SAUCE : 1ˢᵗ Underwater Robotics Competition for European Students

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The most exciting phrase to hear in science,
the one that heralds new discoveries,
is not 'Eureka!', but 'That's funny …'

Isaac Asimov

SAUC-E

SAUC-E is the acronym for Student Autonomous Underwater Challenge - Europe. SAUC-E is a competition for European students to foment the investigation and development in underwater technology. At the moment, there are 10 teams already inscribed in the competition:

- University of Bath
- International University Bremen
- Cranfield University
- University of Girona
- University of Glasgow
- Heriot-Watt University
- University of Leicester
- University of Nice Sophia-Antipolis
- Norwegian University of Science and Technology
- Southampton University

For more information on SAUC-E please refer to the official homepage: http://www.dstl.gov.uk/technology_transfer/sauce
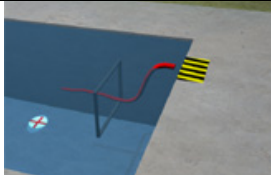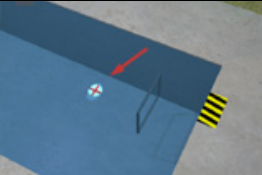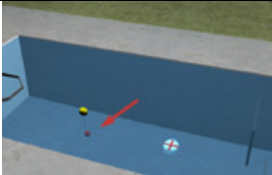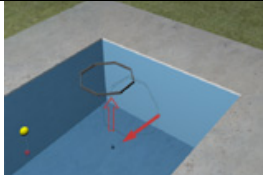
VICOROB-UdG^{TEAM}

We are a multidisciplinary team with 7 students and 3 professors of the studies in computer science and Industrial Engineering. The team is leaded by a student which behaves as the project manager. We belong to the Underwater Robotics Laboratory of the Computer Vision and Robotics Research team at the University of Girona. http://vicorob.udg.es

Why to Compete?

Europe constitutes the natural competition market for our students. To compete in Europe it is necessary to be skilled in technology, leadership and foreign languages. We want to probe that we can innovate and develop high technology. We want to demonstrate that our students are ready to compete with their European counterparts. Why to compete? To win!
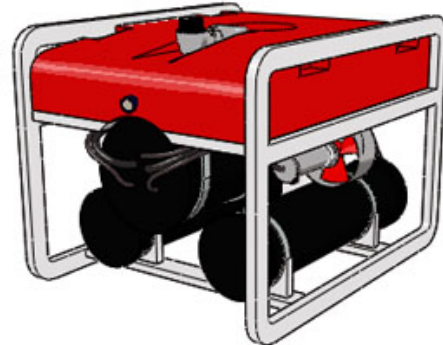
The Mission

The Challenge consists on developing an Autonomous Underwater Vehicle able to undertake a pre-defined mission without human intervention. The mission is composed of 4 different tasks which must be done in a maximum time of 15 minutes. The different tasks can be undertaken in any order except the first one, which must be undertaken first.

Task nº 1: Move from launch/release point and submerge. Pass through a validation gate without contacting any part of the structure.	**Task nº 2:** Locate a target situated on the bottom of the tank and "hit" it using a marker dropped from the vehicle.	**Task nº 3:** Locate a mid-water target and contact it with the vehicle. The target will be reflective (both optically and acoustically).	**Task nº 4:** Surface within a designated surfacing zone which will be marked by means of an active acoustic device.

El Robot

To take part in the competition, the robot must be completely autonomous. Therefore, it must be able to carry out the mission without human intervention. For this reason, the vehicle will have to transport the batteries and the computers. In addition, it also will be equipped with:

- 4 thrusters
- Miniking Imaging Sonar
- Argonaut Doppler Velocity Log
- XSens MT-9
- Underwater camera

To develop the software to control the robot we will use:

- Kernel 2.6 de GNU/Linux + RTAI patch
- CORBA-RT ACE/TAO
- UML design using Poseidon
- Simulation "Hardware in the Loop" using Neptune

Sponsorship

Whatever one man is capable of imagining,
other men will prove themselves capable of realizing
Jules Verne.

We have imagined a robot; you can make it real. Let us kindly ask your company or organization to take part in our project as a sponsor. We are thinking on 3 levels of SPONSORSHIP:

■ **MAIN SPONSOR:** Will give the name to the team. The robot and the team official shirt will take its colours and logo.

■ **NORMAL SPONSOR:** The logo will appear in the surface of the robot, the team official shirt and in this homepage.

■ **COLABORATOR:** The logo will appear on this web.

In all our declarations to the audiovisual and written media we will point out a special gratefulness to all our sponsors. In addition, we will deliver to them a DVD about the project as well as a certificate of sponsorship.

Budget

Description	Amount	Quantity	Subtotal	
Flight to London	300	10	3.000	
Single Room	117	10*5	5.850	
Diary expenses	60	10*5	3.000	
Total Trip of 10 members				**11.850**
Mechanizations			3.000	
Electronic Systems			4.400	
Sensors			4.300	
Robot Transport and Insurance			1.000	
Total Robot development				**12.700**
Official Team Shirt	**40**	**10**		**400**
DVD Edition				**300**
Publicity				**300**
Total SAUCE-UdG Budget				**25.550**