Maritime safety and security

DENEL

SYSTEM FOR DETECTING OBSTACLES AND BURIED OBJECTS AND FOR ASSISTING ROV AND AUV NAVIGATION BASED ON ELECTRORECEPTION TECHNOLOGY

The DENEL project will characterise and evaluate the electroreception (an 'electric sixth sense'*) performance of two applications – obstacle/buried object detection and ROV and AUV assisted navigation – on a small, offshore ROV operating in a calm environment (such as a harbour) at shallow depths.

A second stage, which is not part of this project, will involve developing a commercial prototype system on an operational ROV in a real marine environment.

ELWAVE sensors based on electroreception technology offer the capacity to detect and characterise in real time any type of conducting or non-conducting object within a 360° sweep of the ROV's/AUV's close surroundings and in complex environments, such as those featuring turbid waters, cluttered or constrained conditions or buried objects.

The DENEL project will thus develop a model of an electroreceptive system whose electronic and algorithmic elements will represent those of the final product. By deploying mapping and command algorithms, the sensors will also offer assisted navigation to ROV pilots and autonomous navigation for AUVs (avoiding obstacles, skirting walls and docking).

**An 'electric sixth sense' or electroreception is a type of perception in animals discovered in 1958 in so-called electric fish inhabiting muddy waters. To compensate for inefficient sight and sonar in opaque and cluttered waters, these fish developed a unique method of perception – electroreception. The fish generate an electric field around them (a sort of 'electric bubble') and any object they approach alters this electric field. The fish analyse the change to determine the position, shape and type of object causing the disturbance.*

Partners

COM_PROJECTS_CATEGORIE_PARTNER_ENTREPRISES

Elwave SAS, Nantes [Project Developer]

Research centers

ARMINES / IMT Atlantique, Nantes
Yncréa Ouest - ISEN Brest, Brest

Other partner

Plate-forme CELADON, Brest

Funder

- Citeph

Labelisation

14/12/2018

Overall budget

389 K€