

An environmentally friendly robot

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Robots that decompose once they have reached the end of their mission could soon be deployed in the environment, thanks to a Research Project Grant of over £200,000 from the Leverhulme Trust.

Dr Jonathan Rossiter, Senior Lecturer in the University of Bristol's Department of Engineering Mathematics and a member of the Bristol Robotics Laboratory (BRL), has secured the two-year Research Project Grant for his project 'A [robot](#) that decomposes: towards biodegradable robotic organisms'.

Conventional robots are predominantly made of rigid resilient materials, many of which are toxic, non-biodegradable and have a negative impact on the natural ecology.

Any robot deployed in the environment must therefore be continually tracked and, once it has reached the end of its useable life, must be recovered, dismantled, and made safe. This adds enormous complexity to the running of robotic projects and there is the ever-present risk that the robot will be irrecoverable with consequent damage to the ecosystem. Additionally these characteristics severely limit the number of robots that can be employed since each must be tracked and recovered.

Dr Rossiter, together with co-investigator Dr Ioannis Ieropoulos, Senior Research Fellow in the BRL, Department of Engineering, Design and Mathematics at the University of the West of England (UWE Bristol), aim to show that autonomous soft robotic artificial organisms can exhibit an important characteristic of biological organisms: graceful

decomposition after death.

Dr Rossiter said: “In this project we will take a radical step away from conventional robots and we hope to create a biodegradable robot.

“Once a biodegradable robot has reached the end of its mission, for example having performed some environmental cleanup activity following an oil spill, it will decompose into harmless material.”

Since there will no longer be the need to track and recover each robot, the deployment of large numbers of biodegradable robots in the environment will become inherently safe. Hundreds or thousands of robots can therefore potentially be deployed, safe in the knowledge that environmental impact will be zero.

Biodegradability will enhance the abilities of the Ecobot robot developed at the BRL. Ecobot is an autonomous robot that gets its energy from the consumption of biomass from the environment.

Provided by University of Bristol

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