Autonomous UAV Asset Monitoring, Mapping & Sensor Placement

Safely Inspecting Confined Spaces

ORCA HUB
Offshore Robotics for Certification of Assets
Remote Safety and Integrity

Autonomous 3D mapping and sensing inside vessels provides reliable information to plan maintenance and ensure the integrity of hard-to-reach structures and confined spaces. Autonomous Unmanned Aerial Vehicles (UAVs) can assist in fast inspection tasks for the regular Non-Destructive Evaluations (NDE) that need to be performed in these environments.

The ORCA Hub is carrying out research to integrate various sensing, mobility and navigation methods that will allow autonomous UAVs to operate robustly in unstructured, dynamically changing and hazardous environments, such as those found in offshore vessels, inside of containers and on ships. The drones will integrate multi-sensor perception systems (using radar, lidar and visual-inertial mapping) and advanced multi-terrain mobility capabilities, to allow them to robustly operate even in low light conditions and place sensors in hard-to-reach areas.

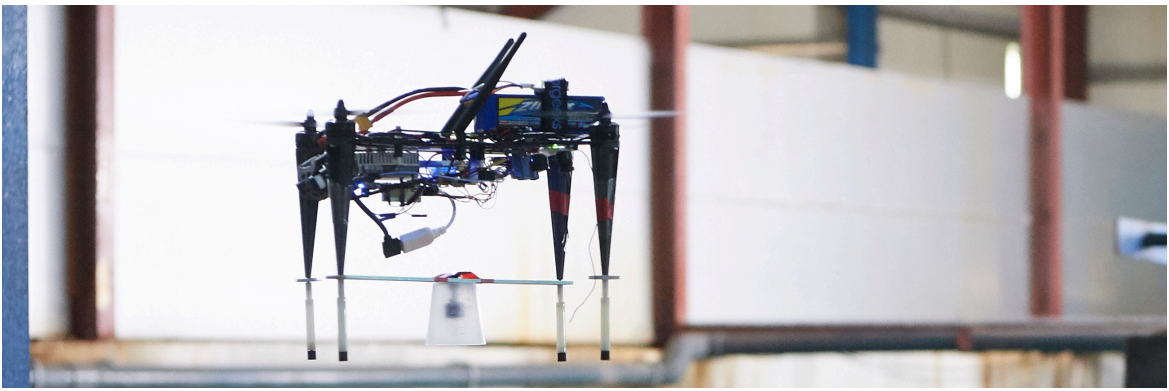
These next-generation drones will also provide regularly updated 3D maps of the infrastructure to advise on possible damages or failures, and to support the efficient operations of industrial processes.

Benefits

- Remove the requirement for people to enter confined spaces for inspection
- Gain a better understanding of the integrity of confined spaces through smart inspection, mapping and monitoring
- Enable predictive maintenance of confined spaces
- Enable smart cleaning and maintenance planning for the inside of process vessels, tanks and other confined spaces

Possible Applications

- Mapping, inspection and data gathering of the inside of process vessels, tanks and other confined spaces



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