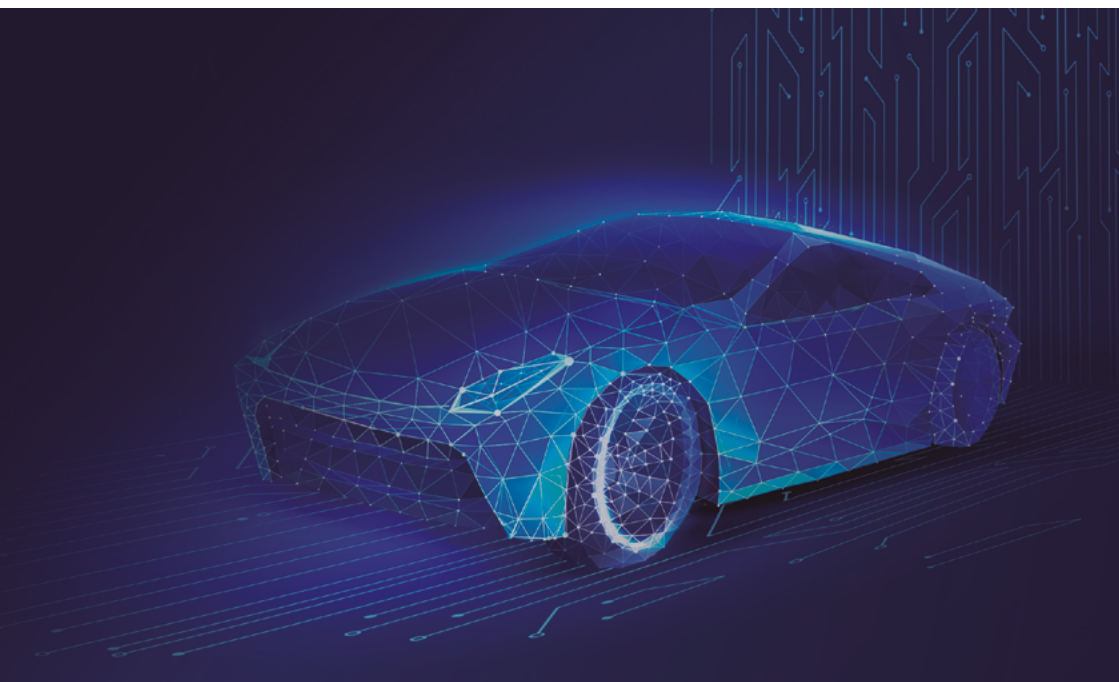




**Developing innovative
green solutions to power
autonomous sensors for
the automotive industry**



www.suink.eu



The challenge

Today a modern car is equipped with over 60 sensors (to monitor temperature, oil pressure, emission levels, speed, etc.) and this number is only expected to rise as autonomous and electric vehicles gain popularity.

These sensors require electricity to function. This is currently provided through cables that connect them to the vehicle's battery. However, the presence of cables adds undesired weight to the car, undermines the overall reliability and is linked to severe environmental and human rights risks due to the sourcing and use of critical raw materials.

The SUINK project

The EU-funded **SUINK** project aims to develop green solutions to produce innovative sensors able to create their own energy rather than needing electricity from the vehicle's battery.

By reducing the number of cables needed in a vehicle, the **SUINK** technologies will allow the automotive sector to reduce the weight of components, decrease the use of copper and other critical raw materials, and reduce the manufacturing costs while meeting sustainability and recyclability targets.



The SUINK solutions

SUINK aims to **develop sustainable, flexible and printable self-charging power systems** able to supply power to a wide range of sensors. The main elements are:

- **Biobased conductive, dielectric and piezoelectric inks** applied by inkjet printing on biobased flexible substrates
- A **piezoelectric energy generator** to harvest electrical energy from mechanical vibrations based on piezoelectric PLA
- A rectifying system as a connection circuit with a fully **printed biobased supercapacitor** as energy storage component.

These solutions will be tested to develop:

- A **temperature sensor** to monitor of the car seat heating (smart heating)
- A **temperature and humidity sensor** in a polymeric bracket of the cars
- A **strain sensor** to monitor the structural failures.

Sustainability

The **SUINK** solutions are characterised by sustainable elements along their entire lifecycle, in line with the UN SDGs:



Design: less reliance on Critical Raw Materials, avoiding human rights, environmental and geopolitical risks.



Manufacturing and use: the SUINK solutions are energy-efficient, produce less waste, use fewer resources, and emit fewer toxic pollutants.



End-of life: SUINK will develop circular solutions and recycling strategies for plastics and composites with integrated electronics.

SUINK (SUStainable self-charging power systems developed by INKjet printing) is a project funded by the European Union, running from September 2022 to August 2026. The project is coordinated by Tekniker and includes 11 partners + 1 linked third party from 5 countries.



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