

Robot Turtle Assists with Shipwreck Inspections



The Robot Safari in the London Science Museum, UK, taking place from 29 November to 1 December 2013, will include the world premiere of the underwater robot called U-CAT, a highly manoeuvrable robot turtle designed to penetrate shipwrecks. U-CAT's™ locomotion principle is similar to sea turtles. It can swim forwards and backwards, up and down and turn on the spot in all directions. Manoeuvrability is a desirable feature when inspecting confined spaces such as shipwrecks. The robot carries an onboard camera, and the video footage can be later used to reconstruct the underwater site.

Conventional underwater robots use propellers for locomotion. Fin propulsors of U-CAT can drive the robot in all directions without disturbing water and beating up silt from the bottom, which would decrease visibility inside the shipwreck, according to Taavi Salumäe,

the designer of the U-CAT concept and researcher in Centre for Biorobotics, Tallinn University of Technology.

The so-called biomimetic robots, which are robots based on animals and plants, are becoming an increasing trend in robotics where science tries to overcome the technological bottlenecks by looking at alternative technical solutions provided by nature.

Underwater robots are nowadays mostly exploited in oil and gas industry and in defence. These robots are too big and also too expensive to be used for diving inside wrecks. Shipwrecks are currently explored by divers, but this is an expensive and time consuming procedure and often too dangerous for the divers to undertake. U-CAT is designed with the purpose of offering an affordable alternative to human divers.

U-CAT is part of an EU funded research project [ARROWS](#), which is developing technologies to assist underwater archaeologists. The technologies of the ARROWS project will be tested in the Mediterranean Sea and in the Baltic Sea, two historically important but environmentally different regions of Europe. In the ARROWS project, the U-CATs would work in cooperation with larger underwater robots and together with image recognition technologies for discovery, identification and reconstruction of underwater sites, would facilitate the work in all phases of an archaeological campaign.

In London Science Museum, the team will show the U-CAT robot as well as its interactive downscaled model U-CATs operating in an aquarium. [Robot Safari](#) is open for visitors from 29 November to 1 December 2013.

