

27/10/2021



ESENSE

Breakthrough electromagnetics detection, navigation and characterization



Co-funded by
the European Union



Biomimetics « electric sense » technology



14 employees (hiring !)

<https://elwave.fr/carrieres/>

33% women



- World 's first company to offer solutions based on « electric sense » technology

2 applicative markets



- Industrial robotics
- Energy and offshore infrastructure



ENVIRONMENTAL, SECURITY AND ECONOMIC IMPACTS



ELWAVE technology is a key-enabling solution for large-scale deployment of AUVs. It is directly in line with the **European Green Deal** by contributing :

- To reduce pollution of the oceans (mines, plastic ...)
- To move towards a cleaner energy sector
- To make offshore infrastructure more sustainable



ENVIRONMENTAL

From the detection of plastics and UxOs to the knowledge of ocean floors

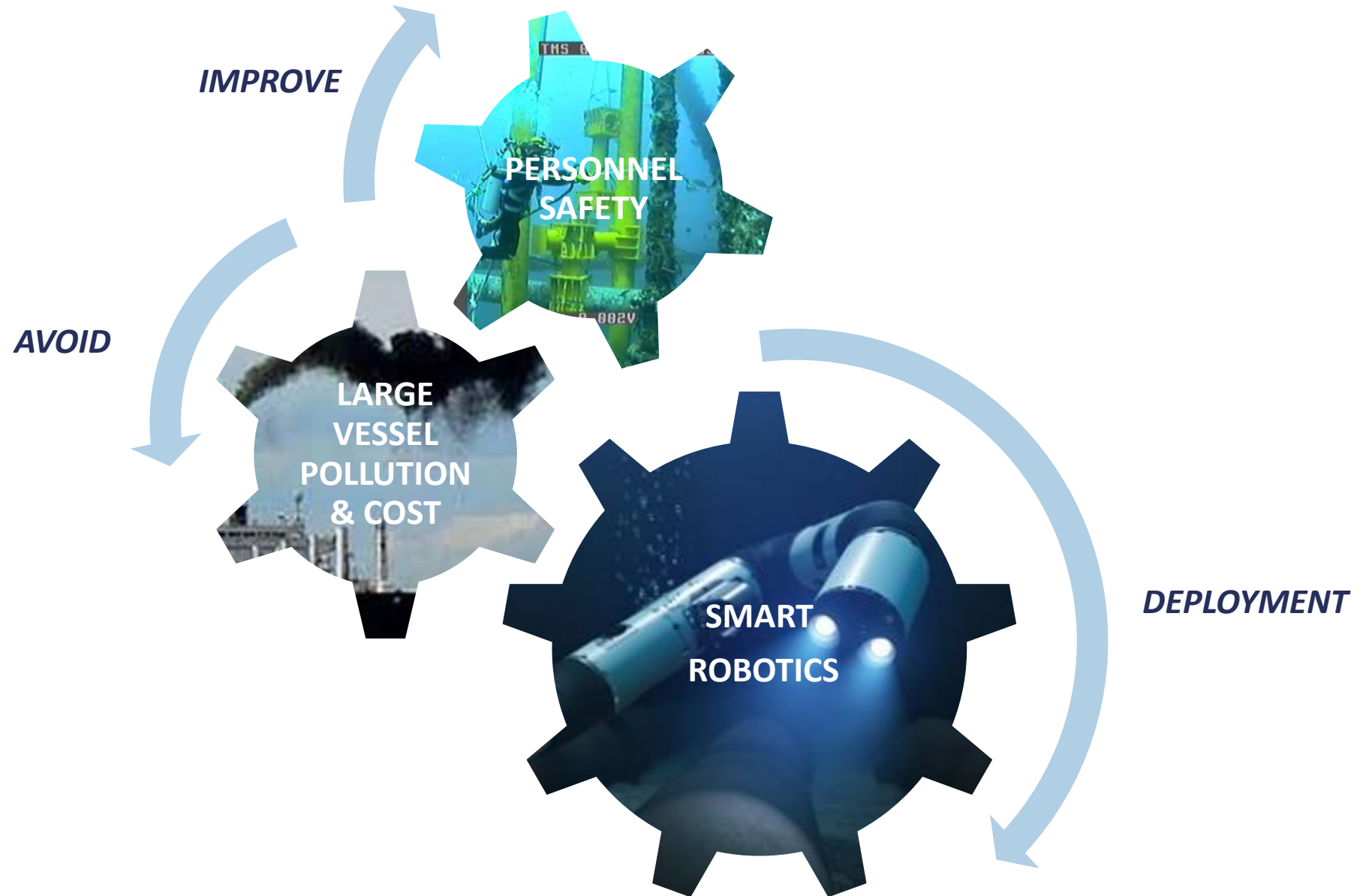
STRATEGIC ASSETS

A key technology for 'seabed warfare' (subsea cables, mines, ...)

500M€ / year

Cost reduction of offshore windfarm exploitation thanks to AUVs

Subsea smart robotics benefits to OWF



ELWAVE benefits to Smart Robotics



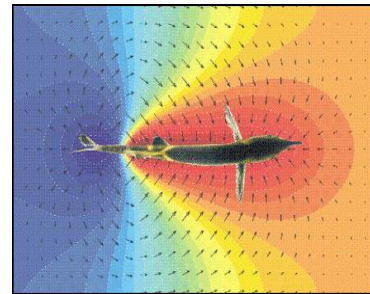


TECHNOLOGY

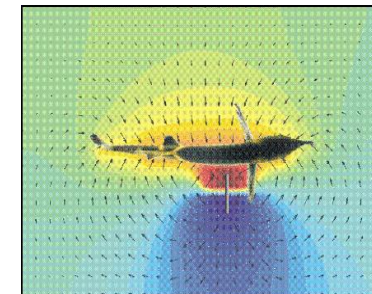
ELWAVE is the world's 1st and only-company to develop perception sensors based on the breakthrough biomimicry "ELECTRIC SENSE » technology.



*Electric fish
Gnathonemus Petersii*



*Electric field generated by the fish
without any object close to it*



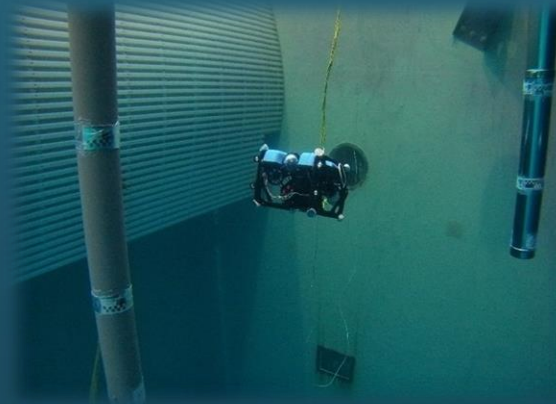
*Electric field perturbed by an
object close to the fish*

« Electric sense » is the perception mode of fishes living in muddy and very cluttered tropical water in which vision and acoustics are inefficient.

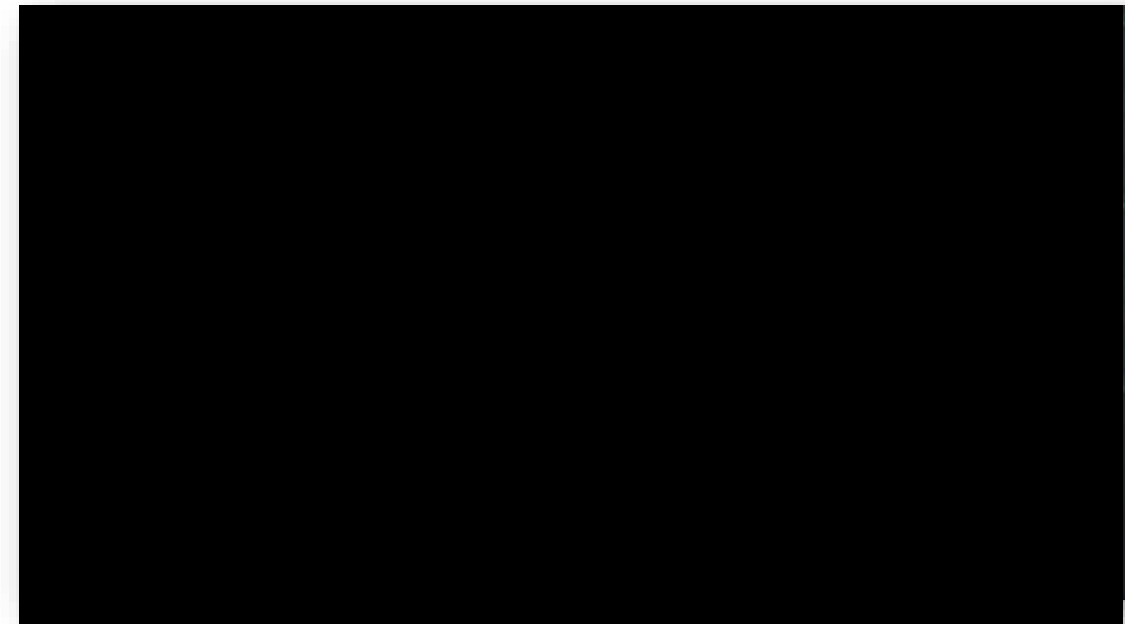
Detection method:

- Emission of a weakly alternative electric field
- Measure of its evolution
- Real-time data treatment for the detection, the localization and the characterization of object

HUMAN – MACHINE INTERFACE (HMI)



Real-time 360° & 3D (all-around) visualisation



12 months ago...

SENSOR



SERIAL & ETHERNET DATA LINK

SELF-TUNED AND CALIBRATED LOW-FREQUENCY ELECTROMAGNETICS FIELD

ELECTROMAGNETICS COMPATIBILITY
Passive EMC and jamming avoidance algorithms

POWER SUPPLY

POWER & DATA LINK WITH ELECTRODES

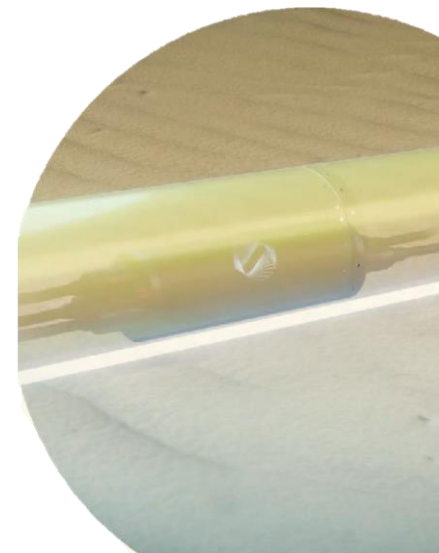
HIGH GRADE WATERPROOF POD

PLUG & PLAY SENSOR - ANY ROV AND AUV

- A pod integrating high-sensitivity electronics and cutting-edge algorithms
- Electrodes on different location of the vehicle
- Electromechanical components (cables, connectors...)
- Remote software for HMI visualization ("electric image") and sensor management

SPECIFICATIONS

- Up to 24 electrodes
- Low power supply (9-36 volt)
- Data link RS 232, RS 422/485 & Ethernet
- Low energy consumption (< 30W)
- Low size and weight casing (< 40cm- < 5kg)
- Highly reliable (no mobile mechanical components)





ROADMAP

Roadmap



24 MONTHS / 2,5M€

Octobre 2021



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