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 generates 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.

DETECTION AND TRACKING OF BURIED OBJECTS

The propagation of the electric field into the seafloor 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

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...).
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

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)