Underwater Acoustic Network

From 2008-10-01 to 2011-09-30, closed project | UAN Website

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>Topic(s):</th>
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</thead>
<tbody>
<tr>
<td>EUR 4 263 233</td>
<td>ICT-SEC-2007.1.7 - Information and Communication Technologies: Critical Infrastructure Protection</td>
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<tr>
<th>EU contribution:</th>
<th>Call for proposal:</th>
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<tr>
<td>EUR 2 950 000</td>
<td>FP7-ICT-SEC-2007-1 See other projects for this call</td>
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<tr>
<th>Coordinated in:</th>
<th>Funding scheme:</th>
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<tr>
<td>Portugal</td>
<td>CP - Collaborative project (generic)</td>
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Objective

The UAN project aims at conceiving, developing and testing at sea an innovative and operational concept for integrating in a unique system submerged, surface and aerial sensors with the objective of protecting critical infrastructures, such as off-shore platforms and energy plants. The security of such economically vital infrastructures requires an integrated approach involving underwater and land/air sensors and actuators for surveillance, monitoring and deterrence. In particular UAN focuses on a security oriented underwater wireless network infrastructure, realized by hydroacoustic communication. The UAN concept is to gather environmental information during the acoustic transmission and use it to predict the acoustic propagation conditions and the optimal obtainable performance at any given time. This information is used in the communication system for precise tuning. This tuning will take place at two different levels: i) by improving the basic point-to-point connection, by introducing physical and geometric constraints in the channel equalization and optimization process of the communication settings and ii) at the macro network configuration level by adapting node geometric configuration to the acoustic propagation conditions predicted from the environmental observations. This can be done in depth or in range by moving nodes placed on AUVs either to increase the point-to-point communication capacity or by serving as relay nodes to more distant, and at that time, inaccessible fixed nodes. This is a rather new approach that requires a better understanding of the acoustic propagation physics as well as a capacity to include that knowledge into technologically advanced communications modules and algorithms for underwater communications. The UAN project builds on a multidisciplinary consortium of technologically advanced industries, field experienced university labs and governmental agencies, thus grouping the required knowledge and experience.

Related information

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<tr>
<th>Documents and Publications</th>
<th>Multimedia</th>
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<tr>
<td>D3.3</td>
<td>Interview to Prof. S. Jesus on UAN</td>
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<td>D 1.6</td>
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<td>D6.3</td>
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<td>D 7.4</td>
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Coordinator contact

Sergio JESUS, (Chairman of the Administration Board)
Tel.: +351-289800951
Fax: +351-289800066
E-mail

Coordinator

CINTAL - CENTRO INVESTIGACAO TECNOLOGICA DO ALGARVE
PORTUGAL
QUINTA DA PENHA
8005-139 FARO
Portugal
See on map
Activity type: Research Organisations

Administrative contact: Paulo Felisberto
Tel.: +351289800949
Fax: +351289800066
Contact the organisation

Participants

SELEX SISTEMI INTEGRATI SPA
ITALY
VIA TIBURTINA 1231
00131 ROMA
Italy
Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

Administrative contact: Riccardo Massimelli
Tel.: +39 010 6546 25
Fax: +39 010 6546 31
Contact the organisation

UNIVERSITA DEGLI STUDI DI GENOVA
ITALY
VIA BALBI 5
16126 GENOVA
Italy
See on map
Activity type: Higher or Secondary Education Establishments

Administrative contact: Raffaella Ravera
Tel.: +39 010 3532810
Fax: +39 010 353 294
Contact the organisation
EU contribution: EUR 343 193

Activity type: Other

Administrative contact: Thor Husoy
Tel.: +47 33 02 3872
Fax: +4733047619

Contact the organisation

EU contribution: EUR 738 562

Activity type: Higher or Secondary Education Establishments

Administrative contact: Tor Arne Reinen
Tel.: +47 73592030
Fax: +47 73592730

Contact the organisation

EU contribution: EUR 661 946

Activity type: Higher or Secondary Education Establishments

Administrative contact: Ilkka Karasalo
Tel.: +46855503627
Fax: +46855503686

Contact the organisation

EU contribution: EUR 213 594

Activity type: Higher or Secondary Education Establishments

Administrative contact: Immacolata Viva
Tel.: +390502217833

Contact the organisation

Subjects

KONGSBERG MARITIME AS
STRANDPROMENADEN 50
3183 HORTEN
Norway

STIFTELSEN SINTEF
STRINDVEIEN 4
7034 TRONDHEIM
Norway

TOTALFORSVARETS FORSKNINGSINSTITUT
Gullfossgatan 6
164 90 STOCKHOLM
Sweden

UNIVERSITA DI PISA
LUNGARNO PACINOTTI 43/44
56126 PISA
Italy