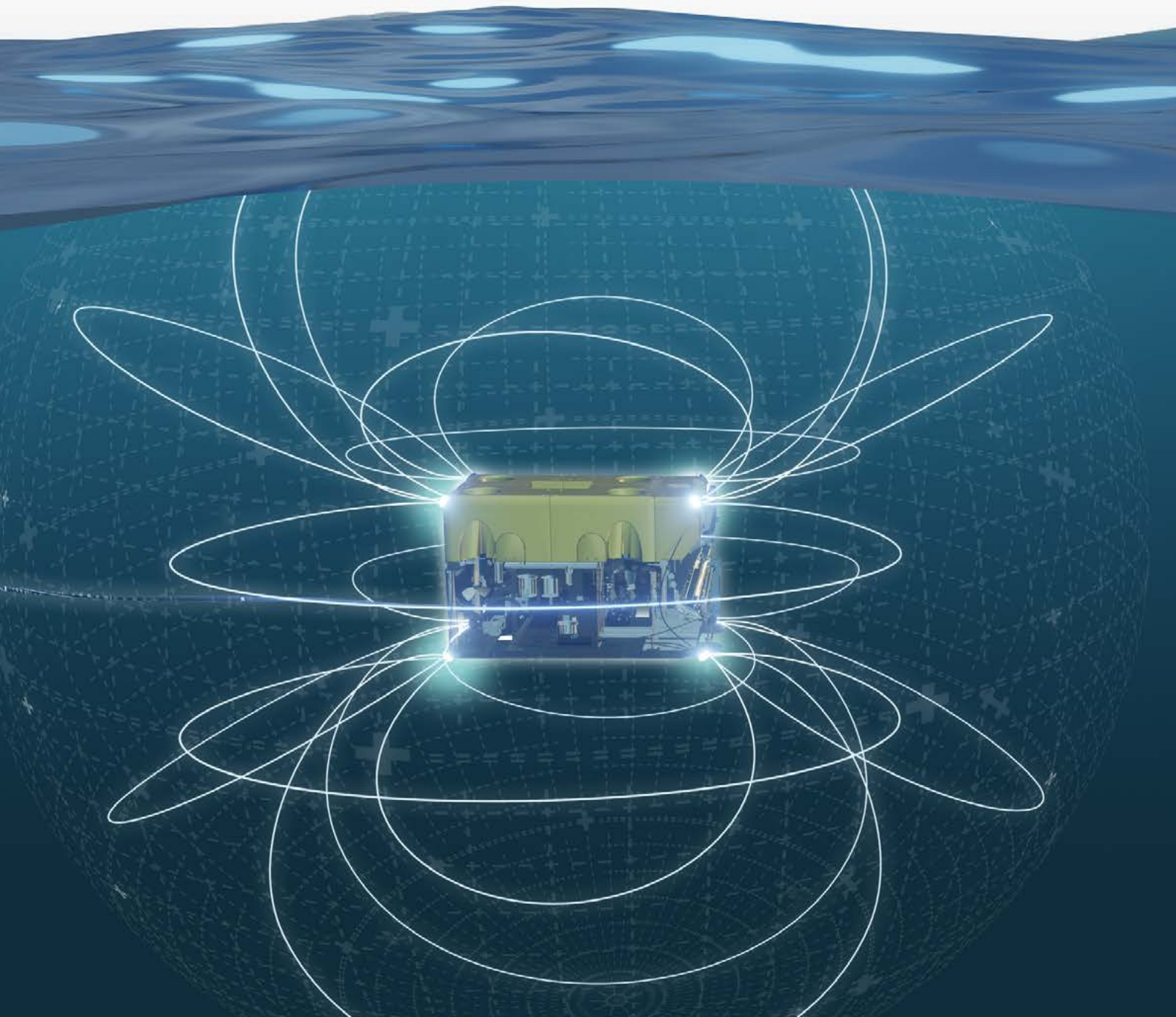




ELWAVE

**ELECTROMAGNETIC
DETECTION & NAVIGATION SOLUTIONS**



ELWAVE is the world's first and only company to offer products and systems based on innovative

“ELECTRIC SENSE” TECHNOLOGY

ELWAVE develops solutions based on electrical sensory perception, known as “electric sense”, developed since 2007 by the biorobotics research group in Mines-Telecom Atlantique Institute.

ELWAVE biomimetics technology takes its inspiration from the sensory mode used by tropical freshwater fish (African mormyrids and South American gymnotiforms). These fishes have developed electrical sensory perception in order to move around, capture their prey and communicate with each other in an environment where vision and sonar (echolocation) are ineffective.

Electrical sensory perception is based on the interpretation of disturbances of an electric field emitted by the fish. It generate a 360° electric field around itself which is modified by their environment, other fishes, or predators.

APPLICATIONS

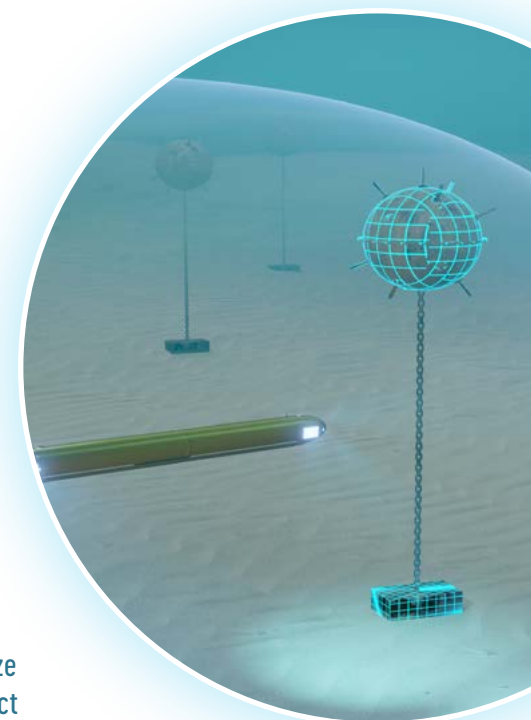
With its unique ability to detect and characterize (size, shape, electrical nature) any insulating and conductive objects in water into sediments, ELWAVE technology is a breakthrough solution for underwater perception applications.



360° SAFETY SHIELD

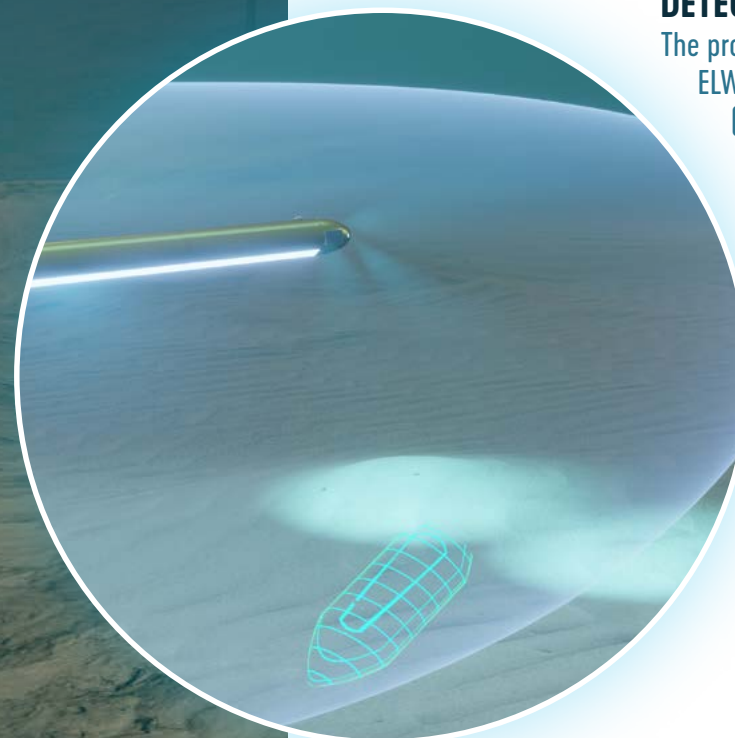
With its real-time 360° detection capability, ELWAVE provides ROVs and AUVs with a unique all-around perception in any environments

With an **EFFECTIVE DETECTION** range of up to 5 times the length of the vehicle, ELWAVE real-time 360° technology complements cameras and sonar for navigation in complex environments (turbid water, close approach of infrastructure, shallow water...).



DETECTION AND TRACKING OF BURIED OBJECTS

The propagation of the electric field into the seabed gives the ELWAVE solution its unique ability to detect and characterize (size, shape, metallic vs non-metallic) all types of object (insulating and conductive) up to 2.0 m depth of burial. ELWAVE systems offer an innovative solution for the detection and the tracking of buried underwater objects.



SURVEYING & CHARACTERISATION OF BURIED OBJECTS

such as but not limited to :

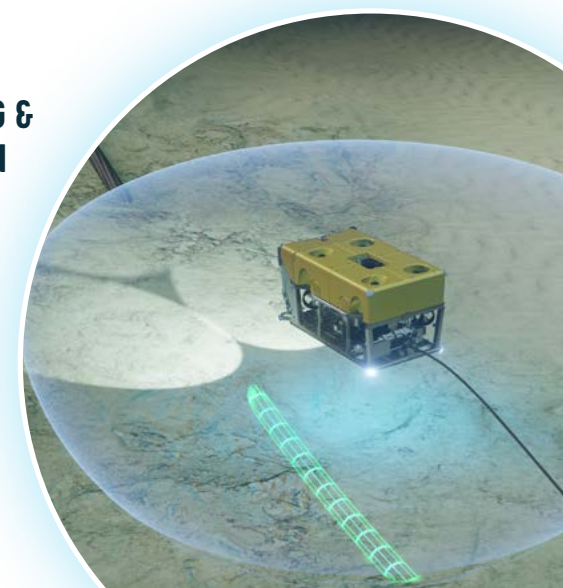
PIPELINE

CABLES

MOORING LINES AND ANCHORAGE

UXO & MINES

WRECK & DEBRIS



TECHNOLOGY

Electric sense systems are based on the following principle:

- Emission of an alternative low frequency, low energy electric field
- Measurement of its variations
- Algorithmic process for detection, location and characterisation of objects

SERIAL & ETHERNET DATA LINK

POWER SUPPLY

HIGH GRADE WATERPROOF POD

SELF-TUNED AND CALIBRATED LOW FREQUENCY ELECTROMAGNETICS FIELD

ELECTROMAGNETIC COMPATIBILITY
Passive EMC and jamming avoidance algorithms

POWER & DATA LINK WITH ELECTRODES

ELWAVE

WATCH POD IN ACTION



<https://youtu.be/RhqYY0wKsnM>
NOW



PLUG & PLAY SENSOR

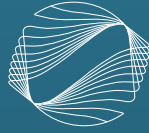
For easy integration on any ROV and AUV, the sensor is compounded of:

- A pod integrating high-sensitivity electronics and cutting-edge algorithms
- Up to 24 electrodes on different location of the vehicle
- Electromechanical components [cables, connectors...] for implementation on the vehicle
- 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)





ELWAVE

ELECTROMAGNETIC DETECTION & NAVIGATION SOLUTIONS

ELWAVE is an innovative French company which develops and markets breakthrough detection, navigation and surface characterisation solution for underwater and industrial environments.

LISTENING TO CUSTOMERS

We build and maintain long-term relationships with our customers and aim to be part of their history and commercial success. Being constantly alert allows us to contribute developments which meet the current and future needs of users and ensure their full satisfaction.

TECHNOLOGICAL AND OPERATIONAL EXCELLENCE

ELWAVE strives to provide its customers with innovative and fully operational solutions that provide them with major benefits as regards the productivity and safety of their operations. Based on breakthrough technology, ELWAVE products are developed, designed and manufactured with passion and rigour to the highest standards of quality.

HUMAN ASSETS

Excellence, passion and commitment, attention to detail, team spirit and ethical behaviour are just some of the values shared by ELWAVE's future employees.

ELWAVE is firmly committed to its societal and environmental responsibilities. Specifically, we encourage every employee to develop his/her skills and independence, and we place particular importance on shared responsibility for exciting tasks undertaken in dynamic teams.

2 rue Alfred Kastler, CS40617
44300 NANTES Cedex 3

Tel. : +33 [0]2 51 85 87 71 Email : contact@elwave.fr

www.elwave.fr