Artificial Intelligence for Decision mAking (AIDA)

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Kurzdarstellung der Konsortialpartner

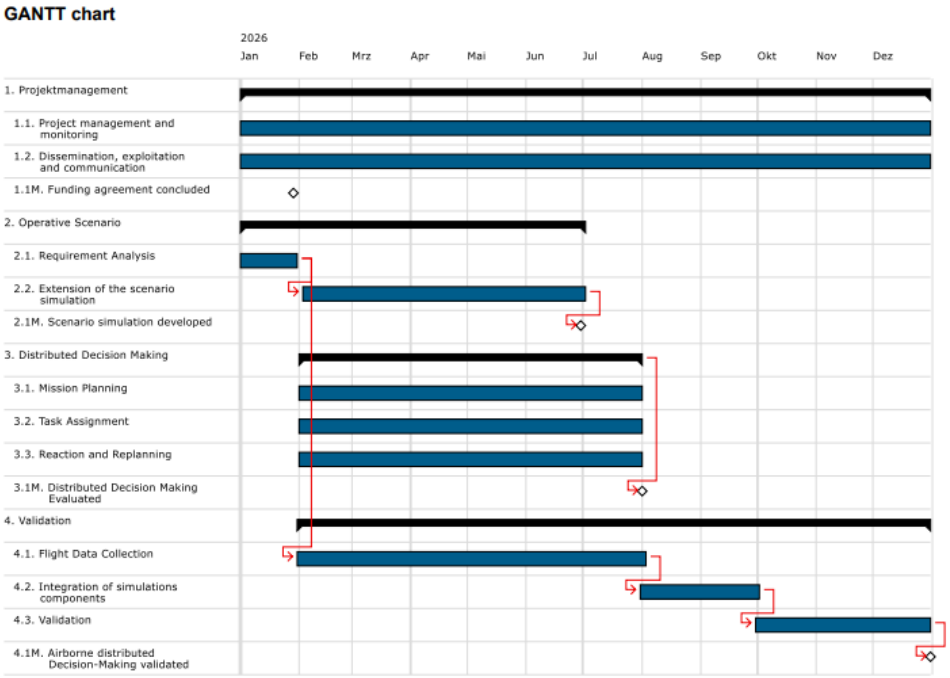
- AIT Austrian Institute of Technology, VAC-AAS (WP1-4)

Ziel des Projekts

- Evaluate different Artificial Intelligence algorithms for the conceptualization of a methodology which allows a swarm of UAVs to -**autonomously** and **without the need of a centralized node**- plan a mission, assign the behavioural steps of the plan to the whole or to parts of the swarm and to replan and adapt the plan.
- Create one unified simulator capable of generating realistic complex disaster scenarios including interactions of a drone swarm. This requires the tight integration of the drone flight simulator and multiple disaster simulators.
- Objective is to evaluate the robustness of the adaptive strategy of the Decision-Making methodology against **platform constraints**, **realistic swarm behaviours** and **real-world dynamic environment**.

Arbeitsplan/Zeitplan/Umsetzung

- WP1: Projektmanagement (M1-12)
- WP2: Operative Scenario (M1-6)
- WP3: Distributed Decision Making (M2-7)
- WP4: Validation (M2-12)



Angestrebte Verwertung

- Short Term:
  - Distributed Decision Making to enable full autonomous swarm operations in Crisis and Disaster Management
- Long Term:
  - Distributed Decision Making to enable full autonomous aerial platforms in various applications
  - Simulator to allow development of robotic applications

Results	Del.	Users of results	Exploitation Pathways			
Project Results (PR), Gained Knowledge and the expected long-term benefits for the end users			Sci	Eco	Regul	Soc
Field of Knowledge 1: Autonomous Swarm Decision-Making			X	X	X	
Project Result 1: Conceptualised methodolgy for Airborne Distributed Mission Planning and Control By understanding the effect of unforeseen events and platform constraints on the Decision-Making in order to enable long range missions and fast response to unforeseen events at highest autonomy levels (SAEL 5) applicable in any large area / wide range use case by the swarming of Fixed-Wing UAVs	D4.1	Short term: • BMLV, BMI, BMLRT, etc. • KIRAS, FORTE, Horizon, SESAR Mid term: • UAV researchers & developers Long term: • UAV manufacturers & operators • autonomous system r&d community and industries, e.g. robotics, automotive				
Field of Knowledge 2: Simulation of real-world scenario			X	X	X	
Project Result 2: Multi-use-case scenario simulator as the basis for the methodology development & validation - enabling UAV swarm applications (as by Project Result 1) (on the short term) - enabling development of other/further methods facilitating the understanding of general robotic applications (on the mid term) to enable long duration autonomy in various fields (on the long term).	D2.1	Short term: • BMLV, BMI, BMLRT, BMK etc. • FFG Digitale Technologien Mid- to longterm: • UAV r&d community • computer scientists & software developers • autonomous robotic researchers & developers • etc.				

Kontakte

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