDE

+30 Countries. 6 Continents