

AUVs for Environmental Recognition and Sensing

ECA Group is currently involved in a European project called 'Smart and Networking Underwater Robots in Cooperation Meshes (SWARMS)' in order to increase the knowledge level in underwater robotics. SWARMS is a Europe-wide project started in July 2015 involving 35 partners from 10 European countries for 3 years. The total cost of this project is EUR17.3 million (EU funding EUR6.4 million). The project includes the development of new meshes using autonomous underwater vehicles (AUVs), among other things.

This sprawling project aims is to develop several innovative solutions such as:

- New cooperative autonomous meshes using heterogeneous robotics system (for example: [AUVs](#), [ROVs](#) and [USVs](#))
- Real time environmental recognition and sensing system
- Advanced decision making environment system based on imaging recognition algorithm
- Underwater communication framework

ECA Group started to work for SWARMS from the very beginning of this project in 2015 and is in charge of 3 different work packages. The company is actively involved in SWARMS providing innovative environmental recognition and sensing based on a large scale 3D mapping, map fusion and simplification.

Real Time Quality Control

In the context ECA Group is fielding its AUV A9 equipped with an interferometric sidescan sonar and an embedded computer with the goal of analysing in real time the quality of the depth soundings in order to modify mission parameters to optimize the quality of the survey.

Additionally, ECA Group is involved in algorithms for sonar image registration to improve positioning and navigation during repeated missions over the same area by one or multiple vehicles of different kinds.

During September 2016, ECA will participate to an underwater test, in the Canary Islands, with the AUV A9, in order to approve the scientific and theoretical input of the past year.

SWARMS for Science

SWARMS project will be useful for industrials (like Boskalis) but although for Science with strong universities partnership. The main goal of SWARMS is to make AUVs, ROVs and USVs further accessible and useful, making autonomous maritime and offshore operations a viable option for new and existent industries.

All the members working for this European project are experts in their domains and are engaged in order take advantage of the experience of each ones.