

→ Consortium



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**Mobile robots for inspection
and maintenance activities
in extensive industrial plants**



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→ Concept

Efficient and effective maintenance is crucial for all kind of industries. In the case of capital intensive investment industries it is even more relevant and has an important impact in the operation costs during the long life cycle of their production means.

MAINBOT proposes using service robots to autonomously execute inspection tasks in extensive industrial plants in equipment that is arranged horizontally (using ground robots) or vertically (climbing robots).

The operation of semi-autonomous or fully autonomous mobile robots will increase the efficiency of the plant, reduce the operation and maintenance costs and improve safety and working conditions of workers.

→ Scientific and technological objectives

→ Autonomous navigation

Ground robots able to navigate in large industrial plants handling sensors and manipulator for inspection and maintenance, and overcoming obstacles and terrain conditions.

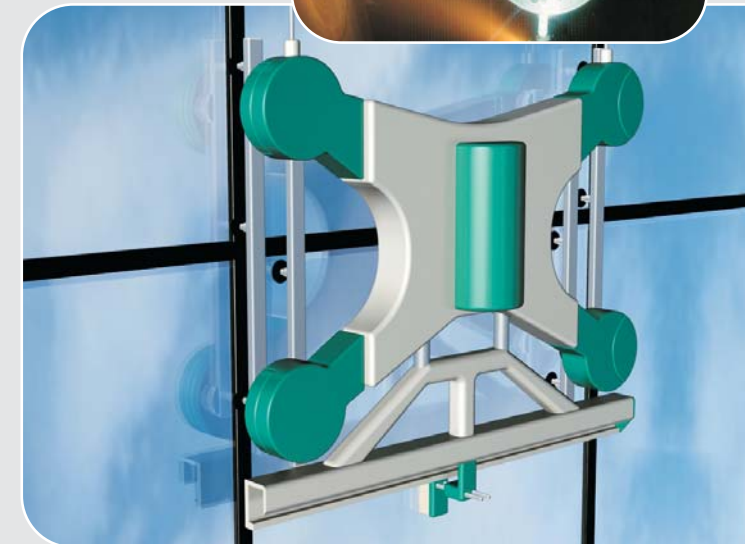
Robots able to climb vertical (or almost) industrial equipment handling sensors and manipulator for inspection and maintenance.

→ Mobile manipulation

Autonomous manipulation in unstructured environments, accurately position tools and sensing equipment to perform inspection activities, using robotic arms mounted on both, ground and climbing robots.

→ Sensor fusion

Integration of sensory data from multiple Nondestructive Testing (NDT) systems. Use contextual information to adapt the inspection systems to changes in the environment.



→ Industrial objective

→ Ubiquitous sensing

→ Robotized non destructive testing for surface and internal monitoring of equipment

These industrial objectives will be validated in a real thermal solar plant that depicts common problems of this kind of plants: 230hectares, 209.664 mirrors, 90 km of absorber tubes, huge tanks (Diam.38 m, height 14m), and hazardous working conditions.



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This research activity is carried out in the framework of the 'Factories of the Future', FP7, FoF.NMP.2011-3 Call

The project will last for 36 months, starting November 2011