

Coming to a garden near you - Trimbot the robot that will take care of the roses

By **CONOR MATCHETT**

Watch out gardeners, there could soon be someone else on your turf if robotics specialists at the University of Edinburgh have anything to do with it.

Researchers have created a self-navigating and automated gardening robot which goes by the name "Trimbot".

The robot uses cameras and 3D mapping technology to find its way around gardens and perform precise tasks with cutting tools including pruning roses and trimming bushes.

Video footage of Trimbot shows it expertly pruning roses while also traversing a grass lawn.

Scientists believe the green-fingered robot could be used in the future to maintain communal green spaces, support farmers and help people with mobility issues tend to their gardens.

Researchers created Trimbot by utilising the latest technologies in robotics and 3D computer vision techniques.

Trimbot also has five pairs of cameras to help it see and a flexible robotic arm, both of which are connected to an automated lawnmower made by electronics company Bosch.

The robot is also pre-programmed with a rough outline of whichever garden it is due to preen, helping navigation for the battery-powered device which then uses the 3D cameras to perform specific tasks.

The team created computer

algorithms which enable the robot to compare overgrown bushes with the 'ideal' final shapes as it trims.

Using automated secateurs, Trimbot can prune roses by pinpointing the exact part of each plant's stem that should be cut.

Professor Bob Fisher, of the university's school of informatics, who coordinated the project, said: "Getting the robot to work reliably in a real garden was a major feat of engineering."

"The eight partner teams developed new robotics and 3D computer vision technology to enable it to work outdoors in changing lighting and environmental conditions."

The four-year project, coordinated by researchers from the university, was funded by the European Union's Horizon 2020 programme.

It also involved scientists from the Dutch universities of Wageningen University and Research, Amsterdam, and Groningen, Freiburg University in Germany, ETH Zurich University in Switzerland and technology company Bosch.

Ernie Watt, a member of the Federation of Edinburgh and District Allotments and Gardens Associations, said the development of the robot raised a number of concerns.

"It might sound good fun, but other than their use in large-scale horticultural projects it raises huge issues about the redundancy of human beings in society and putting people out of work.

"I feel very sad about it. There are so many things which research should be looking at such as feeding the poor and climate change.

"One of the joys of gardening is being able to get outside and enjoy the therapeutic benefits – physical and mental of gardening.

"For those people who might find such things useful there is a balance to be struck between what could be good for gardeners and the alienation of people living in a cyber world.

Mr Watt added: "I suppose that having such a robot doing the garden might be better than people putting down gravel when they can no longer cope.

"I'm not against technology – there's a great app which can identify plants and flowers."

newsdesks@scotsman.com



COMMENT

"There is a balance to be struck between what could be good for gardeners and the alienation of people living in a cyber world."

ERNIE WATT

Gardener, Leith, Edinburgh

