Combined morphing assessment software using flight envelope data and mission based morphing prototype wing development

Fact Sheet

Project Information

CHANGE

Grant agreement ID: 314139

Status
Closed project

Start date
1 August 2012

End date
31 December 2015

Funded under
FP7-TRANSPORT

Overall budget
€ 4 886 469

EU contribution
€ 3 647 844

Coordinated by
TEKEVER ASDS
Portugal

Objective

"Morphing in aircrafts has been studied and used throughout recent time in order to increase their flight envelope. This characteristic is of the upmost importance in order to offer a greater efficiency, versatility and performance during the assigned mission. Moreover an aircraft with the capability to adapt itself to each given situation is prone to achieve positive results to a range of different missions instead of requiring a specific aircraft to conduct one specific mission.
The main objective of this project is to study and develop a novel morphing system which integrates up to four different morphing mechanisms into in a single wing and to demonstrate this new ability in flight. This system would take advantage of all the performance improvements achieved by adopting its wing shape according to the mission requirements of each flight phase. Therefore, this project envisions to mitigate the required energy (and thus fuel consumption) to maintain the aircraft's

flight and to perform the necessary flight maneuvers by offering the capacity to mold the exterior of the aircraft in order to enhance the necessary aspect of flight so as to lessen the required energy, such as lift over drag ratio, efficiency in aerodynamic control, lower stall velocity or to change to a better planform to perform a required maneuver.
In order to prepare the basis for an eventual cognitive morphing on-board controller which ability is focused in the autonomous control of all morphing system of the wing, it is necessary to develop a software that is capable of rendering the most efficient morphed wing based on the information of the current phase. This software would therefore, be able to conduct an assessment of the introduced flight conditions of the wing and display the accordant morphed wing (using a database with all current morphing systems) capable to fly with the highest performance."

Field of science

/natural sciences/computer and information sciences/software
/engineering and technology/mechanical engineering/vehicle engineering/aerospace engineering/aircraft

Programme(s)

Topic(s)

Call for proposal

FP7-AAT-2012-RTD-1

Funding Scheme

CP-FP - Small or medium-scale focused research project

Coordinator

TEKEVER ASDS

Address	Activity type	EU contribution
Rua Das Minas 2 Zona Industrial Etrada Da Foz Do A 2500-750 Caldas Da Rainha Portugal	**Private for-profit entities (excluding Higher or Secondary Education Establishments)**	**€ 570 730**
Website	Contact the organisation	

Administrative Contact

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Participants (8)

DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV

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EU contribution

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Activity type

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Activity type

Other

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EU contribution

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EU contribution

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MIDDLE EAST TECHNICAL UNIVERSITY

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EU contribution

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TECHNISCHE UNIVERSITEIT DELFT

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