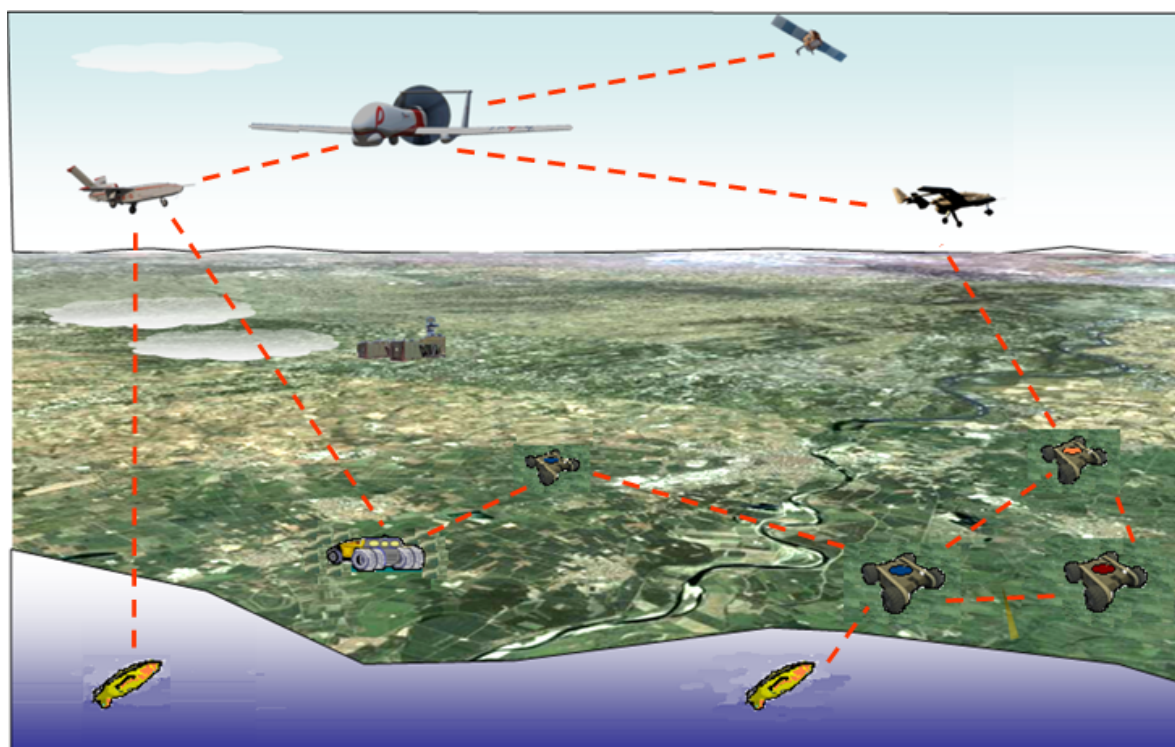




## ***Autonomous Systems Cooperation and Networking Workshop***



4 Luglio 2013  
Finmeccanica  
Piazza Monte Grappa 4, Roma

## The Autonomous Systems Community

The Autonomous Systems Community is born in 2012 with the specific goal of consolidating Finmeccanica leading role in Autonomous Systems. This will be achieved Identifying the technologies required to enable the proper level of system autonomy, evaluating the availability and maturity of common enabling technologies, identifying areas for technology research and development, supporting standardization and regulatory processes applicable to autonomous systems and maturing ethical, legal & societal concepts for autonomous systems. Currently the AS Community involves 10 Finmeccanica companies and 1 Research centre.

## Autonomous Systems Cooperation and Networking Workshop

The goal of this workshop is to increase awareness on some of the topics that seem to be more interesting for what concerns Autonomous Systems, with a special focus on cooperation and networking, exploring the current scientific and research trends on information sharing and collaboration in robotics, while presenting some of the most interesting industrial initiatives concerned with autonomy.

### External Presenters

**Antonio Bicchi** is Professor of Robotics at the University of Pisa and Senior Scientist at the Italian Institute of Technology (IIT) in Genoa.

**Andrea Caiti** is full professor of Automatic Control and Underwater Systems at the University of Pisa.

**Lucia Pallottino** is Assistant Professor of Robotics at the Research Center “E. Piaggio” and the Department of Information Engineering of the University of Pisa

**Gianluca Dini** is Associate Professor of in Computer Engineering at the “Dipartimento di Ingegneria della Informazione, Elettronica, Informatica, Telecomunicazioni” of the University of Pisa

**Adriano Fagiolini** is Assistant Professor at the University of Palermo

### Documentation

Proper documentation and technical materials related to the Workshop topics will be distributed to attendees and published on the MindSh@re portal.

### Registration

You are kindly invited to confirm your attendance within 21 of June 2013 to: Ms. Elisabetta Amici [e.amici@c-sm.it] and to Ms. Francesca Marchiori [f.marchiori@c-sm.it].

### Contacts:

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<i>Flavio Fusco</i> <a href="mailto:flavio.fusco@selex-es.com">flavio.fusco@selex-es.com</a>	<i>Pierpaolo Gambini</i> <a href="mailto:Pierpaolo.Gambini@Finmeccanica.com">Pierpaolo.Gambini@Finmeccanica.com</a>

09:30	Welcome and registration	
10:15	Mindshare and the AS Community	Mindshare AS Community
10:45	Introduction to Cooperation and Networking <ul style="list-style-type: none"> <li>· <i>From Networked Embedded Control of Cooperating Objects to the "Internet of Things"</i></li> <li>· <i>System Requirements: Scalability, Heterogeneity, Security, Safety</i></li> <li>· <i>Challenges: Robot-Robot Interactions (RRI), Human-Robot Interactions (HRI)</i></li> </ul>	Antonio Bicchi (Università di Pisa)
11:15	EURobotics	G. Barontini (Finmeccanica)
11:30	Coordination and communication challenges in underwater applications <ul style="list-style-type: none"> <li>· <i>Autonomous Underwater Vehicles</i></li> <li>· <i>Acoustic comms &amp; underwater networking</i></li> <li>· <i>Multi-vehicles autonomous surveillance and patrolling missions</i></li> </ul>	Andrea Caiti (Università di Pisa)
12:00	The SMAT Project: an Advanced Environment Monitoring System, based on multiple Unmanned Air Systems	B. Tranchero (Alenia Aermacchi)
12:15	Safe and efficient Robot-Robot coordination <ul style="list-style-type: none"> <li>· <i>Collision Avoidance: centralized vs decentralized approaches</i></li> <li>· <i>Rule-based coordination</i></li> <li>· <i>Air Traffic Management System application</i></li> <li>· <i>Industrial Environment application</i></li> </ul>	Lucia Pallottino (Centro Piaggio Università di Pisa)
12:45	The ADM-H Project: Automatic Decision Making algorithms and techniques for coordination of Heterogeneous teams of UxVs	S.Paoloni (MDBA)
13:00	Lunch	
14:00	Secure Robot-Robot communication <ul style="list-style-type: none"> <li>· <i>Necessary techniques to provide and maintain security in a deployed network</i></li> <li>· <i>Authentication and key management algorithms, Trust bootstrapping, and relationships between security, scalability, deployment, and Quality of Service; Cloud Robotics</i></li> </ul>	Gianluca Dini (Università di Pisa)
14:30	SSI experiences in multirobot systems	F. Fedi (SSI)
14:45	From local to global awareness reconstruction: monitoring and classification applications <ul style="list-style-type: none"> <li>· <i>Modeling Behaviours;</i></li> <li>· <i>Detect and reconstruct motion behaviors from local observations;</i></li> <li>· <i>Global awareness in sensor networks</i></li> <li>· <i>An automated procedure for monitoring and classification</i></li> </ul>	Adriano Fagiolini (Università di Palermo)
15:15	Space Automation and Robotics: Thales Alenia Space experiences in the STEPS project	P. Pellegrino (TASI)
15:30	Media Gallery	"Centro Piaggio" – Pisa University
16:00	Perimeter surveillance assisted by fixed and mobile visual sensors	P. Villella Rekno/Otomelara
16:15	Round Table & Conclusions	