POLITÉCNICA
"Engineering the future"

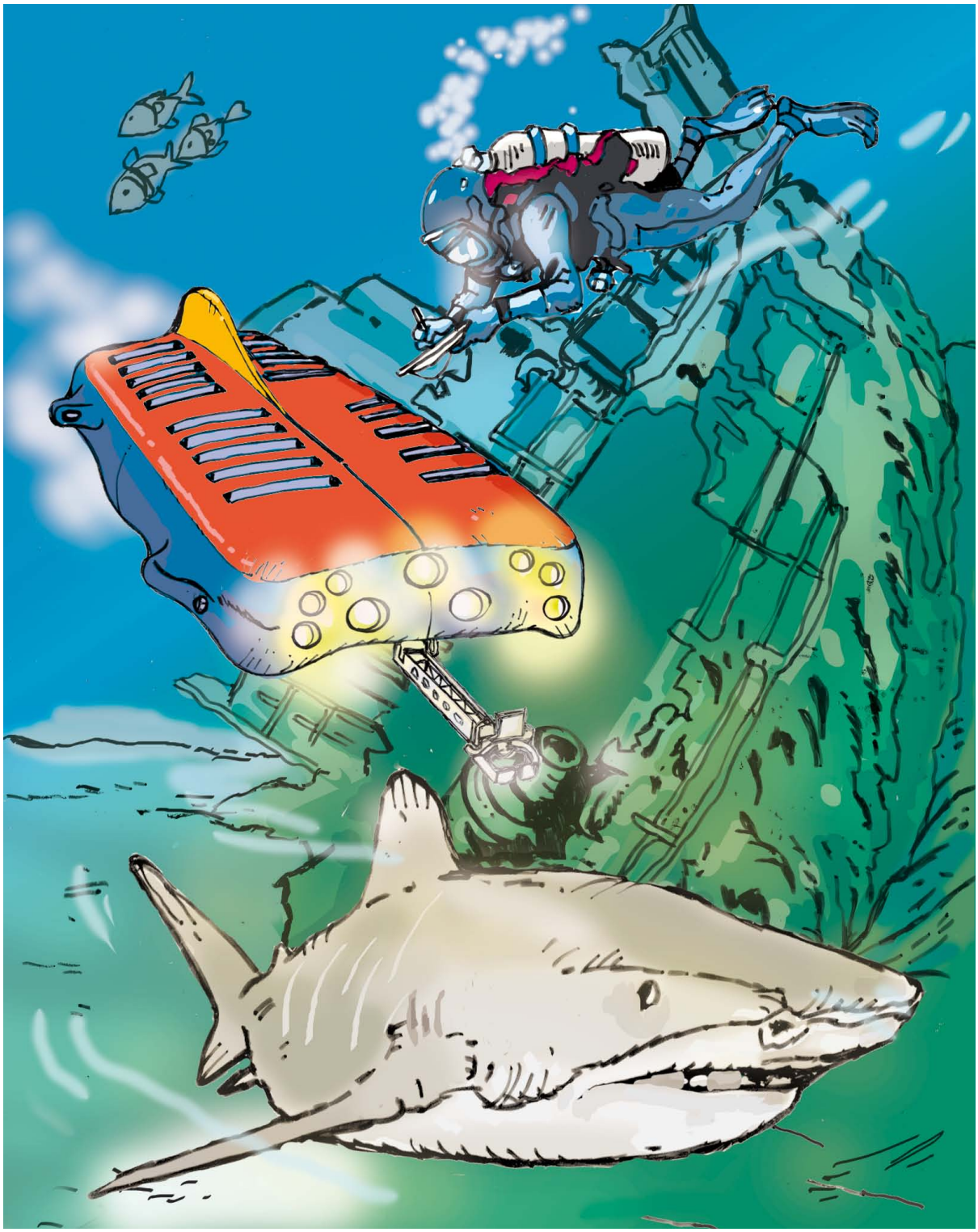
INTERNATIONAL CAMPUS OF EXCELLENCE

UPMCOMIC
THE HIGHER EDUCATION ADVENTURE

REAL UPM PROJECTS

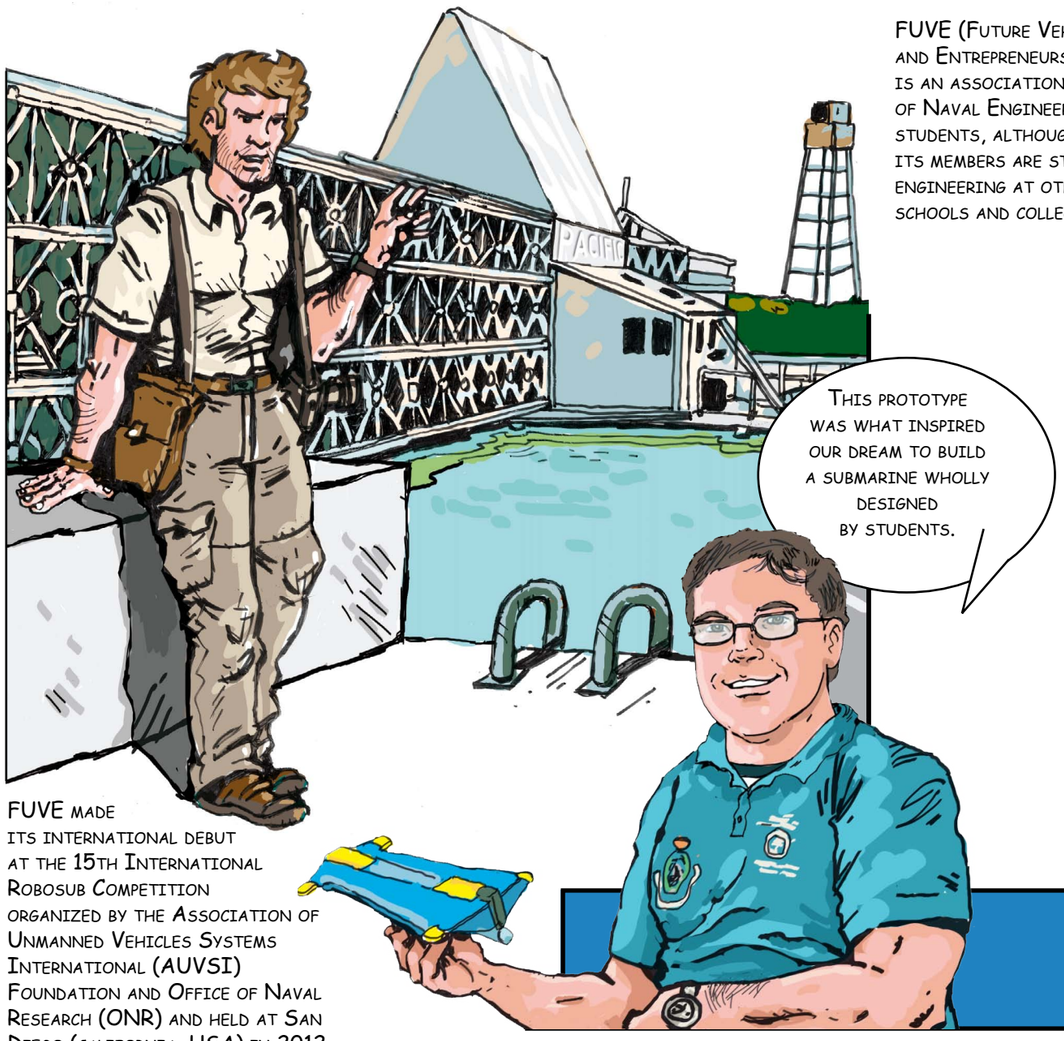
5

February 2013



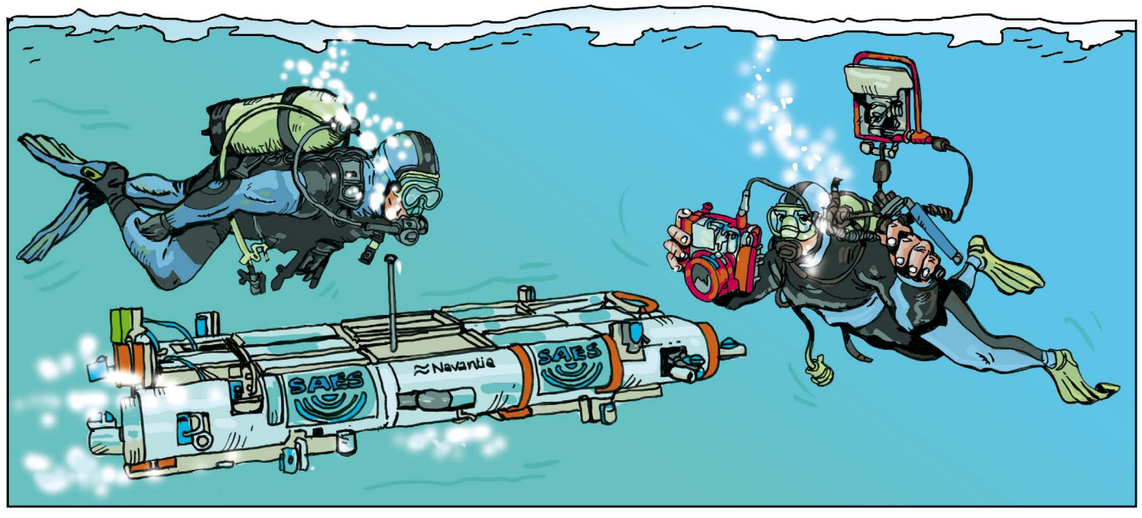
2013 Isaac Peral y Caballero AUV (Submarine) Proyect

FUTURE VEHICLES & ENTREPRENEURS (FUVE)
School of Naval Engineering
(Escuela Técnica Superior de Ingenieros Navales)



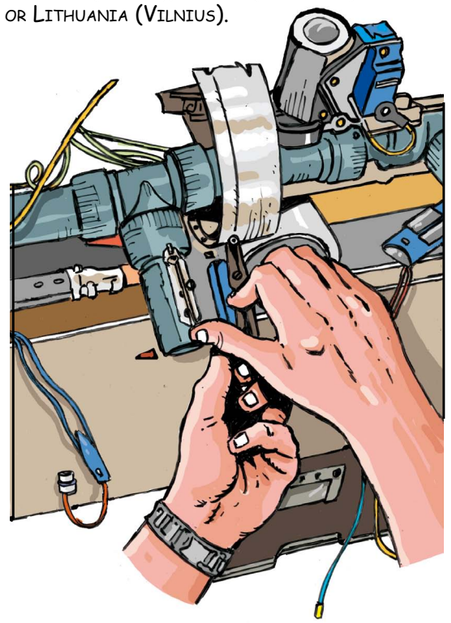
FUVE (Future Vehicles and Entrepreneurs) is an association of School of Naval Engineering students, although some of its members are studying engineering at other UPM schools and colleges.

FUVE made its international debut at the 15th International Robosub Competition organized by the Association of Unmanned Vehicles Systems International (AUVSI) Foundation and Office of Naval Research (ONR) and held at San Diego (California, USA) in 2012.

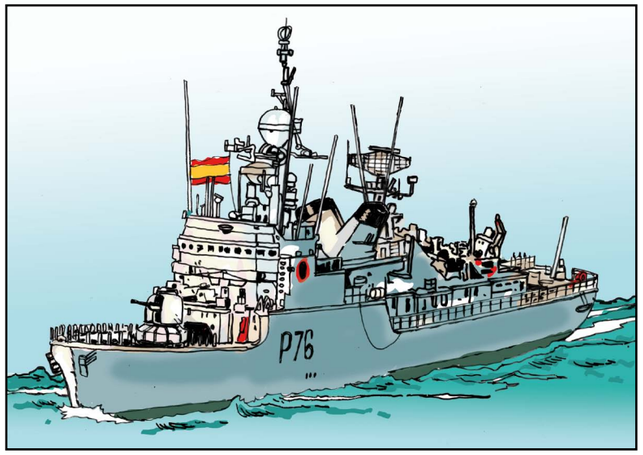


FUVE entered the Isaac Peral y Caballero submarine. FUVE was the first Spanish and European Union team to measure itself against the world's best universities and qualified for the semi-finals.
With this submarine, FUVE students set out to do something completely new and, until then, unheard of in the competition...

...They conceived an innovative waterjet propulsion system for their submarine. Additionally, the design was nothing like the other teams' models. The students manufactured the water-expelling valves themselves, as there was nothing on the market that met their needs.
The project was awarded the national prize for innovation in higher education and was showcased in several countries, like the United States (San Diego, Las Vegas), Germany (Berlin), France (Toulouse) or Lithuania (Vilnius).



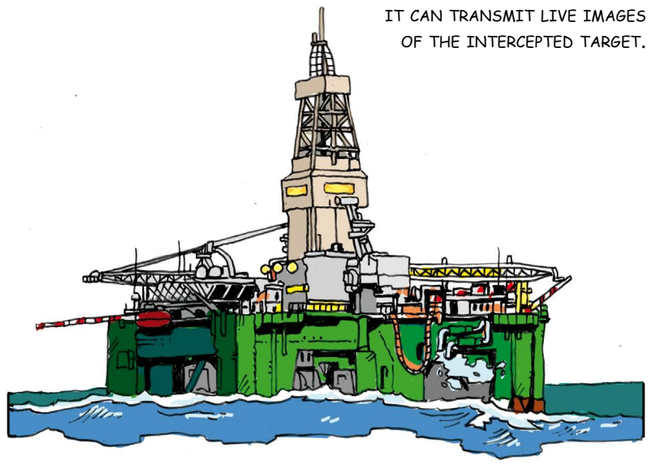
The next challenge now is the 2013 Isaac Peral y Caballero AUV Project: the part-wise construction of one of the most advanced student-built experimental submersible in the world.



The submarine has many applications:

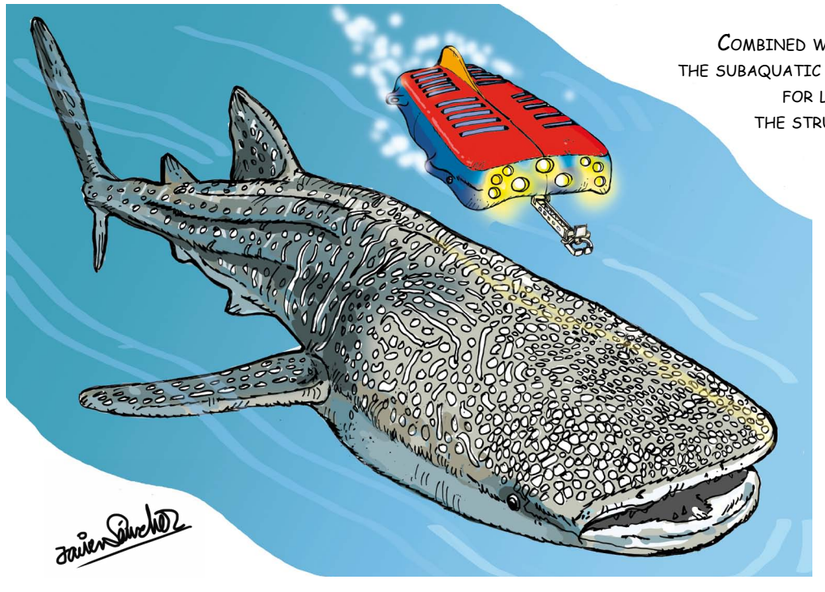
COASTGUARD SERVICE

The onboard computer can be configured for coastal surveillance with the submersible operating as a lookout station. If it detects a threat, it can transmit live images of the intercepted target.



STRUCTURE MAINTENANCE

Combined with the submarine's robotic arm, the subaquatic vision system is a valuable tool for locating and repairing damage to the structure or hulls of large vessels..

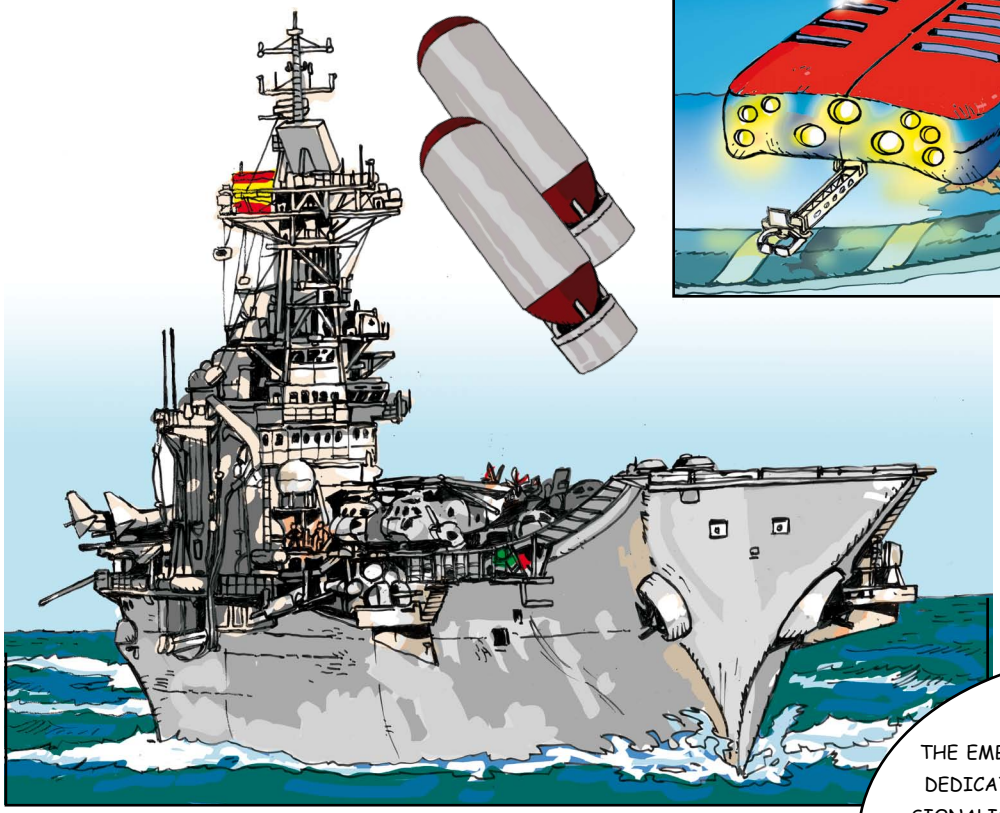


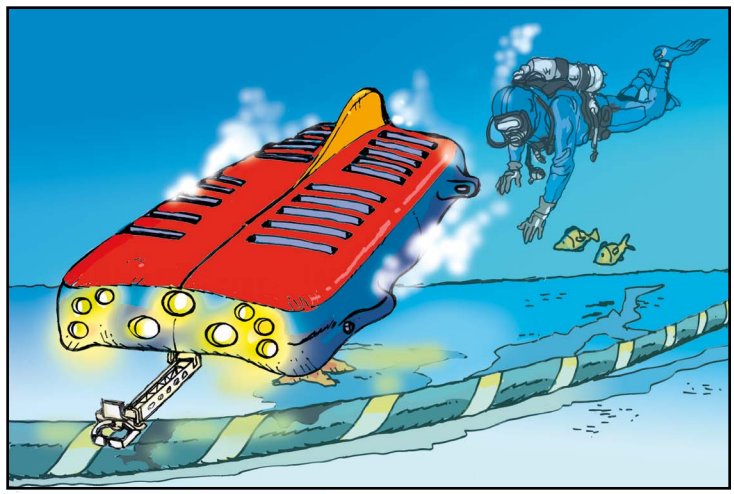
SUBAQUATIC RESEARCH

By collecting samples from the sea floor, tracking animal migrations or charting sand beds, it is a potential research tool for oceanographers.

CONVOY PROTECTION

The submarine carries two, 15 cm and 300 g torpedoes, guided by the same technology as the robot. The torpedoes can be configured to operate as a shield for ships.





SUBMARINE REPAIRS

Thanks to its integrated guidance system, the submarine can track shapes, like subaquatic cables and oil or gas pipelines, on the seabed and help with their repair.

This submarine is the embodiment of the enthusiasm, dedication, constancy and professionalism of a group of Universidad Politécnica de Madrid students, determined to forge ahead with a futuristic project that is also of service to society.

LOCATION OF WRECKS

Its inertial navigation system and depth meter make the submarine a perfect ally for prolonged searches of the seabed.

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SPECIAL PROGRAMME AND GRAPHIC DESIGN SERVICE
Script and illustrations: Javier Sánchez