

# EcoBotIII: Sewage-powered robot launched

November 29 2012

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(Phys.org)—University of the West of England scientists have unveiled a robot that uses an unusual source of power - human poo.

The EcoBotIII feeds off and is powered by sewage from Saltford sewage treatment works, near Bristol, and can move and operate its onboard mechanisms unaided.

Energy derived from the nutrient rich sewage is produced in batteries known as [microbial fuel cells](#), which power the robot by transforming waste into electricity.

It was developed through a partnership between scientists at Wessex Water and the Bristol Robotics Laboratory – a collaborative research partnership between UWE Bristol and the University of Bristol.

The water and sewerage company said the success of the robot could change treatment processes at sewage plants in the future - driving down

[energy costs](#).

Dr Julian Dennis, Wessex Water's director of innovation and research, who initiated the idea of using waste from sewage works, said:

"Currently our [treatment processes](#) are energy intensive, but if there was a way of replicating the EcoBotIII on a larger scale, some processes could be powered on the sewage they are treating.

"It would eliminate the need for electricity and would mean that in the future, sewage treatment works could become self-sufficient - driving down operational costs and significantly reducing our carbon footprint."

The robot which took around three years to build, weighs 6kg and has the appearance of a three-tiered wedding cake, with layers of [microbial cells](#), catchment trays, and a fly trapping hat linked to an artificial stomach.

Dr Ioannis Ieropoulos, a senior research fellow at the Bristol Robotics Laboratory said it was the first time scientists had developed this type of robot.

He added: "One of the main drivers for this research was remote area access, where artificial agents can operate for prolonged periods by utilising the organic matter in their vicinity.

"The successful collaboration with Wessex Water has not only helped us realise and implement such an adventurous project, but has also revealed the new and fertile area of energetically autonomous wastewater treatment in the research.

"This is now a growing field in our research and future work will continue to foster the partnership between the Bristol Robotics Laboratory and Wessex Water, in an attempt to make the microbial fuel

cell powered autonomous robots – a complementary part of wastewater treatment."

It is not the first time Wessex Water has found ways of generating power through the use of sewage. In 2010 it launched the Bio-Bug, the UK's first VW Beetle that runs on bio-gas produced at Bristol [sewage treatment](#) works.

Dr Dennis added: "We're pleased that through our partnership with the University, the Bristol Robotics Laboratory has achieved this discovery which will benefit us both in the future."

**More information:** [www.brl.ac.uk/researchprojects...cobot/ecobotiii.aspx](http://www.brl.ac.uk/researchprojects...cobot/ecobotiii.aspx)

Provided by University of the West of England

Citation: EcoBotIII: Sewage-powered robot launched (2012, November 29) retrieved 27 April 2024 from <https://phys.org/news/2012-11-ecobotiii-sewage-powered-robot.html>

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