Robots designed to clean up our streets

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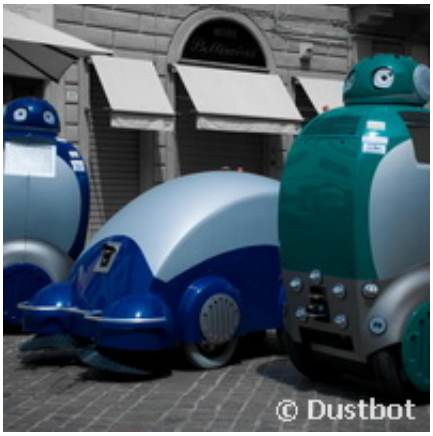

Credit: Dustbot

It sounds like something from a science fiction film, but the concept of robots cleaning our streets is becoming a reality with what is believed to be a world first.

DUSTBOT ('Networked and Cooperating Robots for Urban Hygiene') is an original idea, which operates robots in partially unstructured environments (such as squares, streets, parks) to sweep up rubbish and dirt. They can also collect small quantities of home rubbish on demand from citizens, at their doors.

With Europe producing over 250 million tonnes of waste every year, the concept of using robots to do the job is not such a crazy idea. It could help the EU in their quest for new waste prevention initiatives to reduce

the overall environmental impact.

Indeed, it may ensure that families never argue again about who is taking the rubbish out, as the robots can be summoned to a home address through a mobile phone at any time of day.

DUSTBOT was developed at the Scuola Superiore Sant'Anna's CRIM Labortory in Pisa, Italy, under the coordination of Professor Paolo Dario. He believes robots could put an end to fixed times for rubbish collection, and improve waste management as they are designed to work in tightly packed urban areas, where large refuse trucks find it difficult to operate.

The actual robot is 1.5 metres, weighs 70 kilograms and can carry 80 litres or 30 kilograms. It travels at 1 metre per second and its battery provides it with 16 kilometres of autonomy, and works through preloaded information on the environment such as area maps. This information goes into on-board and external sensory systems (ambient intelligence platform). The robots then move at a selectable level of autonomy to carry out their tasks. It also comes equipped with a laser scanner and ultrasound avoiding obstacles.

Two kinds of robots have been designed and developed. These are the cleaning robot called DustClean, which is equipped with cleaning tools, multiple sensors and an electronic nose for monitoring atmospheric pollutants, to provide information on the environmental quality. Then there is the citizen-friendly robot for rubbish collection called DustCart, so-called because it is equipped with a cart for bin-liner transportation and disposal. This robot has a user interface aimed at providing selected information about air quality and waste management.

But the robot's greatest advantage is its size - it can navigate through narrow streets and alleys where normal rubbish collection vehicles

cannot drive through.

The DUSTBOT project was funded with almost EUR 2 million under the 'Information Society Technologies' (IST) Thematic area of the Sixth Framework Programme (FP6), and consisted of nine partners from five countries.

More information: DUSTBOT
www.dustbot.org/index.php?menu=home

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