Project description

Smart Factories: Energy-aware, agile manufacturing and customisation

Objective

The production and ramp-up of complex and highly customized products are exceptionally challenging for planning and control, especially in small lot sizes. Daily challenges like late requests for change, immature high technology products and processes create significant risks. The occurring risks are bigger than production of big series such as automotive. Thus, new ICT-based approaches are required. The aim is to develop mitigation strategies to respond faster to unexpected events. Therefore the knowledge base has to be enriched for real-time decision support, to detect early warning and to accelerate learning. Our approach is based on a new generation of service orientated enterprise information platforms, a service orientated bus integrating service-based architecture and knowledge-based multi-agent systems (MAS). A holonic MAS combined with a service architecture will improve performance and scalability beyond the state of the art. The solution integrates multiple layers of sensors, legacy systems and agent-based tools for beneficial services like learning, quality, risk and cost management. Additionally the ecological footprints will be reduced. The ARUM solution will run in two modes: predictive and real time simulation. The predictive mode supports the planning phase whereas the real-time operations mode supports dynamic, time-, cost- and risk-oriented re-planning of operations. The provision of information for engineering to alter in case of immaturity or late requests for changes is supported equally. ARUM is
strongly end-user driven and the results will be tested on three industrial use cases with a focus on aircraft, aircraft interiors and ship manufacturing. The solution will be validated in a real industrial environment by industrial partners and benchmarked against today's ICT solutions. In collaboration with universities a test-bed will be established for design and testing of ARUM systems and tools and will be opened for dissemination and demonstration.

Field of Science

/engineering and technology/mechanical engineering/vehicle engineering/aerospace engineering/aircraft
/social sciences/psychology/cognitive psychology/mental processes/learning
/social sciences/sociology/governance/public services

Programme(s)

FP7-ICT - Specific Programme "Cooperation": Information and communication technologies

Topic(s)

FoF-ICT-2011.7.1 - Smart Factories: Energy-aware, agile manufacturing and customisation

Call for proposal

FP7-2012-NMP-ICT-FoF

See other projects for this call

Funding Scheme

CP - Collaborative project (generic)

Coordinator
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Address</th>
<th>Activity Type</th>
<th>EU Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRBUS DEFENCE AND SPACE GMBH</td>
<td>Willy-Messerschmitt-Strasse 1</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
<td>€ 1 039 501</td>
</tr>
<tr>
<td></td>
<td>82024 Taufkirchen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CESKE VYSOKE UCENI TECHNICKE V PRAZE</td>
<td>Jugoslavskych Partyzanu 1580/3</td>
<td>Higher or Secondary Education Establishments</td>
<td>€ 390 680</td>
</tr>
<tr>
<td></td>
<td>160 00 Praha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Czechia</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERTICON A.S</td>
<td>Evropska 2758/11 Dejvice</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
<td>€ 1 125 412</td>
</tr>
<tr>
<td></td>
<td>160 00 Praha 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Czechia</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation</td>
<td>EU Contribution</td>
<td>Address</td>
<td>Activity type</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------</td>
<td>--------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>MGS MODULAR GALLEY SYSTEMS AG</td>
<td>€ 47,710</td>
<td>Nersinger Strasse 89275 Elchingen</td>
<td>Private for-profit entities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>TECHNISCHE HOCHSCHULE KOLN</td>
<td>€ 476,000</td>
<td>Gustav-Heinemann-Ufer 54 50968 Koln</td>
<td>Higher or Secondary Education Establishments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERNUNIVERSITAT IN HAGEN</td>
<td>€ 467,000</td>
<td>Universitatsstrasse 47 58097 Hagen</td>
<td>Higher or Secondary Education Establishments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karl-Heinz Haas (Mr.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rolf Fanken (Prof.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lars Moench (Prof.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AIRBUS OPERATIONS GMBH
Germany
EU Contribution
€ 277 276
Address
Kreetslag 10
21129 Hamburg
Activity type
Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)
Website
Contact the organisation
Administrative Contact
Holger TEMMEN (Mr.)

P3 INGENIEURS SAS
France
EU Contribution
€ 437 364
Address
Route D Aussonne 3
Immeuble
31700 Cornebarrieu
Activity type
Private for-profit entities
(excluding Higher or
Secondary Education
Establishments)
Contact the organisation
Administrative Contact
Anton Czech (Mr.)

INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS
Greece
EU Contribution
€ 541 640
Address
Patission Str. 42
10682 Athina
Activity type
Research Organisations
Website
Contact the organisation
Administrative Contact
IAKOVOS VENIERIS (Prof.)
<table>
<thead>
<tr>
<th>Organisation</th>
<th>EU Contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALMENDE BV</td>
<td>€ 667 300</td>
<td>Stationsplein 45 Unit A1.205-207, 3013 Ak Rotterdam</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>TIE NEDERLAND BV</td>
<td>€ 949 024</td>
<td>De Corridor 5, 3621 Za Breukelen</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>INSTITUTO POLITECNICO DE BRAGANCA</td>
<td>€ 356 320</td>
<td>Campus De Santa Apolonia, 5301 253 Braganca</td>
<td>Higher or Secondary Education Establishments</td>
</tr>
</tbody>
</table>
SEC SMART SOLUTIONS  
Russia  

Address  
Sanfirovoy Ulita Office 416  
443080 Samara

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

EU Contribution  
€ 598 400

Contact the organisation
Administrative Contact  
Alexander Tsarev (Mr.)

THE UNIVERSITY OF MANCHESTER  
United Kingdom  

Address  
Oxford Road  
M13 9pl Manchester

Activity type  
Higher or Secondary Education Establishments

EU Contribution  
€ 696 052

Website
Contact the organisation
Administrative Contact  
Liz Fay (Ms.)

TIE ASCENTION GMBH  
Germany  

Address  
Otto-Lilienthal-Strasse 2  
88046 Friedrichshafen

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

EU Contribution  
€ 5 000

Contact the organisation
Administrative Contact  
Stuart Campell (Mr.)
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>EU Contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS2 ENGINEERING GMBH</td>
<td>Germany</td>
<td>€ 5 000</td>
<td>Boschstrasse 89079 Ulm</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>IACOBucci HF ELECTRONICS SPA</td>
<td>Italy</td>
<td>€ 350 000</td>
<td>Localita Colle Baiocco 03013 Ferentino Fr</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>TIE MAMBOFIVE BV</td>
<td>Netherlands</td>
<td>€ 5 000</td>
<td>De Corridor 5d 3621 Za Breukelen</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>Organisation</td>
<td>EU Contribution</td>
<td>Address</td>
<td>Activity type</td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------</td>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>TIE KINETIX NV</strong></td>
<td>€ 5 000</td>
<td>De Corridor 5 3621 Za Breukelen</td>
<td><strong>Private for-profit entities</strong> (excluding Higher or Secondary Education Establishments)</td>
<td></td>
</tr>
<tr>
<td><strong>AIRBUS GROUP LIMITED</strong></td>
<td>€ 50 000</td>
<td>Wellington House 125 130 Strand Wc2r 0ap London</td>
<td><strong>Private for-profit entities</strong> (excluding Higher or Secondary Education Establishments)</td>
<td></td>
</tr>
</tbody>
</table>

**Contact the organisation**

Administrative Contact
Stuart Campbell (Mr.)

Sam Mazillius (Mr.)

Permalink: https://cordis.europa.eu/project/id/314056/en

© European Union, 2019