Federal Ministry
of Transport and
Digital Infrastructure

Germany's Artificial Intelligence Strategy and its application to aviation

An application example on Drone defence at Hamburg Airport

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Federal Ministry
of Transport and
Digital Infrastructure

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FALKE

The Federal Government

Nationale Strategie für Künstliche Intelligenz
AI Made in Germany

Artificial Intelligence Strategy of the German Federal Government

www.ki-strategie-deutschland.de

Artificial Intelligence Strategy of the German Federal Government

- Interministerial funding programs, initiatives, collaborations, etc. have been launched to make Germany a leading location for artificial intelligence.
- Promoted are cross-sectoral and sector-specific measures in the areas of mobility, health, environment and climate, administration, aviation and agriculture.
- In aviation, the federal ministry for economic affairs and energy traditionally focuses on manufacturing, production and research,
- whereas the Federal Ministry of Transport and Digital Infrastructure lays the focus on applications directly related to mobility.

Action plan for Digitalisation and AI in Mobility

- To implement the national AI strategy, the Federal Ministry of Transport and Digital Infrastructure (BMVI) has drawn up the action plan "Digitalisation and AI in mobility".
- It aims to make "Mobility 4.0" effective and sustainable by exploiting the great efficiency potential of digital innovations and AI in mobility for all modes of transport.
- In this context, the Federal Ministry also supports and funds aviation-related AI projects.
- As an example, we will look into the project “FALKE“(falcon).

FALKE
A Blueprint for a Counter-UAS-System for Commercial Airports

Capability of Intercepting Small Unmanned Aircrafts Entering Restricted Airspaces by Civil Means

Partners

- Bundespolizei
- Deutsche Lufthansa AG
- DFS Deutsche Flugsicherung GmbH
- Flughafen Hamburg GmbH
- Frequentis Comsoft GmbH
- Helmut-Schmidt-University
- Hensoldt Avionics GmbH
- Hensoldt Sensors GmbH

Source: Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, Professur für Elektrische Messtechnik

Federal Ministry
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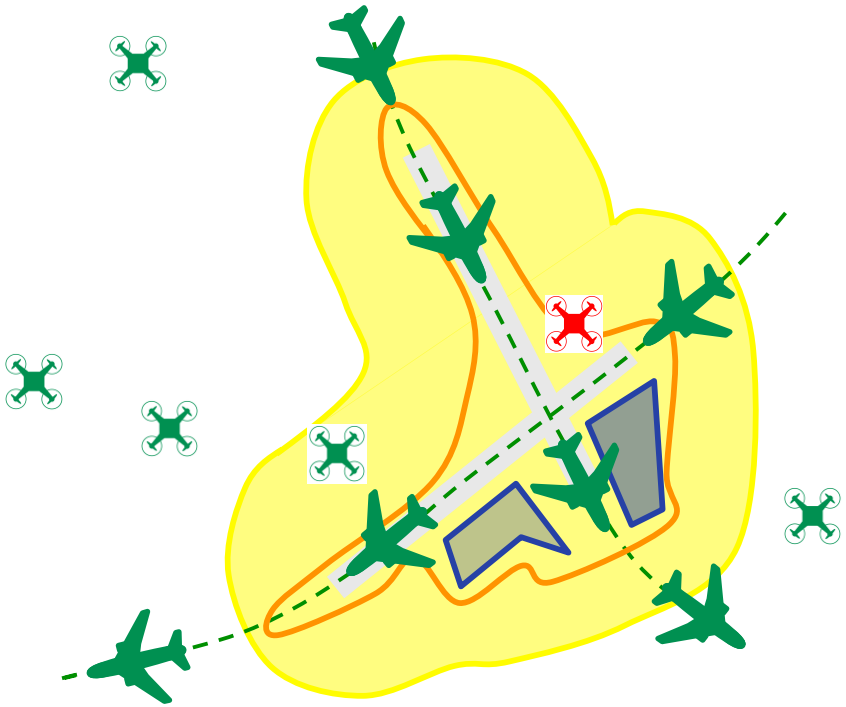
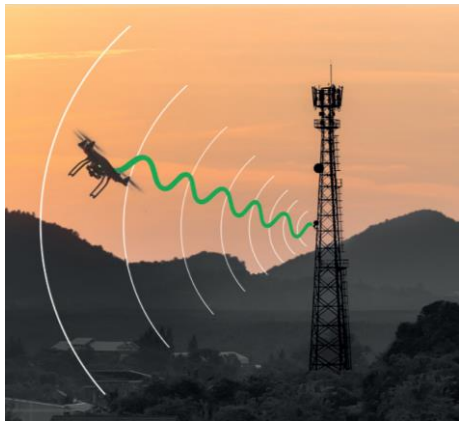
FALKE project

Project Goal

- Develop an overall concept for the defence against illegally operated drones or Unmanned Aerial Systems (UAS) using Hamburg Airport as a testing ground.
- Starting with the detection of an “Unauthorized-UAS”, accomplishing a highly automated dogfight and ending with a safe and automated UAS-removal.
- Provide automated and standardised solutions so that it can also be used as a blueprint for other airports.
- Taking into account different areas of competence and responsibility.

FALKE project (continued)



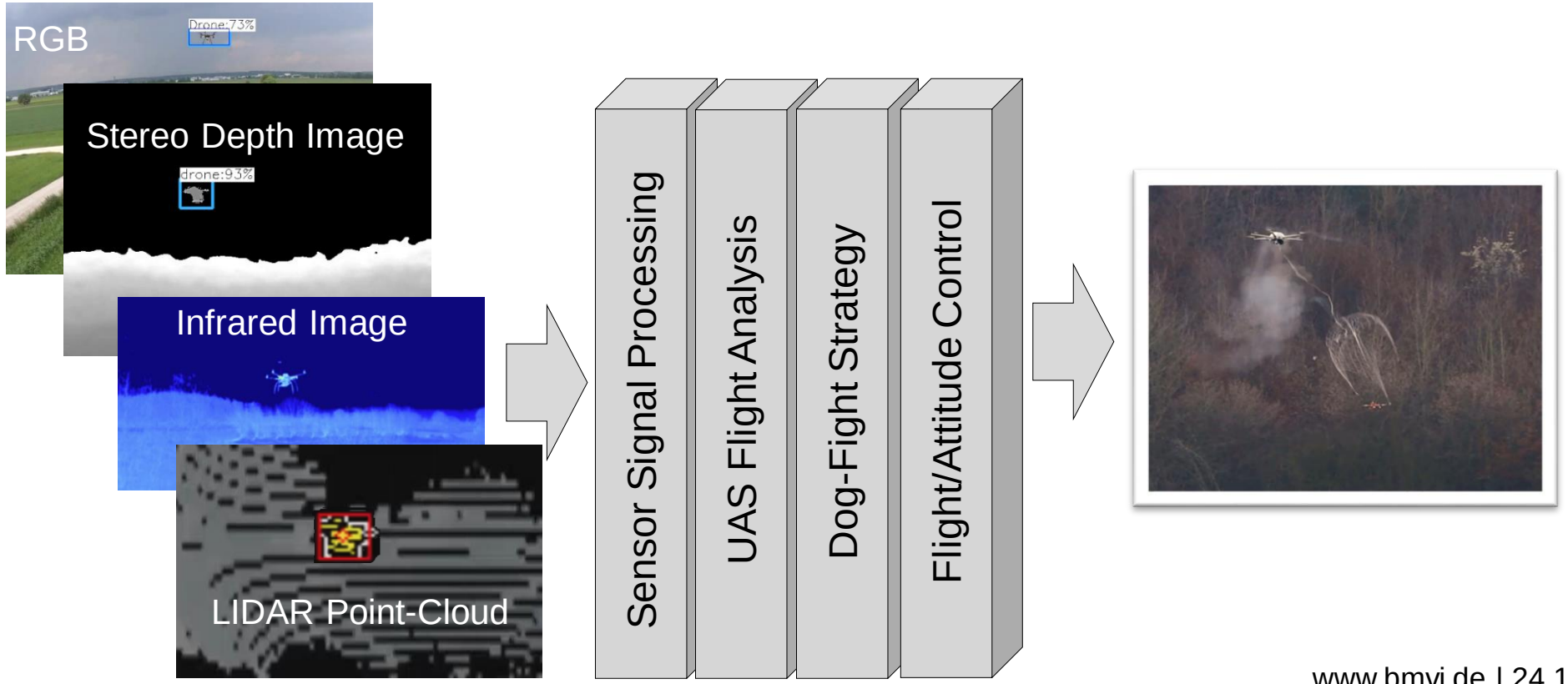


Source: Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, Professur für Elektrische Messtechnik

FALKE project (continued)

Artificial Intelligence

for intercepting unauthorized UAS



Source: Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, Professur für Elektrische Messtechnik

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FALKE project

Dog-Fight

Source: Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, Professur für Elektrische Messtechnik

FALKE project (continued)

Outlook

- The project period ends in November 2022.
- If fieldtests go according to plan, a model will be available from 2023 that should be of interest to many airports in Germany and abroad.
- To bring the system into action in an European context the stakeholders should develop a common understanding of typical threat scenarios, requirements, and subsystems (sensor system, incident management, counter-UAS, interaction with stakeholders on the other side of the airport fence).

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Thank you for your attention!