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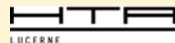


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Project Information

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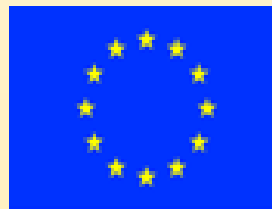
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Project Duration: 36 months

Project Cost: 2.822.600 €

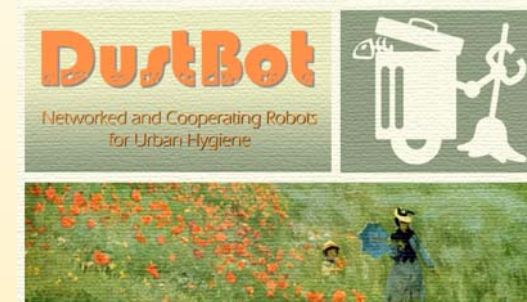
EC contribution: 1.898.000 €

9 partners from 5 countries



DustBot

Networked and Cooperating Robots for Urban Hygiene



Objectives

The DustBot project is aimed at designing, developing, testing and demonstrating a system for improving the management of urban hygiene based on a **network of autonomous and cooperating robots**, embedded in an **Ambient Intelligence (Aml) infrastructure**.

The robots will be able to operate in partially unstructured environments (such as squares, streets, parks, etc.) and to vacuum-clean them from rubbish and dirt. They will be able to transport small quantities of home garbage, collected on demand from citizens, at their doors. By using preloaded information on the environment (e.g. area maps) and inputs from on-board and external sensory systems, and by taking advantage of the benefits provided by the Ambient Intelligence platform, the robots will be able to move with a proper (and selectable) level of autonomy to carry out their tasks. The robots will be also equipped with multiple sensors for the monitoring of atmospheric pollutants (e.g. nitrogen oxides -NOx-, sulphur oxides -SOx-, ozone -O3-, benzene, COx, etc.), giving information on the environmental quality in real time.

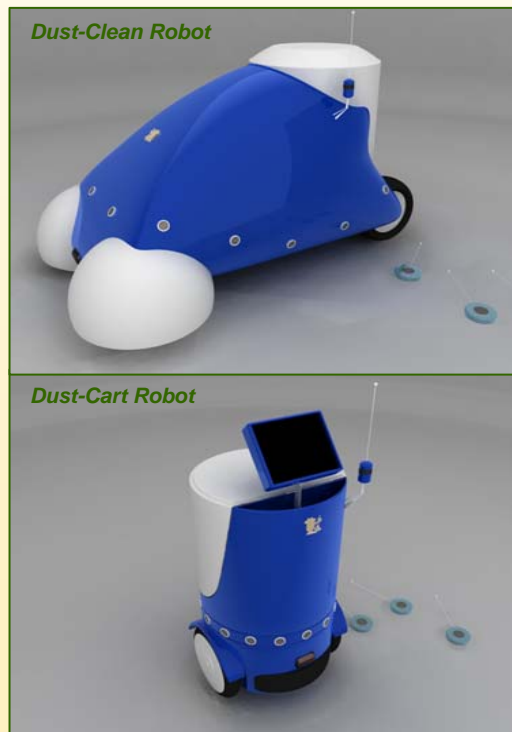


Figure 1. *The DustBot scenario*

The Robots

Two kind of robots will be designed and developed in DustBot: the cleaning robot and the citizen-friendly/dust-cart robot. The cleaning robot will be equipped with the cleaning tools and with the environmental sensors modules.

The citizen friendly/dust-cart robot will be equipped with the cart for bin-liner transport and discharge and with the user interface aimed at providing selected information about air quality and waste management to different users.



The DustBot Platform

The DustBot platform will be a complex, distributed and heterogeneous Aml environment. It will be able to automatically sense when resources, software components or communication networks need to be reallocated or re-configured.

Following the computation on stored data, feedback will be sent back to human actors (supervisors, decision makers, like municipality managers, etc.) and/or robotic operators, in order to perform actions.



Figure 2. *The Architecture of the Aml Core*

Demonstration Sites

A demonstration phase has been planned aims at demonstrating the functionality and potentiality of the DustBot platform and at evaluating the performance of the system from a user and technological point of view. **Five** demonstrators will be set up in real operational scenarios during the last eight months of the project, in collaboration with local Municipalities in different sites, which have been preliminarily selected in Italy, Spain and Sweden.