

Digital Single Market

Building a robot to mimic plants

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Many of us probably picture robots as roughly human-shaped - as seen in countless science fiction films - or perhaps as little more than mobile computers. But one EU-funded project is taking inspiration from the smart, efficient strategies of plants in order to develop a new generation of robots and ICT technologies, such as sensing or distributed adaptive intelligence.

In particular, plant roots are excellent natural diggers, points out Dr Barbara Mazzolai of the Center for Micro-BioRobotics at the Istituto Italiano di Tecnologia (IIT), the coordinator of the project. The characteristics of roots - such as adaptive growth, energy-efficient movements, and their ability to penetrate soil at any angle - are interesting from an engineering perspective, she says.

In fact, owing to their sessile lifestyle, plants have evolved the ability to respond to a wide range of signals and efficiently adapt to changing environmental conditions. Plant materials are optimised to reduce energy consumption during motion and these capabilities offer a plethora of solutions for the world of robotics, using approaches that are muscle-free and thus not necessarily animal-like.

Research*eu results magazine asked Dr Mazzolai to tell us more about her work in the PLANTOID project.

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