



Łukasiewicz
Institute
of Aviation



Engineering simulator
for unmanned aerial vehicles
in a controlled virtual test environment

ESIM
ENGINEERING
SIMULATOR

Tool for engineering simulations of various unmanned aerial vehicle configurations to optimize parameters and test new concept.

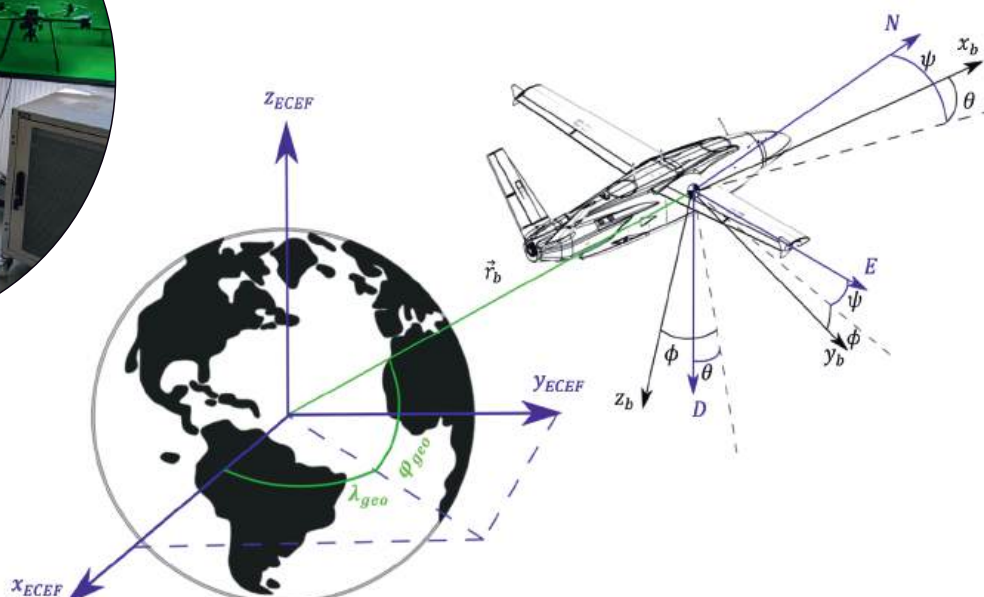
CHARACTERISTICS

- Modeling: Digital Twin of the UAV and the environment with interactive elements.
- Simulation modes: HIL [Hardware In the Loop] and SIL [Software In the Loop].
- Testing UAV in configurations with different types of propulsion.
- Testing UAV with different types of payloads, e.g., cameras, sensors, cargo.
- Performance analysis of UAVs in different structural configurations and varying takeoff weights.
- Energy consumption analysis.
- Creating virtual UAV missions in selected atmospheric conditions.
- Flight stability assessment.
- Analysis and development of navigation systems, control systems, and mission management algorithms.
- Test flights on a virtual UAV model.



COMPETITIVE ADVANTAGES

- Early-stage problem identification.
- UAV technology optimization.
- Time-to-market reduction.
- Cost and risk reduction.
- Verifying the adaptation to customer needs.
- Flexibility in testing different concepts and configurations.



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offers a wide range of specialized research, engineering services and products. We provide comprehensive solutions, ranging from dedicated analyzes, simulations, engineering design, through the selection, testing and certification of materials and structures, to rapid prototyping and additive manufacturing.

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