



minervas

green-tech solutions
for sustainable mobility



Less Energy More Business
Less Emissions More Planet



Real-time Adaptive ECO-driving

A **patented solution** to minimize consumption and emissions of road vehicles. It utilizes **ADAS** and **Electronic Horizon** technologies to optimize speed and acceleration in real time based on the driving scenario (**road morphology, traffic, weather**).

The speed to follow is indicated by the color-coded HMI of the smartphone/tablet app integrated with the **Green Box** (OBU) for real time acquisition of vehicle and scenario data.

The fleet manager can monitor vehicle performance and route data on the web **dashboard**; the driver can access rewards linked to the sustainability of their driving.

*MinervaS is an **innovative start-up** and spin-off of the University of Salerno.*

MinervaS applies the results of studies and research in products for more efficient and sustainable mobility.

Contributes to reducing the carbon footprint of companies.

up to
30%

Fuel saving per single vehicle

oltre il
15%

Average fuel saving on the entire fleet*



*Results acquired from PoC and Pilot Programs



**Environmental
impact**



**Energy
optimization**



**Road
safety**

MinervaS reduces **operational costs, environmental impact, and monitors** fleets progress.

MinervaS provides the only solution on the global market for generating the **optimal driving profile** and offers multiple service levels:

- **Predictive analysis:** forecasting consumption and CO2 emissions before departure.
- **Real time adaptive eco-driving:** suggests optimized speeds based on context during driving (morphology, traffic, weather).
- **Performance & ESG:** quantifies consumption and emissions with assessment of overall energy and environmental performance.

Corporate Sustainability Directive & Scope 3: the management suite offers an integrated service for analytical assessment of the energy and environmental impact of transportation and mobility services.

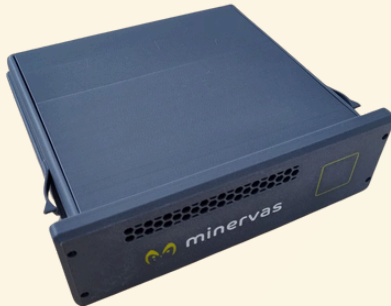
Benefits for fleet-managers and drivers

The advanced monitoring system evaluates performances and driving styles. Drivers access rewards for a more sustainable and safe driving style through **gamification**.

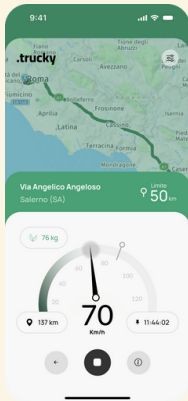
It is offered on a per-vehicle subscription basis and is customizable across three service levels, with a ROI within 6 months. Integrable with fleet management systems via APIs.



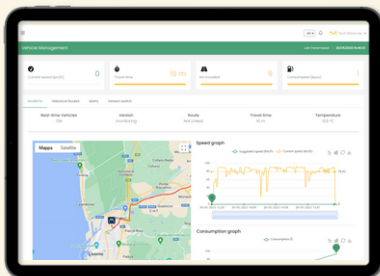
Product



- **Green box (OBU)*:** on board data acquisition; wiring harness and connectors for FMS & CAN-bus; enclosure 1DIN for plug&play installation



- **APP**** (iOS & Android) for smartphone and tablet: HMI with optimal speed indications and driver suggestions. *Optional: dedicated smartphone with deck support.*



- **Dashboard web:** fleet and vehicle management and monitoring in real time.
(<https://minervas.tech>)

*Configuration compatible with application for heavy-duty vehicles, the HW component can be removed through direct integration into existing infotainment/fleet management systems on board.

**MinervaS adopts solutions based on patents and proprietary algorithms, also resorting to Machine Learning techniques.



Company Profile

MinervaS, spin-off of the University of Salerno, operates in the automotive sector, develops solutions compatible with CCAM and V2X platforms, and creates applications for energy conversion and management.

MinervaS leverages **IoT**, **Digital Twin** and **Machine Learning** technologies to transfer the know-how from research and scientific studies into products aimed at improving the environmental sustainability of energy systems and reducing CO2 emissions.

MinervaS operates in three areas of interest:

- **Mobility:** intelligent powertrain control to reduce emissions and consumption of road vehicles with conventional hybrid, electric and fuel cell propulsion.
- **Cybersecurity:** patented Intrusion Detection System for protection of automotive and industrial systems.
- **Monitoring and diagnosis:** device for electrochemical impedance spectroscopy (EIS) for on-board/on-field monitoring of batteries, fuel cells, and electrolyzers.

MinervaS, with expertise in embedded boards, communication, and data management, is committed to innovation to promote sustainable energy solutions.

Funded by regional, national, and European funds, as well as private investments, MinervaS is expanding through global partnerships both public (EIT Urban Mobility) and private (big corporates). These alliances strengthen MinervaS's presence in both national and international markets.



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Datasheet SW

APP	
TECHNOLOGY	<ul style="list-style-type: none">• Multivariable optimization with time constraint (patented)
INPUT (manual or automatic via API calls with fleet management software)	<ul style="list-style-type: none">• Vehicle info (e.g. plate number, brand, model)• Propulsion type (e.g. diesel, EV)• Payload• Origin and destination addresses• Waypoint (intermediate stops)
DATA ACQUIRED (from vehicle and map providers)	<ul style="list-style-type: none">• CAN-bus/FMS data• Traffic data• Road morphology (e.g. altitude)• Speed limits• Weather conditions (es. temperature, pression, wind)
OUTPUT	<ul style="list-style-type: none">• Real time optimal speed suggestions
DASHBOARD	
TECHNOLOGY	<ul style="list-style-type: none">• Webpage responsive
REAL-TIME MONITORING	<ul style="list-style-type: none">• Fuel consumption• Km travelled• CO2 emissions• Potential and realized Saving• Driver Scoring• Vehicle geolocalization
REPORT	<ul style="list-style-type: none">• Vehicle and driver Performance• Real time and post-mission fleet monitoring• Report download in cvs/pdf



Datasheet SW

PREDICTIVE ANALISYS	
TECNOLOGIA	<ul style="list-style-type: none">• AI tool (RNN) for energy consumption prediction (error <3%)
INPUT	<ul style="list-style-type: none">• Vehicle info (e.g. plate number, brand, model)• Propulsion type (e.g. diesel, EV)• Payload• Origin and destination addresses• Waypoint (intermediate stops)
OUTPUT	<ul style="list-style-type: none">• Mission summary• Potential Saving evaluation (fuel and CO2)• Benchmark speed profile• Green route and sustainable driving suggestion
INTRUSION DETECTION SYSTEM	
TECHNOLOGY	<ul style="list-style-type: none">• Patented cybersecurity tool (based on Bayesian Networks and domain onthology)
INPUT	<ul style="list-style-type: none">• Real time CAN bus data
OUTPUT	<ul style="list-style-type: none">• Warning (if vehicle is compromised) for fleet-manager, OEM e/o tier-1





Datasheet HW

PROCESSOR	64 bit architecture quattro core Cortex-A72 4 GB di RAM LPDDR4-3200
COMMUNICATION PROTOCOL	SAE J1939 (200+ PID available) SAE J1979 (20+ PID available) FMS OBDII
CONNECTIVITY	Wi-Fi 802.11ac, Bluetooth 5.0, Gigabit Ethernet
PERIPHERALS	2 USB 3.0 ports, 2 USB 2.0 ports, 2 micro-HDMI ports, CSI interface for camera, DSI interface for display, micro-SD slot, GPIO connector (40 pin)
MODEM USB 4G LTE	LTE FDD/TDD/UMTS/GSM networks, download speed up to 150 Mbps, upload up to 50 Mbps, LTE FDD B1/B3/B5/B7/B8/B20, LTE TDD B38/B40/B41, UMTS B1/B5/B8, GSM B2/B3/B5/B8 support
POWER	12V e 24V, overvoltage, short-circuit and reverse polarity protection
GPS ANTENNA	GPS U-Blox 7 receiver, GPS, GLONASS, GALILEO, QZSS, SBAS support, update frequency up to 10 Hz, NMEA 0183 protocol
DATA FREQUENCY ACQUISITION	10-100 Hz
DIMENSIONS	1 DIN
WIRING HARNESS	Plug-and-play: FMS and Molex connector(6 pin)

*for high-duty vehicles is available a dedicated version with OBD-II dongle with BT communication to the smartphone.



Customer Profiling

The following preliminary information is required for creating a new user profile for Pilot management. A **free report** will be provided for the specified route and vehicle.

COMPANY INFO

Company name

Website

Company address

Name, Surname Contact person

Phone number Contact person

Total number of vehicles

VEHICLE INFO

Brand and Model

Vehicle plate number

Load [ton]

MISSION INFO

Average yearly distance [km]

National/international missions

Standard mission (origin + destination)