PROJECT

HISVESTA

High Stability Vertical Separation Altimeter Instruments

**Funding:** European (7th RTD Framework Programme)
**Duration:** Jan 2009 - Jun 2011
**Status:** Complete with results
**Total project cost:** €3,136,667
**EU contribution:** €2,208,250

**Call for proposal:** FP7-AAT-2007-RTD-1
CORDIS RCN : 89653

**Background & policy context:**

HISVESTA is the next step in solving the remaining RTD challenges after the successful HASTAC project in FP6.

**Objectives:**

The goal of the HISVESTA project was to develop a new generation altimetry module, suitable for fixed wing and rotary wing applications. This will result in altitude accuracy capabilities significantly improved over those currently available today. Air Data Computer and aircraft flight testing performed in the project demonstrated the effectiveness of the performance improvement.

The strategic objective of the project was to increase the safety in all in-flight situations, particularly low visibility situations, by improving the altimetry transducers used in Air Data Computers for aircraft applications. The project is relevant in auto pilot situations in the reduced vertical separation minima legislation of 1 000 ft, as well as in demanding manual flying situations such as darkness and low visibility.

Used in enhanced transponder applications, the project contributed to significantly increased reliability in altitude information for manual and automated Air Traffic Control systems. Aircraft Traffic Collision Avoidance Systems also benefited from more accurate and reliable altitude information, which will allow the automated avoidance instructions to be more accurate and effective. HISVESTA is the next step in solving the remaining RTD challenges after the successful HASTAC project in FP6.

**Methodology:**

The project developed a new generation of altimetry modules, suitable for fixed wing and rotary wing applications, that provide altitude accuracy capabilities, significantly improved over those currently available today. Air Data Computer and aircraft flight testing performed in the project demonstrated the effectiveness of the performance improvement.

A key HISVESTA target is for the European avionic system industry to regain the market lead in altimetry and automatic ATC solutions as well as in altitude pressure transducers with best in class long-term stability.

Another project objective is to contribute to reduction of the emission of CO2 and NOx significantly in the next generation jet engines, by improving the multifunctional pressure control system in the Full Authority Digital Engine Control systems.

This project is built around a strong consortium of European SMEs and participants from new Member States. The entities in the Consortium have worked together successfully in the past, and thus enhanced their probability for success.

**Related Projects:**

The HASTAC project (FP6)
**Parent Programmes:**
FP7-TRANSPORT - Transport (Including Aeronautics) - Horizontal activities for implementation of the transport programme (TPT)

**Institute type:** Public institution
**Institute name:** The European Commission
**Funding type:** Public (EU)

**Lead Organisation:**

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<tr>
<th>Stiftelsen Sintef</th>
<th>Address: Strindveien 7034 Trondheim Norway</th>
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<tbody>
<tr>
<td><strong>Organisation Website:</strong> <a href="http://www.sintef.no">http://www.sintef.no</a></td>
<td>EU Contribution: €795,000</td>
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**Partner Organisations:**

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<tr>
<th>Memscap As</th>
<th>Address: Langmyra, 9 3185 Horten Norway</th>
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<tr>
<td><strong>Organisation Website:</strong> <a href="http://www.memscap.com">http://www.memscap.com</a></td>
<td>EU Contribution: €668,500</td>
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<th>Curtiss-Wright Controls (Uk) Ltd</th>
<th>Address: Airfield Road, 1 Christchurch/dorset BH23 3TH United Kingdom</th>
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<th>Microelectronica Sa</th>
<th>Address: Str Pictor Andreescu 1-3 Sec 2 21424 Bucuresti Romania</th>
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<td>EU Contribution: €262,750</td>
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<th>Ceramica Ingenua S.r.l.</th>
<th>Address: Str. Erou Iancu Nicolae 126 77190 Voluntari, Ilfov Romania</th>
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<td>EU Contribution: €262,750</td>
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EU Contribution: €122,500

Technologies:

- Sensor technologies
- Collision avoidance system

**Development phase:** Research/Invention

**Key Results:**

Key result is the development of new pressure sensors and digital transducers: The project HISVESTA created a new generation of silicon MEMS barometric and high temperature pressure sensors and also fully compensated and digitised transducers.

One of the main outcomes of the project is a new pressure transducer TP4000, as well as other pressure transducer versions in different pressure ranges. A demonstration and evaluation kit for this transducer is available as one of the public deliverables from the project. This kit makes it possible to, within a few minutes, connect to any PC, and run demonstration of pressure testing of the TP4000 pressure transducers developed in the project.

The report can be downloaded from the Documents tab. For ordering the demonstration kit, please contact consortium member Memscap. The mail address can be found on: www.sintef.no/Projectweb/HISVESTA/Project-deliverables/

**Innovation aspects**

Innovative sensor technology for altimetry and engine control applications: a significant result from the project is a prototype high temperature pressure transducer unit utilizing new technology and methods for thermal compensation, linearisation and long term stability prediction. The transducer technology is designed for FADECs (Full Authority Digital Engine Control Unit), cabin pressure control systems and other segments.

**Technical Implications**

Development of new sensor type and transducer type.

**Strategy targets**

Innovating for the future (technology and behaviour): A European Transport Research and Innovation Policy

**Readiness**

The project developed a new generation of altimetry module. This module provides altitude accuracy capabilities that are significantly better than currently available and in use today. Testing has been performed. A demonstration showed the effectiveness of the performance improvement.

Documents:

- [D3.4 Demonstration kit TP4000 (Other project deliverable)](D3.4 Demonstration kit TP4000 (Other project deliverable))

**STRIA Roadmaps:** Vehicle design and manufacturing

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Environmental/Emissions aspects, Safety/Security

**Geo-spatial type:** Other