Aerial Coanda High Efficiency Orienting-jet Nozzle

Fact Sheet

Project Information

ACHEON

Grant agreement ID: 309041

Project closed

Start date
1 December 2012

End date
30 November 2014

Funded under
Specific Programme "Cooperation": Transport (including Aeronautics)

Total cost
€ 773 196,32

EU contribution
€ 599 630,00

Coordinated by
UNIVERSITA DEGLI STUDI DI MODENA E REGGIO EMILIA
Italy

Objective

The ACHEON project explores a novel propulsive system for aircrafts which overcome the main limitations of traditional systems introducing an effective and affordable vectored jet aerial propulsion with no part in move-ment. The project aims to overcome well known limits related to commonly known jet deflection system.
The ACHEON system is based on the cumulated effects of three physical effects:
1. High speed jet mixing effects;
2. Coanda effect of adhesion of an high speed jet to a convex surface;
3. Coanda effect control by Electrostatic fields.
The strengths of the ACHEON concept are:

- Affordability: the deflection of the jet is realized without any moving part.
- Simple controls: the angle formed by the jet and the nozzle axis can be regulated by varying the velocity of two incoming jets;
- Precision: the Plasma Dischargers ensures an optimal control of jet attachment to the Coanda surfaces.
- Possibility to be alimented by streams of any nature.
The ACHEON thrust vectoring propulsive concept can produce a wide possibility of future and innovative air-crafts concepts with enhanced capabilities which could shorten take off and landing spaces, enhance manoeuvrability, explore new concepts such as diffused propulsion systems or more radical solutions for future aeronautic transport.
The ACHEON Project aims to study the system and its components in a full structured systemic approach
1. to define:
- the system and its control methodology identifying it possible intrinsic limits and defining exactly fields of applications;
- control equations of the system as a function of both geometric and physical parameters;
- system design methods which could help to obtain better results on different sizes and architectures;
2. to explore the feasibility of:
- applications to traditional aerial vehicles architectures;
- applications to innovative aerial vehicle designs such as distributed propulsion;
- innovative aircraft optimized for thrust vectoring.

Fields of science

engineering and technology › mechanical engineering › vehicle engineering › aerospace engineering › **aircraft**

Programme(s)

FP7-TRANSPORT - Specific Programme "Cooperation": Transport (including Aeronautics)

Topic(s)

AAT.2012.6.3-1. - Breakthrough and emerging technologies

AAT.2012.6.3-2. - Radical new concepts for air transport

Call for proposal

FP7-AAT-2012-RTD-L0
See other projects for this call

Funding Scheme

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

Coordinator

UNIVERSITA DEGLI STUDI DI MODENA E REGGIO EMILIA

EU contribution

€ 148 338,96

Total cost

No data

Address

VIA UNIVERSITA 4
41121 Modena
Italy

Region

Nord-Est > Emilia-Romagna > Modena

Activity type

Higher or Secondary Education Establishments

Administrative Contact

Eugenio Dragoni (Prof.)

Links

Contact the organisation Website
HORIZON collaboration network

Participants (5)

VRIJE UNIVERSITEIT BRUSSEL

Belgium

EU contribution

€ 104 080,00

Address

PLEINLAAN 2
1050 Bruxelles / Brussel

Region

Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest > Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest > Arr. de Bruxelles-Capitale/Arr. Brussel-Hoofdstad

Activity type

Higher or Secondary Education Establishments

Administrative Contact

Nik Claesen (Mr.)

Links

Contact the organisation Website
HORIZON collaboration network

Total cost

No data

REGGIO EMILIA INNOVAZIONE SCARL

Italy

EU contribution

€ 83 371,04

Address

VIA SICILIA 31
42122 REGGIO EMILIA

Activity type

Research Organisations

Administrative Contact

Arturo Tornaboni (Dr.)

Links

Contact the organisation
HORIZON collaboration network

Total cost

No data

UNIVERSITY OF LINCOLN

United Kingdom

EU contribution

€ 104 080,00

Address

Brayford Pool
LN6 7TS Lincoln

Region

East Midlands (England) > Lincolnshire > Lincolnshire

Activity type

Higher or Secondary Education Establishments

Administrative Contact

Chris Bingham (Prof.)

Links

Contact the organisation Website
HORIZON collaboration network

Total cost

No data

UNIVERSIDADE DA BEIRA INTERIOR

Portugal

EU contribution

€ 94 400,00

Address

CONVENTO DE SANTO ANTONIO
6201 001 Covilha

Region

Continente > Centro (PT) > Beiras e Serra da Estrela

Activity type

Higher or Secondary Education Establishments

Administrative Contact

Dina Pereira (Ms.)

Links

Contact the organisation Website
HORIZON collaboration network

Total cost

No data

NIMBUS SRL

Italy

EU contribution

€ 65 360,00

Address

VIA DEL BOSCHETTO 2/1
10040 LOMBARDORE

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Administrative Contact

Paolo Bellezza Quater (Mr.)

Links

Contact the organisation Website
HORIZON collaboration network

Total cost

No data

Last update: 12 December 2016

Permalink: https://cordis.europa.eu/project/id/309041