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superARTIS

DLR's unmanned research helicopter

Brief description

Under the name superARTIS (Autonomous Rotorcraft Testbed for Intelligent Systems), DLR operates SDO 50 V2 helicopters, which have a maximum take-off weight of over 80 kilograms. With the help of these systems – supported by a complex simulation environment – sophisticated autonomous flight missions are being developed and tested.

Aims

The research focuses on autonomous detection of the aircraft's surroundings, flightpath planning, flight control during agile manoeuvres, and navigation methods that take into account the possibility of satellite navigation system failure. With its high payload capacity, range and flight speed, superARTIS is capable of research missions close to customer scenarios missions.

Parties involved

DLR Institute of Flight Systems

Applications

- Testing of mission scenarios and procedures for unmanned aerial vehicles
- Realtime 3D sensor data processing for flight control applications
- Evaluation and extension of flight perfomance for various helicopter configurations

Outlook

- Transport and delivery of relief supplies beyond line of sight
- Cooperative use of airspace by unmanned and crewed helicopters
- Demonstration of image-based navigation for autonomous Moon landings

Facts and figures

Maximum take-off weight: 85 kg
Rotor diameter: 2x 2.8 m
Payload weight: up to 30 kg
Maximum endurance: 2 h

- Payload power supply via generator
- Fully autonomous flight including take-off and landing
- Experimental flight control with full control authority

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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