University of Zagreb
Faculty of Electrical Engineering and Computing

Laboratory for Underwater Systems and Technologies

Technologies

LABUST

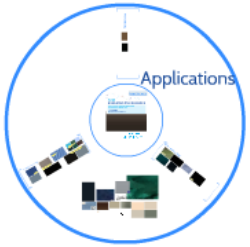
Research

University of Zagreb
Faculty of Electrical Engineering and Computing

Laboratory for Underwater Systems and Technologies

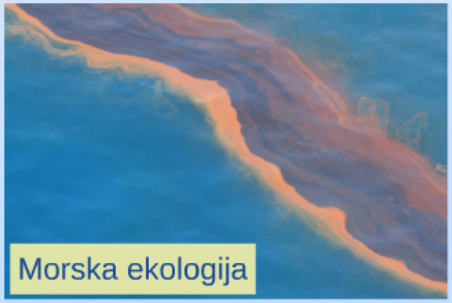
Technologies

LABUST



Research

Područja primjene



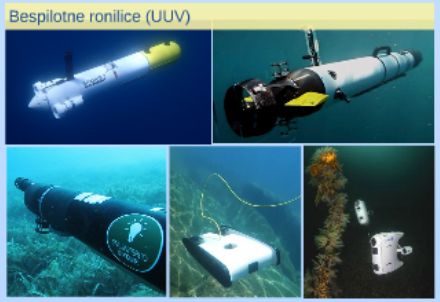
Motivacija

- oko 70% Zemlje je prekriveno vodom
  - 50-80% vrsta živi pod vodom, otkriveno tek 0.1% - 10%
  - veliki izvor rudnih bogatstava
  - izvor obnovljive energije

Izazovi

- agresivno okruženje pod utjecajem poremećaja: struje, valovi, vjetrovi
- opasno za čovjeka
- otežana komunikacija i navigacija

Autonomna bespilotna plovila



At present (year 2013) Department have 5 FP7 contracted projects worth ~ 5 mil. EUR

Active projects:

7

EUROPEAN PROJECTS
- H2020 FET Launchpad APAD
- INTERREG BLUEMED
- H2020 CROBOHUB
- H2020 Twinning EXCELLABUST
- DG-ECHO E-URready4OS
- H2020 Fire+ PLADYFLEET
- H2020 ROBOCOMM++
- H2020 FET SUBCULTRON

1

NATO PROJECT
- NATO S4P MORUS

1

ONR-G PROJECTS
- SPATEL

1

NATIONAL PROJECTS
- CroMarX

Finished projects:

6

EUROPEAN PROJECTS
- FP7-ICT CADDY
- FP7-SME CART
- FP7-REGPOT CURE
- INTERREG SIOI
- DG-ECHO URready4OS
- FP7-INFRA EUROFLEETS2

1 NATO, 3 ONR-G, 4 national

ope.

nr

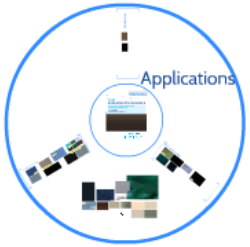
Antonio Vasilijević
Ivana Mikolić
Anja Babic
Đula Nađ
Ivan Lončar
Assoc. Prof. Nikola Mišković
Prof. Zoran Vukić
Milan Marković
Filip Mandić
Marin Bek
Nadir Kapetanović
Matej Celega

University of Zagreb
Faculty of Electrical Engineering and Computing

Laboratory for Underwater Systems and Technologies

Technologies

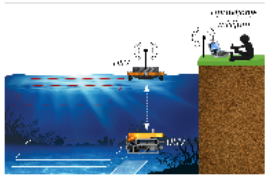
LABUST

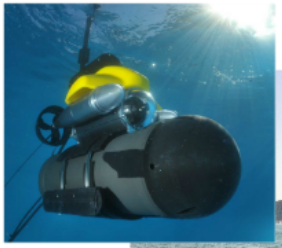


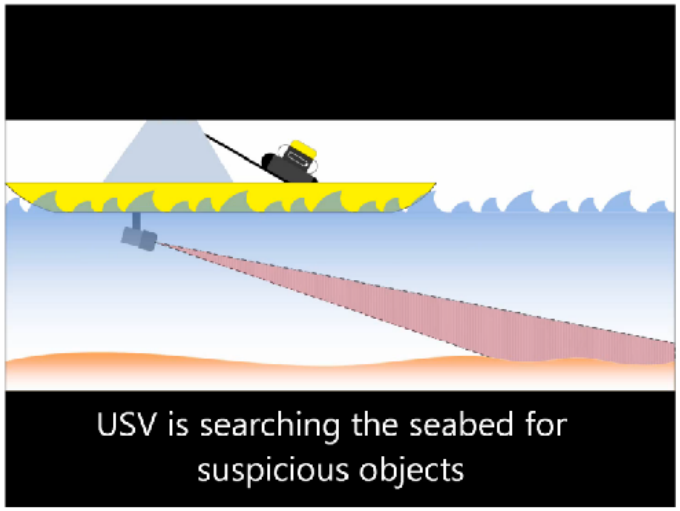
Research

Autonomous Naval MCM Neutralization System

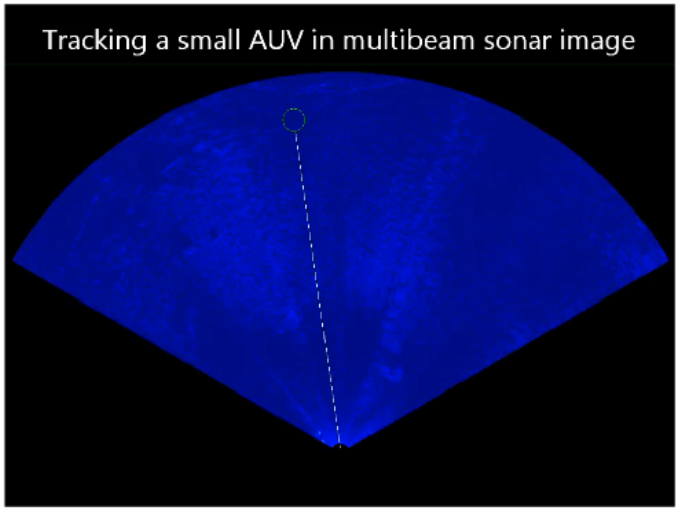
Perform maritime mine neutralization more efficiently and cost-effectively using a system of cooperative autonomous vehicles



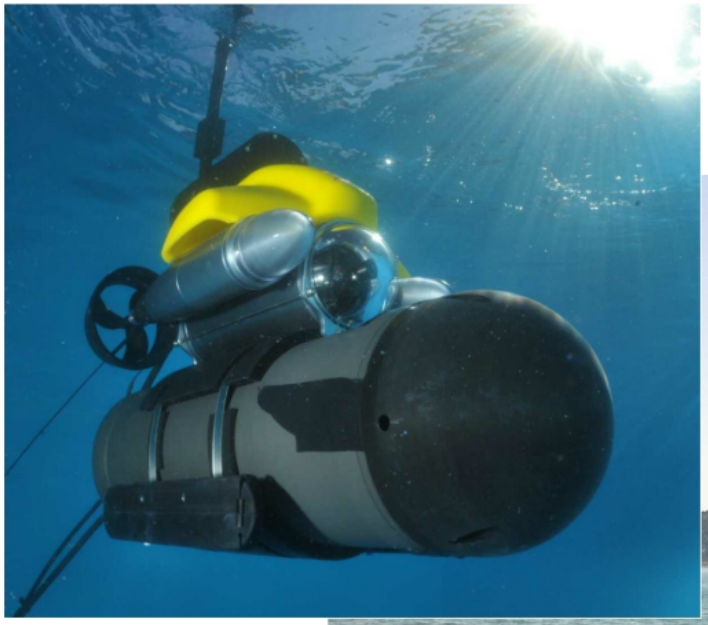




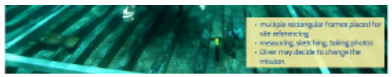
USV is searching the seabed for suspicious objects



2011



cognitive robotic system capable of learning, interpreting, and adapting to the diver's behaviour and physical state



CADDY

Cognitive Autonomous Diving Buddy

SEVENTH FRAMEWORK PROGRAMME

http://www.caddy-fp7.eu/

Key facts:

FP7-ICT Cognitive Robotics STREP with 7 partners

EU contribution: €3,7 million, (FER €709,000)

Duration: 36 months, starting 01/01/2014

Coordinator: UNIZG-FER

Consiglio Nazionale delle Ricerche

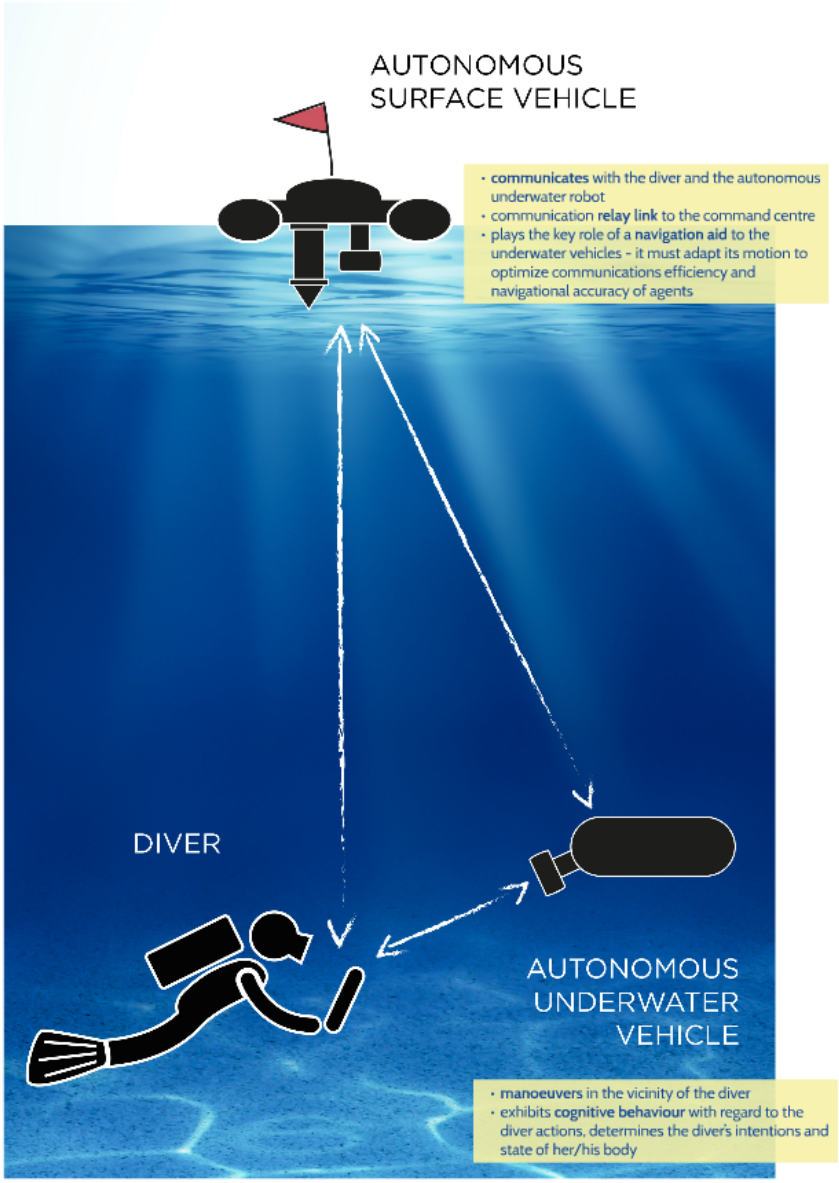
LISBOA

JACOBS UNIVERSITY

universität wien

Newcastle University

DAN EUROPE



What?

Set up symbiotic links between a human diver and a set of companion autonomous robots (underwater and surface).

How?

By developing a multicomponent, highly cognitive robotic system capable of learning, interpreting, and adapting to the diver's behaviour and physical state

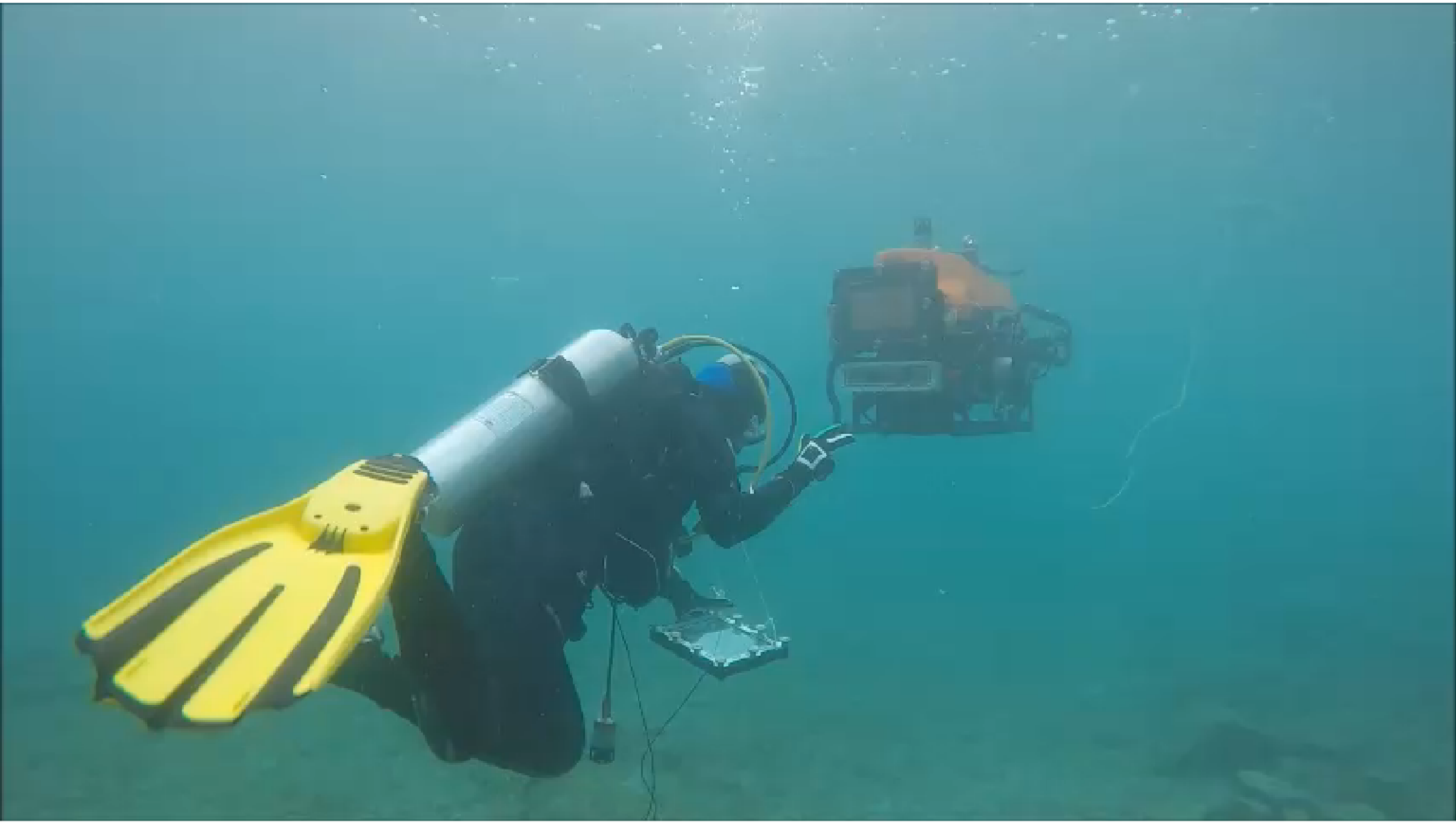
CADDY

Cognitive Autonomous Diving Buddy

Key facts:

FP7-ICT Cognitive Robotics STREP with 7 partners

EU contribution: €3.7 million (EER €709.000)

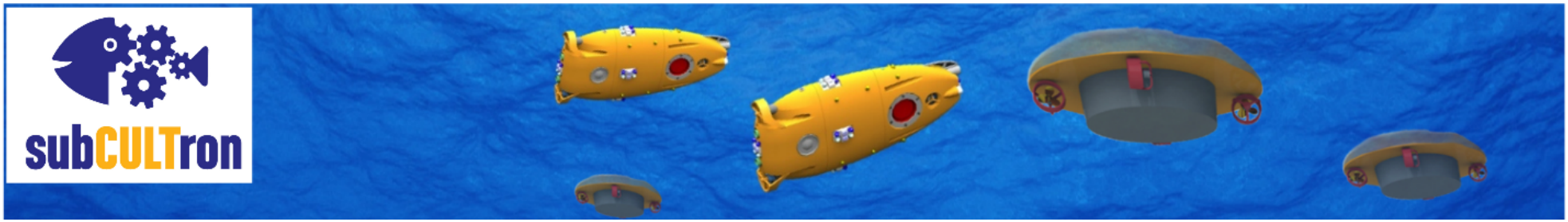


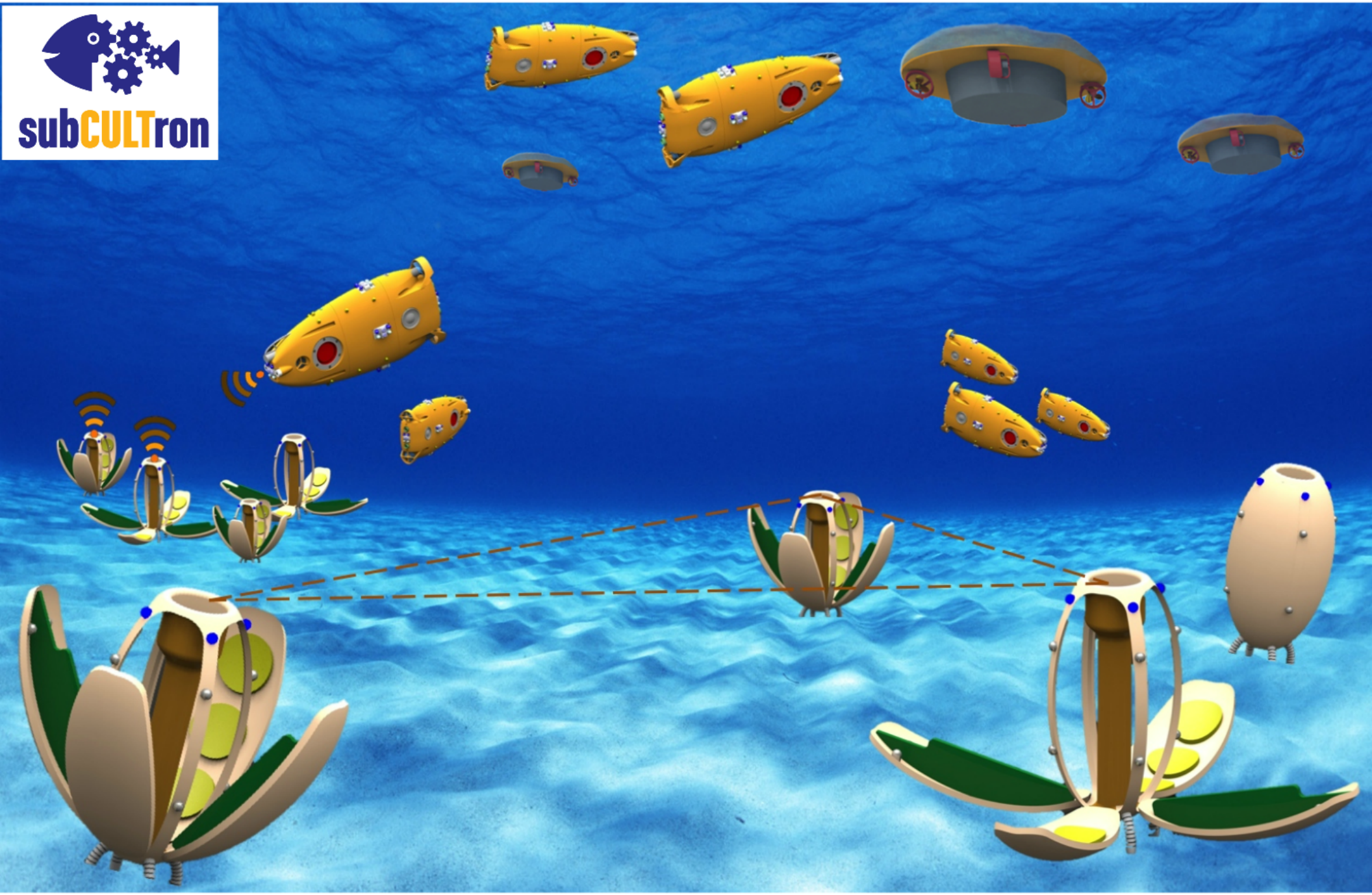
H2020 FETPROACT-2-2014: Knowing, doing, being: cognition beyond problem solving

Submarine Cultures Perform Long-Term Robotic Exploration of Unconventional Environmental Niches

Start date: 1st April 2015
Duration: 4 years
Total cost: EUR 3 987 650,75

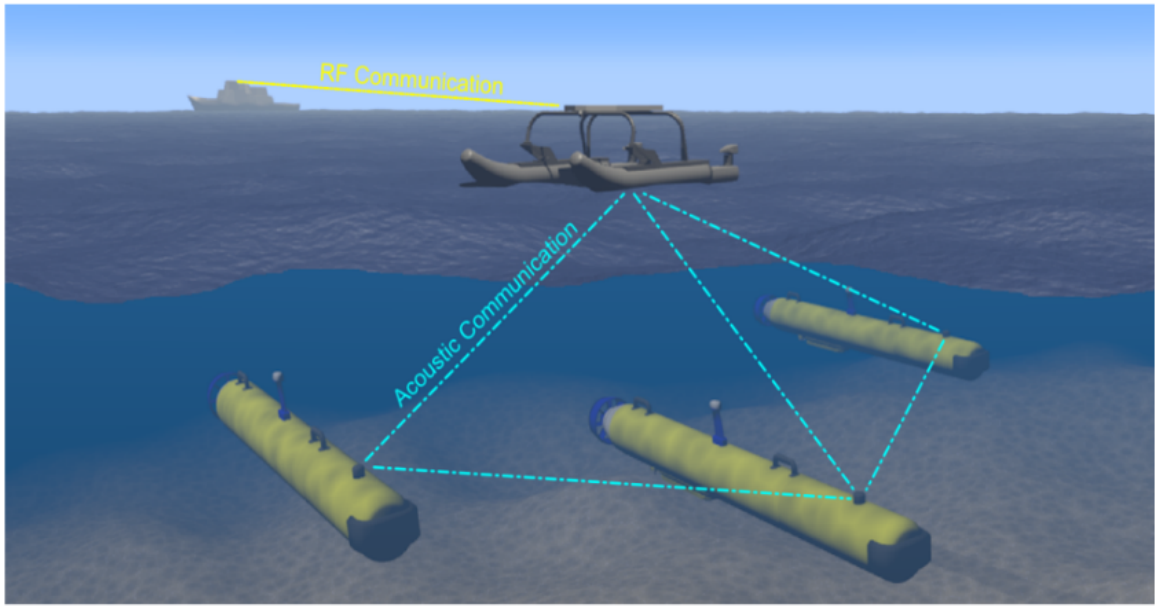
subCULTron




subCULTron

CUV-ME

Cooperative Unmanned Vehicles in the Maritime Environmen



Project objectives:

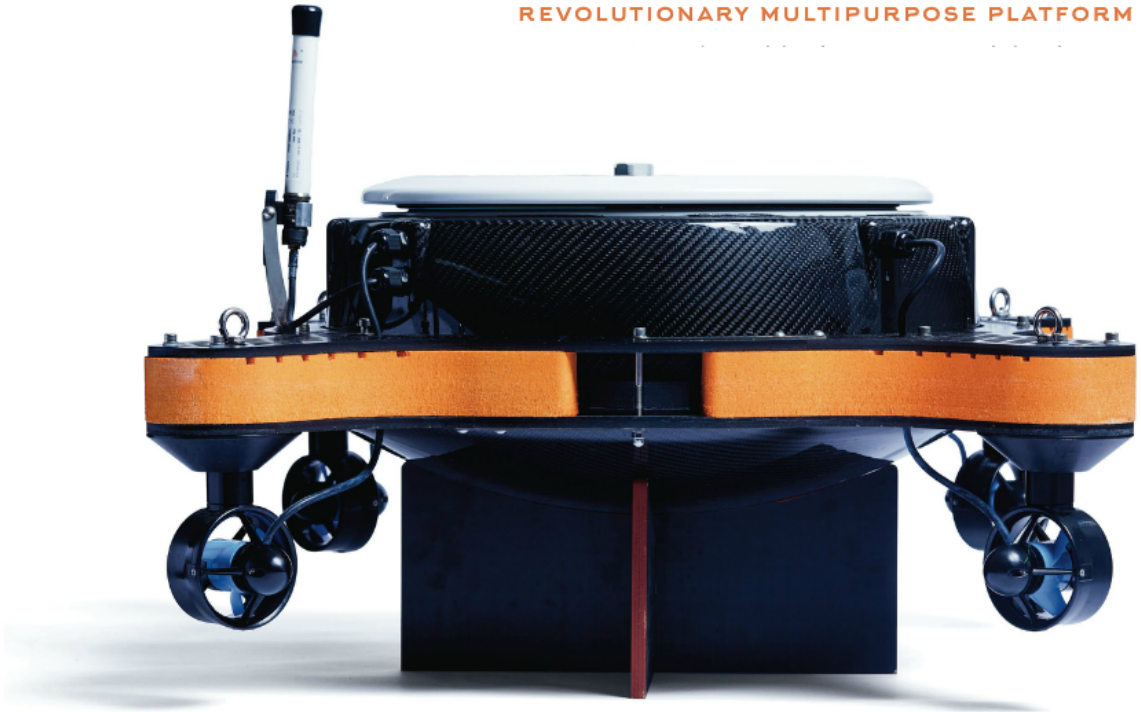
Develop **enhanced navigation capabilities for maritime vehicles** without use of expensive sensors i.e. find a cost effective means for navigation of multiple UUVs in **mine counter measure** (MCM) and **intelligence**, **surveillance and reconnaissance** (ISR) missions.

H2O ROBOTICS

VEHICLE APPLICATIONS CASE STUDIES NEWS CONTACT

What is aPad? Payload Options Contact

REVOLUTIONARY MULTIPURPOSE PLATFORM



H2020 FETOPEN - FET Innovation LanchPad

aPad - smaller, lighter, smarter autonomous marine surface vehicle

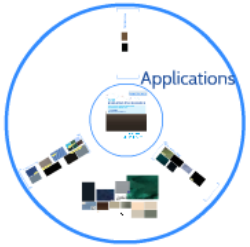
Start date: 1st May 2017
Duration: 18 monthd
Total cost: EUR 99 750

University of Zagreb
Faculty of Electrical Engineering and Computing

Laboratory for Underwater Systems and Technologies

Technologies

LABUST



Research