

ITS

Efficient driving, driver assistance and maintenance support System

GMV's *eco-driving* system collects technical data and alarms, measures performance and provides real time feedback KPIs to drivers and automatic alerts to the maintenance team for a proactive service.

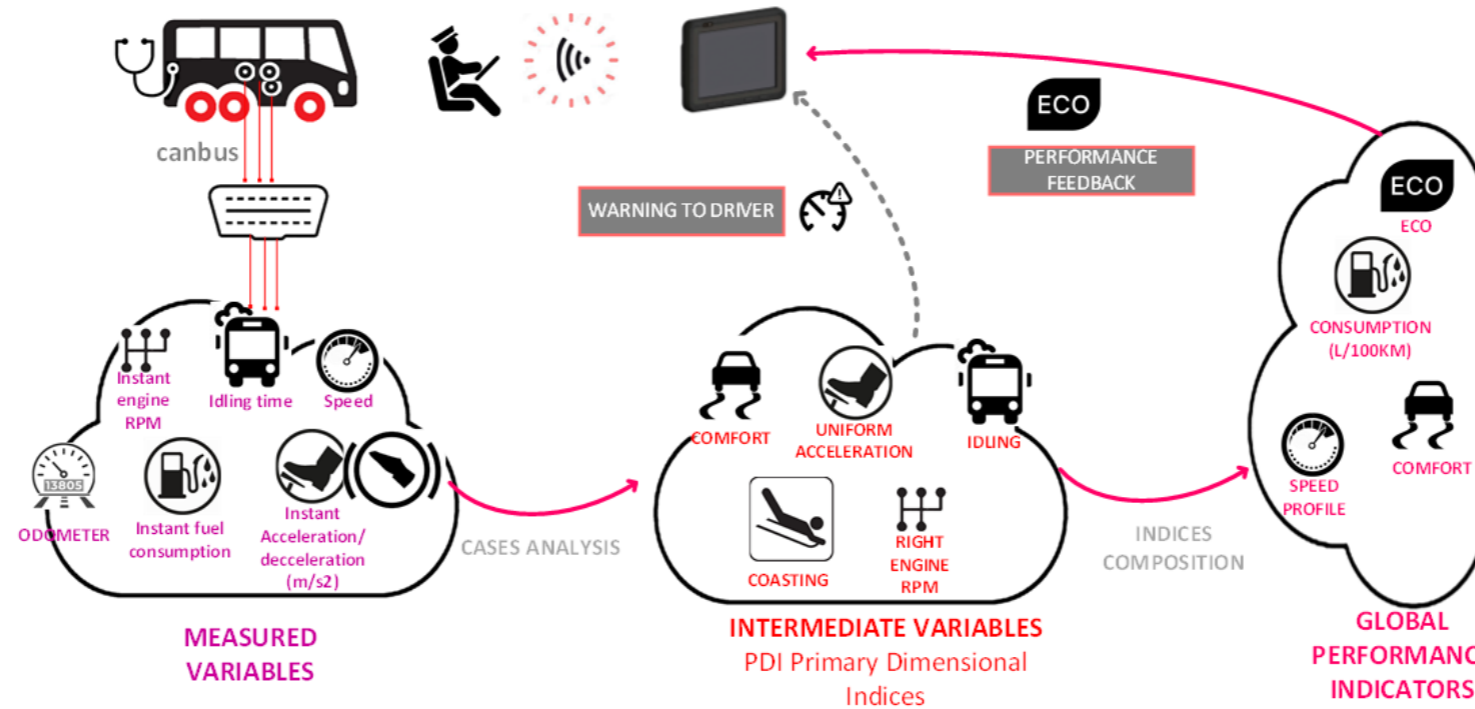
These key inputs help to improve the quality of driving thus resulting in improved driver and passenger comfort and safety and a measurable reduction in exploitation and maintenance costs, environmental impact and risk of accidents

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“ The drivers are continuously encouraged to improve quality of driving by receiving real time feedback on their performance and alarms in case they exceed customizable thresholds.



USER-FRIENDLY INFORMATION TO DRIVERS

The driver interface show the following information generated in real time, either in a standalone screen or as a widget in a combined interface with different applications (FMS, ticketing).

- Current performance.
- Average performance in current service.
- Graphical representation of the scoring for the *eco-driving* KPIs.
- ECO alarms (visual and acoustic): harsh acceleration or braking, harsh bump crossing, harsh turning, allowing for an immediate correction of inadequate driving.
- Peripheral connectivity status

PRODUCT HIGHLIGHTS

Efficient driving reduces public transport operation and maintenance costs; it contributes to reduce the risk and seriousness of accidents. With an efficient driving approach, the driver is offering the passengers a more comfortable and enjoyable travel experience. Moreover, efficient driving reduces the harmful gas emission, thus contributing to a healthier environment.

Putting an efficient driving system in place facilitates the **continuous improvement** of transport operators, as it helps to **identify driver training requirements**, to establish **performance based bonus policies** and to **plan future services** according to historical performance.

In order to evaluate performance in terms of anticipation, acceleration, idling, etc, data is converted into KPIs such as Confort or Eco-driving. **Real time feedback is provided to to drivers** with visual and acoustic corrective warnings regarding driving style or inefficient actions, such as excessive idling or harsh braking.

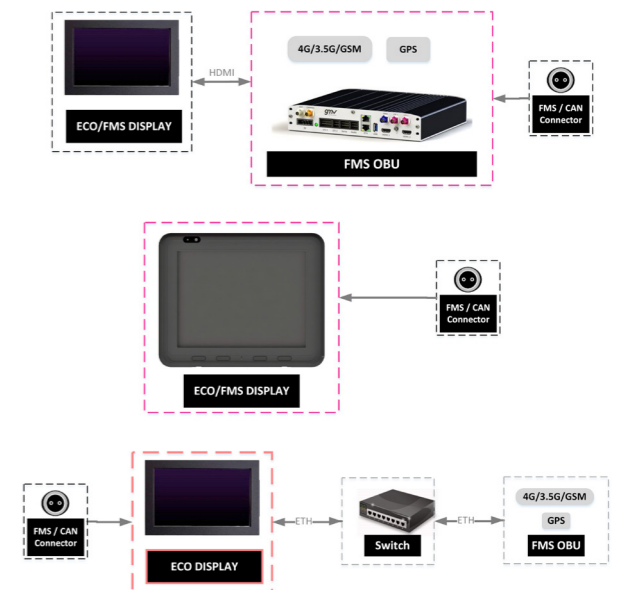
Automatic alerts can be set up which facilitate a **proactive maintenance**, thus reducing maintenance cost and preventing minor issues to evolve into service interruption. Its powerful reporting module provides valuable knowledge to drivers, maintenance staff and management on the performance evolution, fuel consumption optimisation, allowing comparisons between drivers, lines, services, etc.

FLEXIBLE ON BOARD ARCHITECTURE

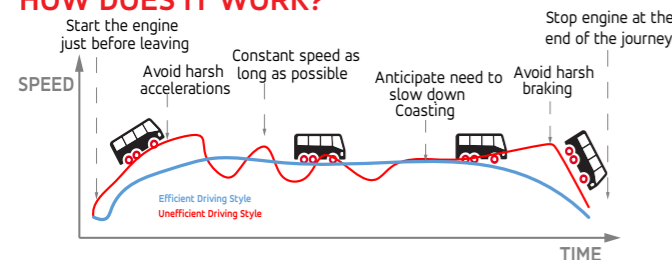
GMV's *eco-driving* can be deployed either as an add-on to GMV's FMS or as a stand-alone system.

It can be executed in GMV'S FMS OBU, internally communicating with embedded FMS, which connects to vehicle CANBUS. UI shows combined FMS and *eco-driving* information, whether on a tablet PC or an OBU & console architecture.

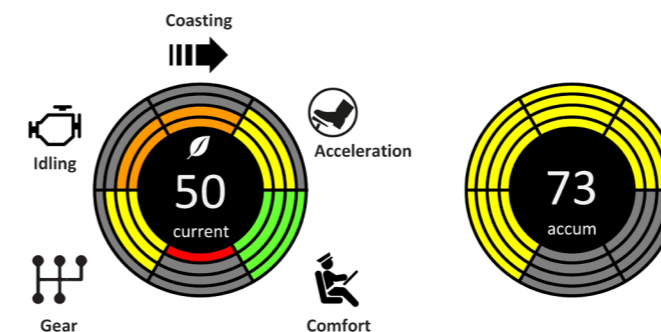
Alternatively, it can be deployed in **stand-alone tablet PC** with touchable TFT screen and integrated CPU. In this case, it connects to existing FMS/ticketing systems via Ethernet to obtain current service data such as line, journey, duty or driver ID. Data collected by eco-driving system is referenced to current service data, processed and stored.



HOW DOES IT WORK?



Either through GMV's FMS or a standalone OBU, GMV's *eco-driving* collects vehicle data in real time through FMS-CANBUS interface such as fuel consumption, rpm, acceleration and braking as well as maintenance-related technical data and alarms.

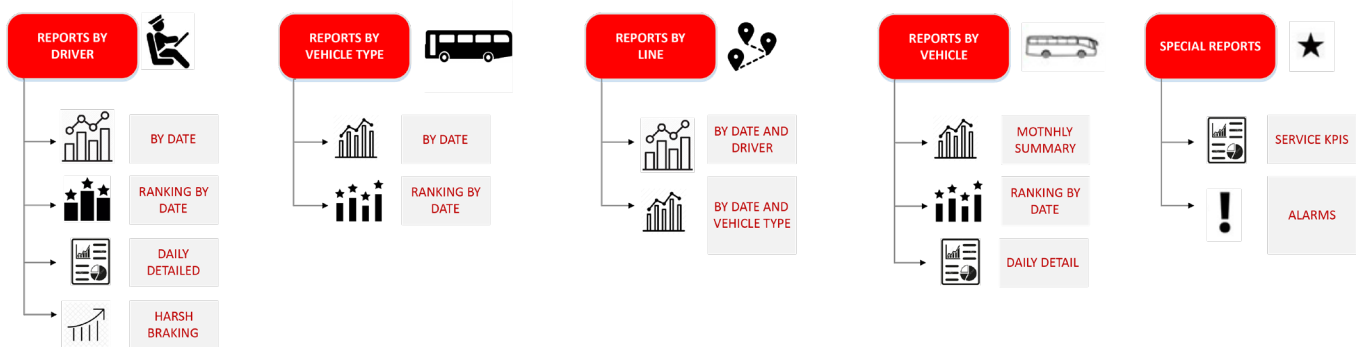


DRIVING QUALITY DIAGNOSED IN REAL TIME

A value that summarizes drivers' performance, the *eco-driving* index is obtained as weighted sum of five Primary Dimensional Indexes (PDIs): The system also measures values such as fuel consumption and distance travelled.

PERFORMANCE REPORT WEB TOOL

- A **web tool** which provides reports with information in table and graphical format.
- Reports that **compare homogeneous elements** whose performance is expected to be similar (per line, type bus ..).
- Graphs that compare mean values and dispersion in the behaviour (regularity).
- Includes **drivers ranking and comparison of their evolution**.

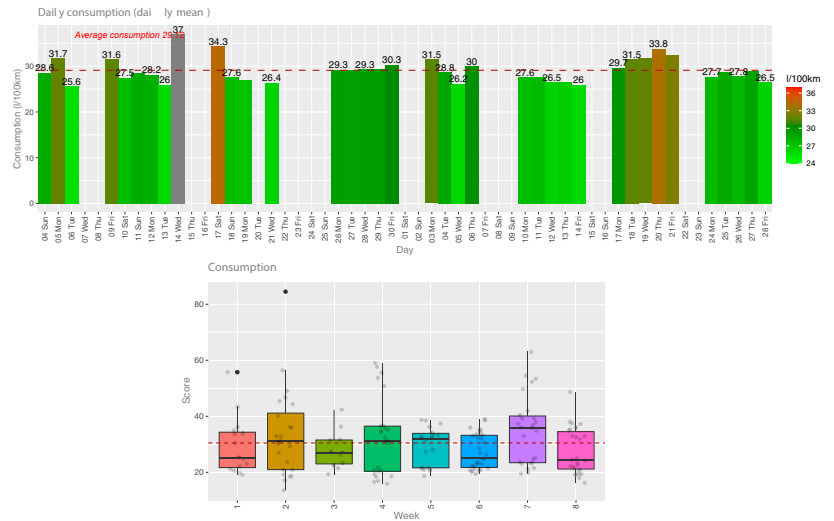


DIRECT AND MEASURABLE ROI

Fuel savings of around 10%, even higher when complementing the system with training.

Reduced environmental footprint (around 7% CO and over 30% in HC / NOx) and noise reduction.

Increased passenger comfort and safety (estimated at around 30%).



GMV-ITS IN FIGURES



+25 YEARS SERVING THE TRANSPORT INDUSTRY



250 FULL-TIME WORKERS



950 CUSTOMERS WORLDWIDE
+30 COUNTRIES
5 CONTINENTS



2.6 BILLION PASSENGERS PER YEAR
82 PASSENGERS PER SECOND
BUYING AND VALIDATING TICKETS
IN OUR SYSTEMS



42.000 VEHICLES WORLDWIDE

25.000

4.000

13.000



2.3 MILLION PASSENGERS INFORMED OF THE ARRIVAL TIME OF THE NEXT BUS



+3 MILLION VEHICLES WITH GMV FIRMWARE



180 WORLD LAPS A DAY