

PRESS KIT EFI AUTOMOTIVE

CES 2023

EFI BOOTH: 5400





Béatrice Schmidt

Chief Executive Officer & Chairman - EFI Automotive Group

EFI AUTOMOTIVE: LET'S MEET THE CHALLENGES OF MOBILITY TOGETHER

The automobile is a world in perpetual motion, driven by leading-edge technologies and societal advances that are constantly evolving. In this high-performance sector, major players cannot simply follow changes, they must know how to capture and sometimes anticipate them.

Our strength of innovation is at the heart of automotive issues, especially those linked to mobility. Thanks to the expertise of its employees and the mastery of multiple know-how that really makes a difference, **EFI, a global automotive supplier for more than 85 years, creates innovative technological solutions to meet the challenges of mobility: by making vehicles more ecological, safer, and more comfortable.**

It is therefore natural for us to participate in CES 2023 as an innovation player.

At CES 2023, **EFI unveils the world premiere Robot Charger for EV vehicles.** This Robot Charger is the technological breakthrough of the EV driver comfort enhancement.

This tech showcase is presented by Stellantis at booth #4643.

If you want to know more about the technological innovations that offer you an incomparable user experience, come and visit us at the EFI booth (#5400). **You will also be able to discover all the Group's innovations for tomorrow's mobility.**

As CEO of the EFI group, I will be delighted to meet you with my team on our booth #5400.

Béatrice Schmidt,

CEO & Chairman – EFI Automotive Group



87 YEARS HISTORY



Electricfil's
creation

1936



Johanny THOLLIN

Household electrical
cables



Ignition wires
Bougicord



Creation of aftermarket
subsidiary (EFIS) in
Joinville, FRANCE

1962



Jean THOLLIN



Passive sensors



Active sensors

1978



Creation of Turkish
subsidiary (EUFI) in
Istanbul



Creation of American
subsidiary (EFC) in
Livonia, MI

1992

1996



Patrick THOLLIN



Creation of Chinese subsidiary (EFEC) in Wuhan



Creation of EFI Lighting



Creation of a new plant for EFC and inauguration of new North American headquarters in Elkmont, AL



Creation of Axandus, the manufacturing accelerator of the Group



Aquisition of AKEOPLUS



World premiere robot charger at CES

2004

2014

2015

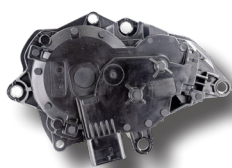
2020

2021

2023



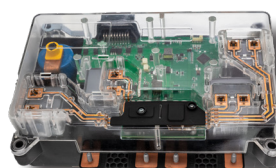
Béatrice SCHMIDT - THOLLIN



Actuators for thermal management



E-mobility sensors



E-mobility power electronic

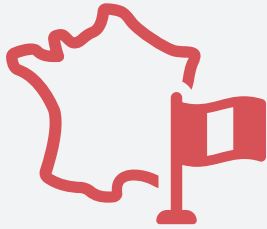


Robot charger family

WHO ARE **WE**?

AN INDUSTRIAL GROUP COMMITTED TO MOBILITY

For 87 years, EFI Automotive has been supporting the world's leading mobility companies in their main innovation challenges. From the internal combustion engines of yesterday to the electronic and mechatronic developments of today and tomorrow, we use all our expertise and agility to build lasting partnerships with each individual customer.



Headquarters in **France**
(Beynost, Lyon)

An independent company
since

1936



40 years in global industry

250

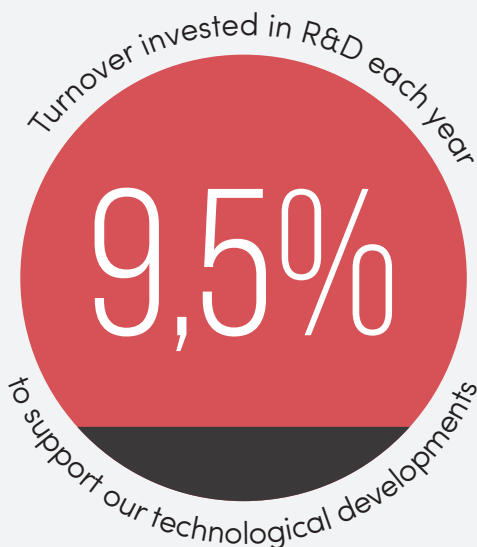


engineers and technicians

201,5



M€ of turnover in 2021



”

EFI Automotive has located its production facilities as close as possible to its customers across the globe:
United States, China, Turkey, and France.

EFI AROUND THE WORLD



1 700

EMPLOYEES

Group workforce at the end of 2021

ELKMONT (EFC)
UNITED STATES (ALABAMA)
113 employees



CHATEAU-GAILLARD
(AKEOPLUS AND SAFETY CONSEILS)
FRANCE (AIN)
20 employees



BEYNOST (EFI)
FRANCE (AIN)
682 employees



WUHAN (EFEC)
CHINA (HUBEI)
329 employees



DUDULLU (EUFI)
TURKEY
337 employees



JOINVILLE (EFIS)
FRANCE (HAUTE-MARNE)
77 employees

OUR VOCATION

SOCIAL AND TECHNOLOGICAL COMMITMENT TO SUSTAINABLE AND SMART MOBILITY

Fortified by 87 years of diverse expertise, our company is committed to the long term and is invigorated by our passion for taking on new challenges. We invent and implement the smart mobility solutions of tomorrow, which develops employees' skills and agility in our organization.

SENSE

EFI has the ability to listen to and anticipate market expectations in order to provide ever more innovative solutions.

BUILD

EFI can rely on its strong skills base and bring together a rich network of employees and external partners to develop robust and competitive solutions for our customers.

DRIVE

EFI is a responsible industrial project that aims to provide long-term value and promote development for all.

OUR VISION

TO BECOME A REFERENCE PARTNER FOR SUSTAINABLE AND SMART MOBILITY SOLUTIONS

Market expectations are changing dramatically. At EFI, we are confident in our ability to transform in order to meet these new expectations by providing more added value.

EXPAND

By 2025, we aim to expand within our three geographic regions and achieve turnover of more than €350M to remain independent, by capitalizing on our presence across three continents and our mechatronics, electronics, and onboard systems skills base.

REPOSITION

We aim to position ourselves as mobility ambassadors. We want to successfully reposition EFI through innovations and new platforms in low-carbon mobility.

GROW TOGETHER

We want to grow our organization and develop talent to improve our overall performance and our customer experience.

OUR VALUES

SHARE STRONG VALUES TO MOVE FORWARD TOGETHER

EFI values are part of our DNA. They are derived from our culture and our history. They guide all our important actions and decisions.

ENTREPRENEURIAL SPIRIT

RESPONSIBILITY

SINCERITY

RESPECT

AGILITY

FOCUS

STRATEGIC APPROACH FOR 2025



BUSINESS GROWTH

Customer and market focus
Platform development
External growth and partnerships



EFI ECOSYSTEM AND CORPORATE SOCIAL RESPONSIBILITY

Stakeholder development
Ecological transition
Renovation of company buildings



CULTURE OF INNOVATION & SKILLS DEVELOPMENT

EFI: a solutions provider
Development of current
and future skills
Transversal management



PERFORMANCE & OPERATIONAL EXCELLENCE

Performance plans by geographic region
and by business area
Margin management
(margin control and improvement)
Comprehensive digital transformation plan

OUR ENTITIES

AXANDUS helps innovating companies (start-up and SME) from the autonomous systems sector to accelerate their growth. In fact, this help is possible thanks to our business and industrial knowhow and with our access to the intangible assets of industrial partner: EFI Automotive, first-tier automotive supplier for 87 years.

Indeed, an expert team in business, industrialization, design and purchasing is dedicated to accelerate the development of the company.



AKEOPLUS is a pioneer company in the industrial robotics and innovation fields. The company offers turnkey robotic solutions, no-code platform, as well as industrial engineering services.

For more than 15 years, AKEOPLUS have been providing robotic solutions to the 150 French and International key accounts: automotive and mobility, aeronautics, and aerospace, pharmaceutical, and manufacturing.

EFI Lighting is a subsidiary of EFI Automotive, specializing in the integration of light in equipment. The target customers are in general OEMs and manufacturers of cars and trucks worldwide or any other vehicle on the road. The company's object in all countries is the marketing, design and manufacture of lighting devices for road vehicles, using, among other things, optical fibers integrated into a textile.

EFI Lighting offer flexible light diffusion solutions integrated in automotive interior and exterior equipment. The developments are made around luminous fabrics whose weaving warp is made of optical fibers connected to a light source, but also light guides of variable diameters made of treated and sheathed optical fibers, connected to a light source. As a new player in this emerging market, EFI Lighting has entered the market by forming strategic partnerships with key players already present and integrating its solutions.



With a turnover of 17 million euros in 2021, EFI Automotive Service is mainly focused on the Group's spare parts business. More than 5,500m² are dedicated to the various activities required for distribution, addressing all of the Group's aftermarket customers around the world.

Recently, the company integrated a programme for the industrialisation of non-automotive start-ups in fields such as robotics, connected objects (IoT) and structural monitoring, in close collaboration with Axandus, the EFI Group's manufacturing accelerator.

OUR STRATEGIC PLATFORMS



To offer smart mechatronic solutions for electric transmission systems



To develop our expertise in inductive sensor technology



To offer recognized expertise in magnetic sensor technology



To develop high-power mechatronic modules

OUR CUSTOMERS

OEM



TIER 1 SUPPLIERS



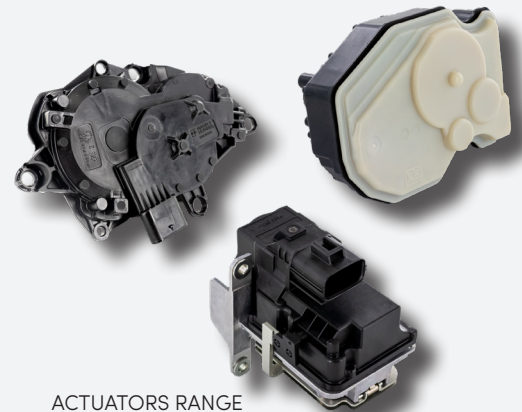
INNOVATIVE POWERTRAIN SOLUTIONS



To offer smart mechatronic solutions for electric transmission systems

SMART ACTUATORS FOR ELECTRIFICATION

- Compactness
- Data management
- ASIL C
- Cybersecurity
- FOTA



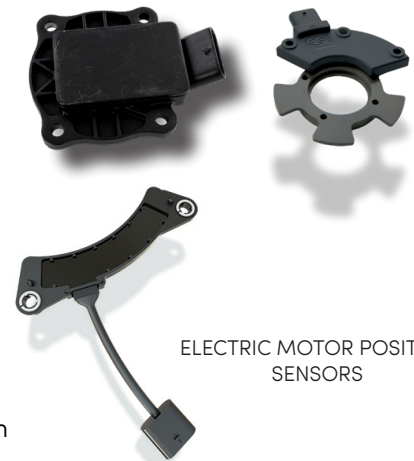
ACTUATORS RANGE OF EFI AUTOMOTIVE



To develop our expertise in inductive sensor technology

INDUCTIVE SOLUTIONS FOR ELECTRIFICATION

- No magnetic / rare earth material needed
- From QM to ASIL D
- In mass production since 2018 on electric motors
- Patented solution for best-in-class accuracy in C-Shape configuration



ELECTRIC MOTOR POSITION SENSORS



To offer recognized expertise in magnetic sensor technology

EXPERT SUPPLIER IN MAGNETIC SOLUTIONS

- Legacy sensors for conventional Internal Combustions Engines, Transmissions & Chassis applications
- From QM to ASIL C



SOME SENSORS DESIGNED AND MANUFACTURED BY EFI AUTOMOTIVE

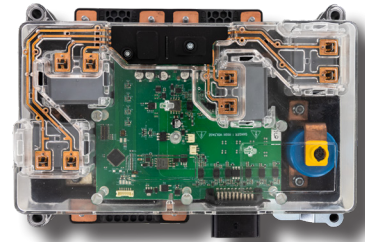
INNOVATION FOR SUSTAINABLE MOBILITY



To develop high-power mechatronic modules

EV POWER ELECTRONICS

- Safe and compact Battery Disconnect Units (BDU or BJB) with optimized thermal management and optional BMS integration
- SMART current sensors on busbars

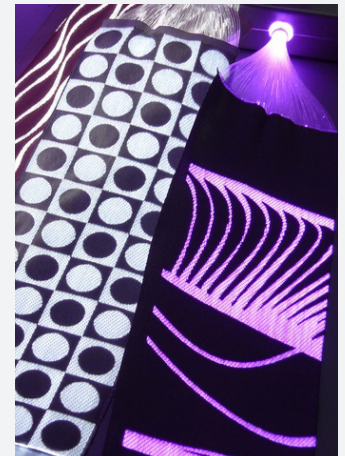
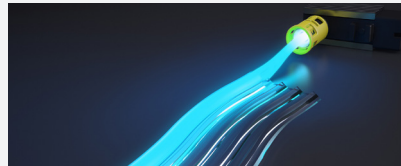


BATTERY DISCONNECT UNIT



OPTIC FIBER SURFACE LIGHTING

- Innovative interior lighting designs



ROBOT CHARGER

INTELLIGENT INDUCTION CHARGING SOLUTION FOR ELECTRIC VEHICLES

EFI AUTOMOTIVE has developed, for the last 5 years, a very innovative automatic recharging system using inductive technology and a robot that automatically positions itself under the vehicle. The intelligence of the robot was developed by AKEOPLUS, a subsidiary of the EFI AUTOMOTIVE Group. Several vehicles can be recharged with this robot which has a range of 5 to 10 meters



EFI AUTOMOTIVE

ENGINE EFFICIENCY

Sensors



Camshaft sensor



Crankshaft sensor



Magnetic target wheel

Actuators

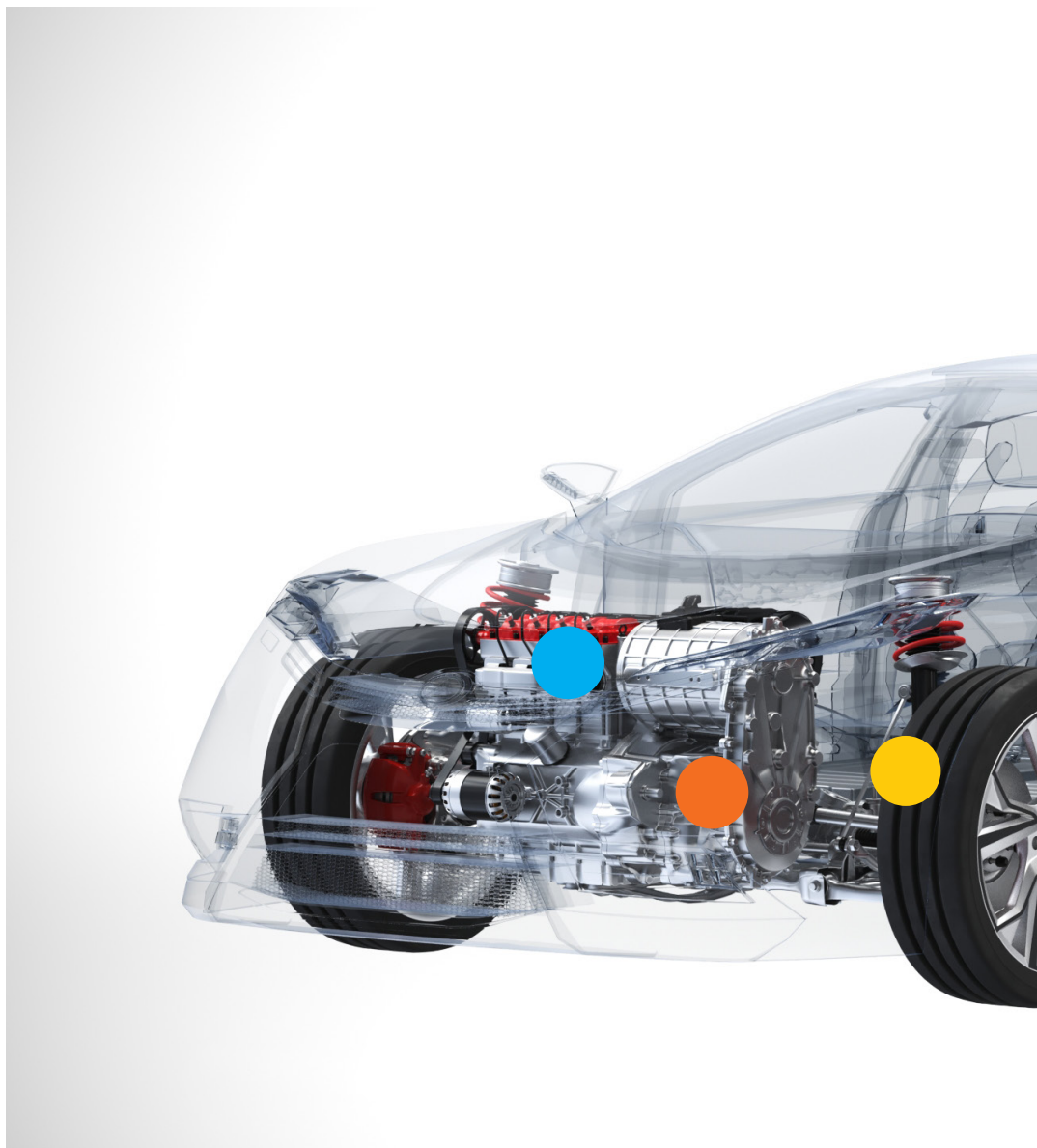


Actuator for thermal management

Solenoids



Diesel injection actuators



TRANSMISSION EFFICIENCY

Sensors



Automatic transmission speed sensor



Mechatronics module (Multi-technologies for DCT)



Park pawl sensor



Clutch position sensor



Neutral gear sensor



Transmission range sensor

Actuators



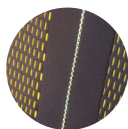
Park lock actuator



Disconnect / gear shifting actuator

E APPLICATIONS

● LIGHTING SOLUTIONS



Light guide



Light panel



Internal
starry sky

● VEHICLE DYNAMICS



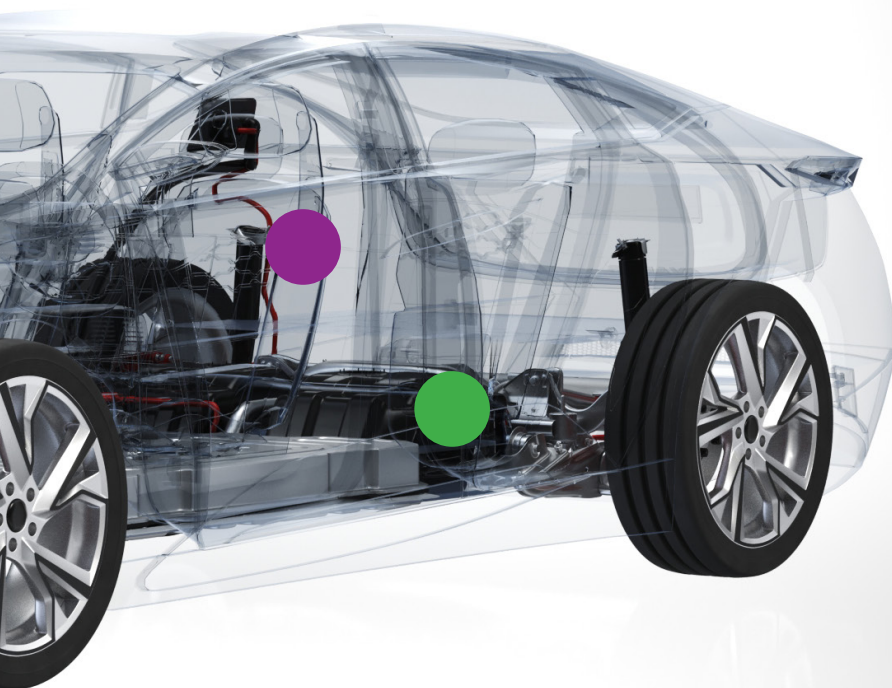
Brake pedal
sensor



Vehicle height
sensor



Rear axle steering
sensor



● E-MOBILITY



Inductive
through-shaft
position
sensor



Inductive
end-of-shaft
position sensor



Magnetic end of shaft
position sensor



Magnetic position
sensor



Smart bearing
sensor



S E N S E
B U I L D
D R I V E

INDUCTION ROBOT CHARGER FOR ELECTRIC VEHICLES

The subject of hands-free recharging of Electric and Hybrid Vehicles is taking on an important dimension with the massification of vehicle electrification.

Today, 80% of the mileage of an electric car is covered by a single point charging. Hands-free charging not only brings peace of mind, but also increases battery life through more regular and automated charging. Hybrid vehicles will really operate in electric mode in the city and not in thermal mode thanks to automated recharging.

EFI AUTOMOTIVE has developed, for the last 5 years, a very innovative automatic recharging system using inductive technology and a robot that automatically positions itself under the vehicle. The intelligence of the robot was developed by AKEOPLUS, a subsidiary of the EFI AUTOMOTIVE Group. Several vehicles can be recharged with this robot which has a range of 5 to 10 meters.

This system is innovative because the inductive charging is done by contact under the vehicle which improves the efficiency to 97% compared to inductive systems with air gap. The galvanic isolation by principle allows an optimum safety for the user.



Robot in Home Charging situation, associated with a wallbox



Robot charger in 7 kW version

The robot is equipped with intelligence for obstacles and person avoidance and first level communication with the vehicle. The vehicle remains the master to launch the recharge and the robot is a slave.

The charging power is planned at 7 kW and can be extended. Depending on the application, the robot charger can be powered by either a wallbox (Home Charging), or by a terminal (Business Charging).

The target market is the comfort charging market with an estimated market share of 20% of Electric Vehicle users.

The maturity of this system is advanced for a production start in 2025.

This Robot Charger is the tech showcase of the know-how and skills of the EFI group.

The Robot Charger is autonomous, able to find the car, avoids the obstacles and stops if a movement is detected, without any user action and without a precise parking position.

No more handling wet or dusty cable, neither to look for it in the trunk. You don't need your hands anymore to plug the cord. Just use your app to plan the charge of your vehicle.

A prototype is on display at the Stellantis booth: booth #4740

A SOLUTION BASED ON THE STRONG EXPERTISE OF THE EFI GROUP WITH AN EXCLUSIVE PARTNERSHIP WITH MAGTECH

The EFI Automotive Group enlisted the expertise of its manufacturing accelerator, Axandus, in the design of the mechatronic and power electronics part of our new robot. As a specialist in innovative projects, Axandus brought its expertise to create a high-quality and high-performing mechatronic and power electronics part for our robot.



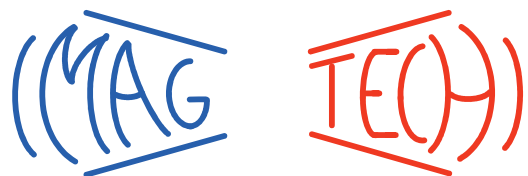
Akeoplus, a subsidiary of the EFI Automotive Group specializing in industry 4.0 and robotics, played a crucial role in the development of the software for our new robot charger that will be presented at the upcoming CES in Las Vegas.

With its expertise in developing software for industrial robots, Akeoplus was able to create a reliable and high-performing software for our robot, adding significant value to our product.

MAGnetic TECHnology, also known as MAGTECH, was created in 1999 by Dr. Jean-Yves GASPARD in the Scientific Center of the Ecole Centrale de Lyon. Specialized in electromagnetic modeling and power electronics design, the company has developed in induction systems including domestic hotplates.

MAGTECH is now transferring its experience of very large series to the fields of wireless energy and domestic heating systems, heat pumps and photovoltaic DHW.

In exclusive partnership with EFI automotive, MAGTECH offers a range of innovative automotive induction chargers from 3 to 22kW



INDUCTIVE CONTACT CHARGING



Easy onboard installation
and space saving unit in
the vehicle



Better PHEV use
in cities



Improvement of Vehicle
Battery Life
(+15%)



Universal vehicle unit
easy to integrate,
3 cm thick



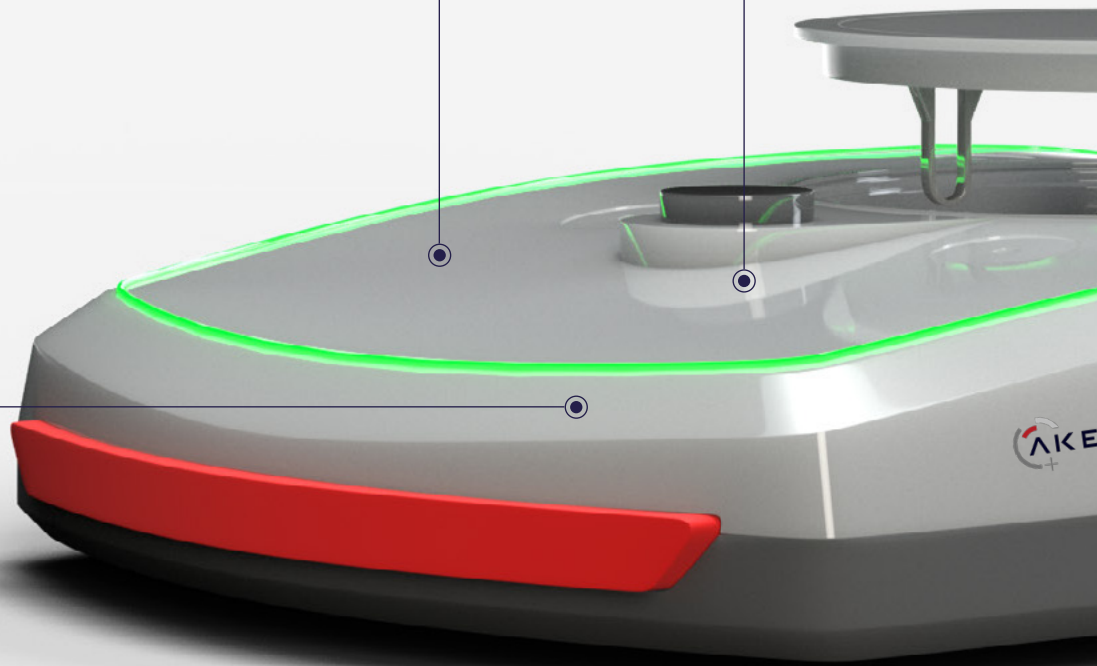
Intelligent & Autonomie



Compact robot, low space
needed under the vehicle



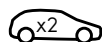
Safe per principle
with galvanic insulation



Station

Use case:

HOME CHARGING



Up to 2 vehicles
in the same time



Overnight recharge



Smartphone app
providing the charge
level in real time



SMART CHARGING FOR SMART MOBILITY



Easy to park
up to 5 m around
the charging station



Bluetooth pairing
between the vehicle
and the robot



The inductive
recharge simplifies
the use (no cable)



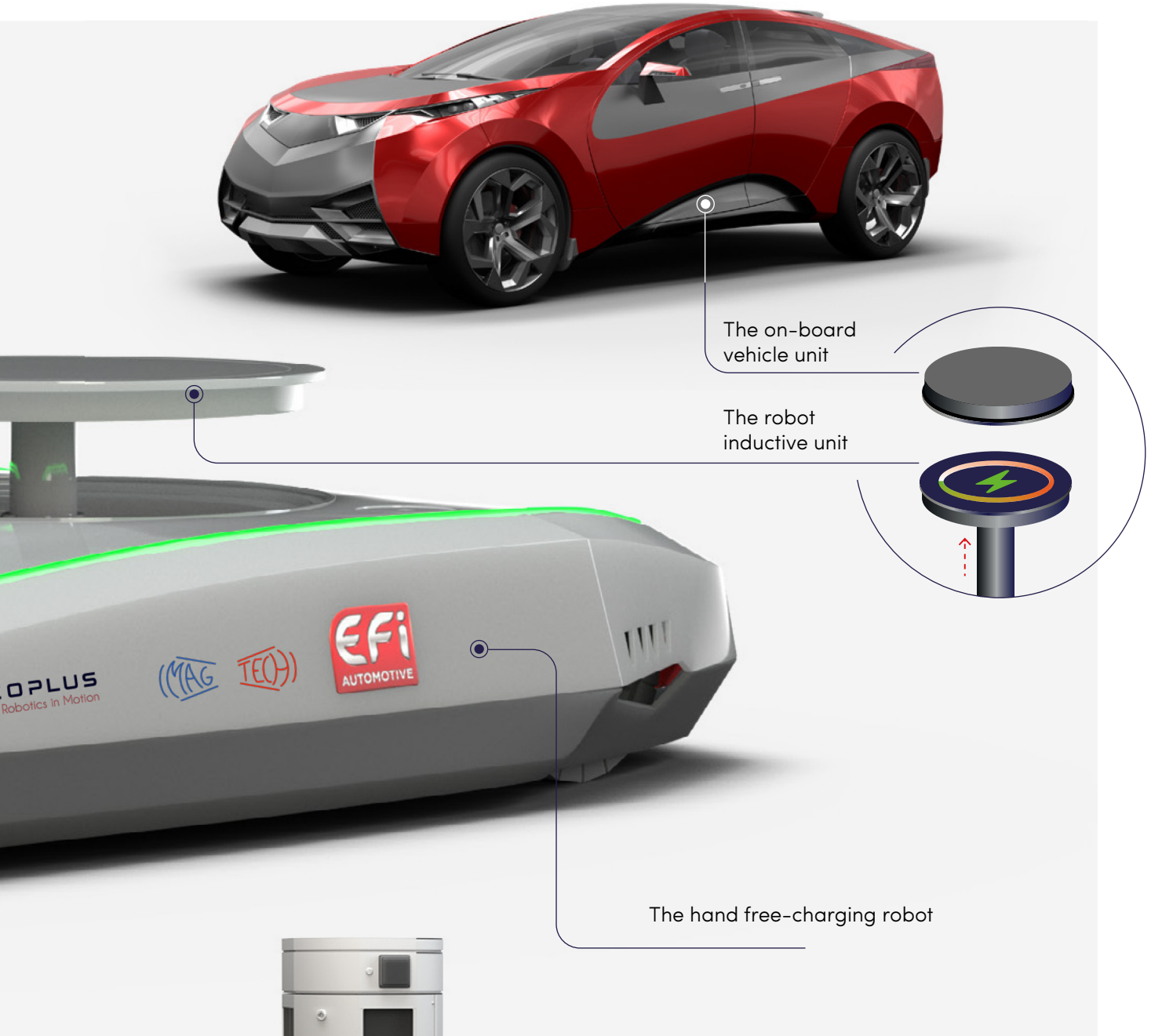
Guidance thanks
to the ultrasound
system



Remote detection of
obstacles thanks
to the LiDAR system



High level of security
against data
hacking



Multicharging
station



Use case: BUSINESS CHARGING



Recharge during
working time



Smartphone app
providing the charge
level in real time



Additional artificial
intelligence to determine
the charging strategy



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