

AIRobots

Innovative aerial service robots for remote inspections by contact

Start: 1 February 2010







End: 31 January 2013

FP7, THEME ICT-4-2.1, Cognitive Systems and Robotics

Project no. **248669**

The consortium



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ETH Zurich Prof. Roland Siegwart	ETHZ	
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The motivation



The project

- To develop aerial vehicles able to interact with the human world in order to accomplish typical robotic tasks in air rather than constrained on ground

➔ Aerial service robotics

Breakthrough

- To develop advanced automatic control strategies and “human-in-the-loop” strategies which allow an intuitive tele-operation of the vehicle by means of haptic devices

➔ “Flying hand” of the operator

The vision



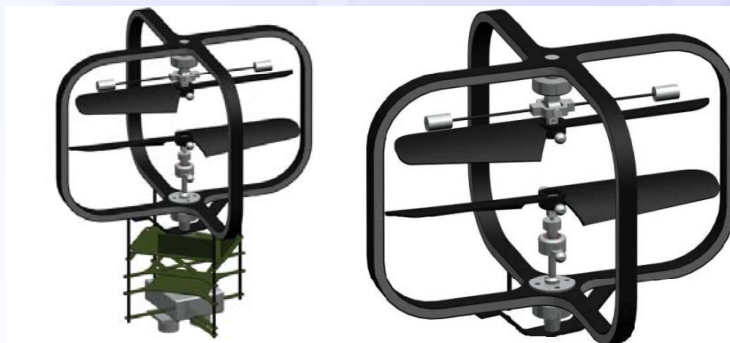
The goals

To design and construct aerial prototypes and test them on mock-up environments which will reproduce meaningful indoors and outdoors scenarios envisaged by the end-user AIR

- ➔ Aerial service robotics best practice and performance measures
- ➔ System design and control strategies for aerial robots physically interacting with the human world
- ➔ New contribution to human-robot interaction and communication
- ➔ Aerial navigation in loosely structured and densely cluttered environments

Aerial prototypes

Ducted-fan and coaxial rotorcraft: Rotary-wing aerial vehicles with shrouded propellers for safe interaction



For the final prototype a fusion of the concepts might be possible

A typical scenario

Service on a power plant

Way-points

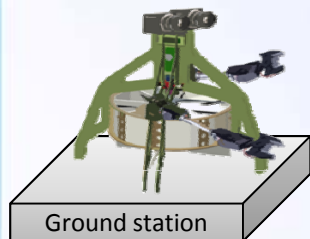


Takeoff



Unexpected risks!

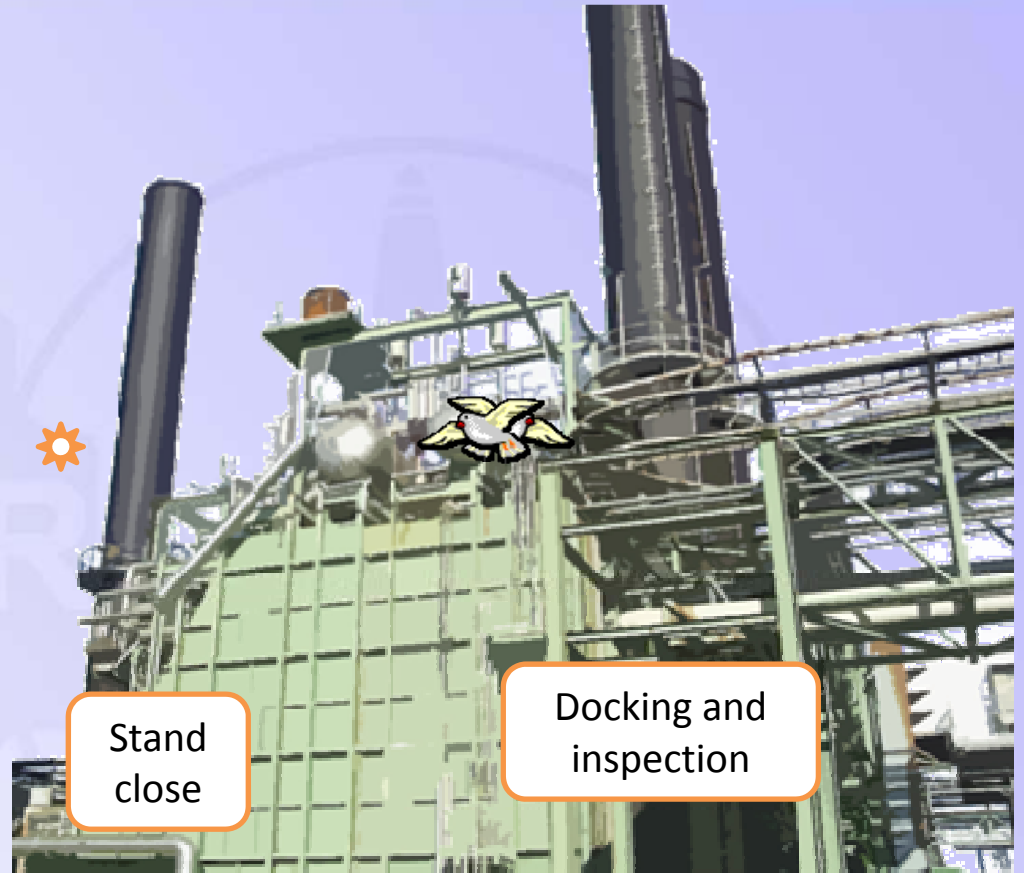
Landing



Stand close

Docking and inspection

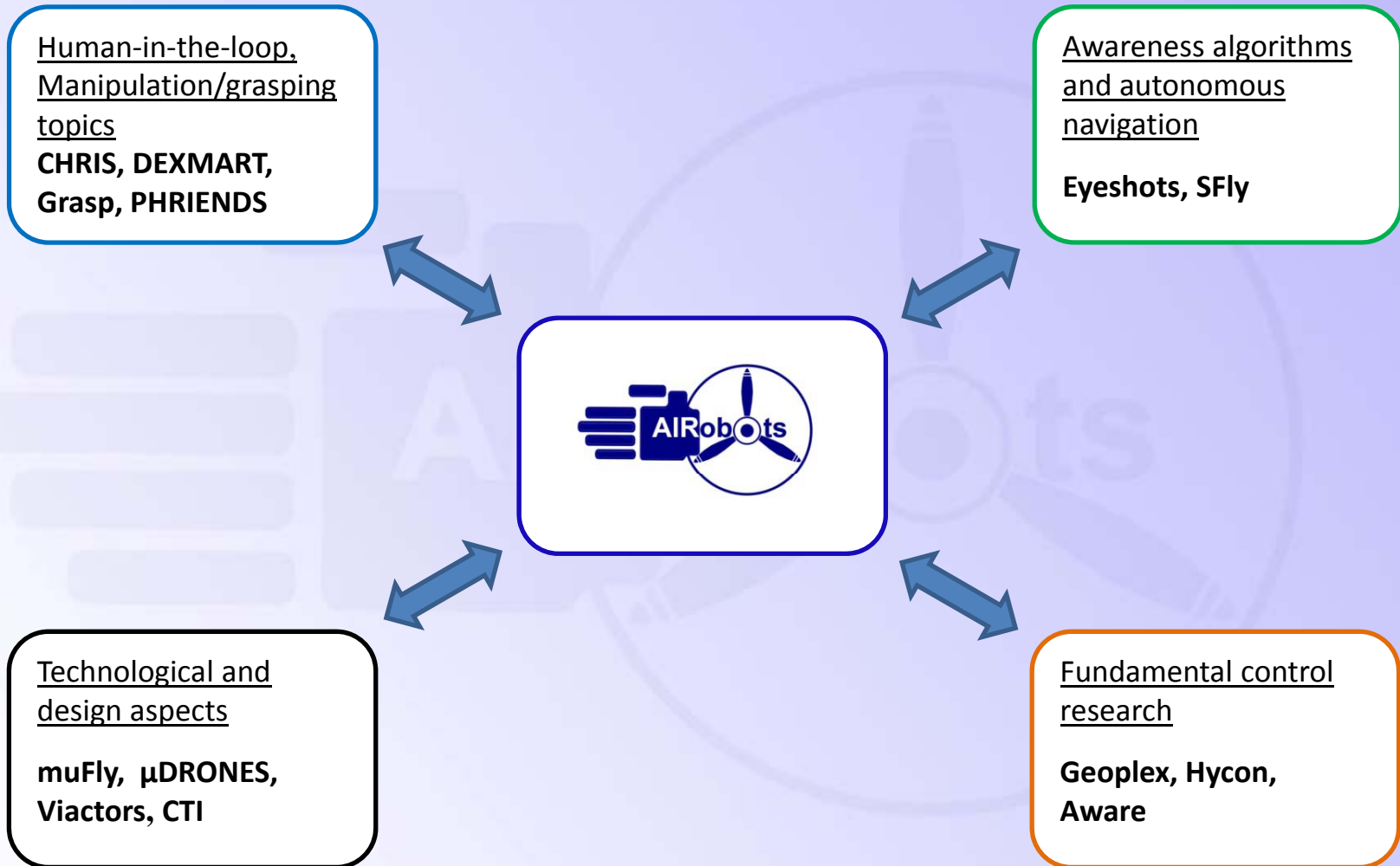
Interaction with teleoperation



The numbers

- 8 work-packages, 34 tasks
- 7 milestones
- 25 deliverables
- 12 technical and management risks
- 342 person-months
- 24 Researchers involved
- € 3.614.000 total cost

AIRobots within FP7-6



AIRobots ... grounded people



www.airobots.eu