

# R5-COP

Reconfigurable ROS-based Resilient Reasoning Robotic Cooperating  
Systems

## Dissemination reports and plans

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## 1 Introduction

### 1.1. Summary (abstract)

This deliverable describes the dissemination activities in R5-Cop project in the second project year (M13-M24). Partners were encouraged to actively disseminate the project results. These activities include:

- production and dissemination of advertising and promotional materials of the project,
- presentation of results at conferences, workshops and other events,
- organisation of thematic workshops and other R5-COP events,
- preparation of papers and scientific publications for conference proceedings and journals,
- development of relations with other European research projects.

### 1.2. Purpose of document

The purpose of this document is to report all dissemination activities carried out within R5-Cop in the second year of the project as well as, when available, to give an overview on planned activities in the third year. This is an extension of what D93.81 reported for the first year of the project

### 1.3. Partners involved

<b>Partners and Contribution</b>	
<b>Short Name</b>	<b>Contribution</b>
<b>PIAP</b>	Deliverable responsibility, integration of inputs from partners
<b>SMR</b>	Provided input
<b>CAMEA</b>	Provided input
<b>HUT</b>	Provided input
<b>BME</b>	Provided input
<b>ALT</b>	Provided input
<b>FAU</b>	Provided input
<b>TUBS</b>	Provided input
<b>VTT</b>	Provided input
<b>SINTEF</b>	Provided input

## 2 Project meetings

The following project meetings took place in 2015:

- 3<sup>rd</sup> General Assembly Meeting – Warsaw, Poland, PIAP, June 17/18 2015.
- 4<sup>th</sup> General Assembly Meeting – Bilbao, Spain, Tecnalia, Dec 02/03 2015.

### 3 Information on dissemination activities in 2<sup>nd</sup> project year

Partner	Title / Scope	Event / medium				Short description
		Name	Type	Date	Website / link	
HUT	Reconfigurable Equilets Operating System - A Hybrid Architecture to Combine Flexibility and Performance for Manufacturing	International Journal On Advances in Software, issn: 1942-2628, vol. 8 no 3&4	International journal paper	2015	<a href="http://www.ariajournals.org/software/soft_v8_n34_2015_paged.pdf">http://www.ariajournals.org/software/soft_v8_n34_2015_paged.pdf</a>	The paper shows a reconfigurable platform that is used by HUT for WP41 and has a section about combining ROS with JADE through a number of interfaces. The results will be used for WP41 Industrial Assembly demonstrator and was described in D41.20.
ALT	ROS training		training	9 April 2015, 11-13 May 2015, 19 & 26 June 2015, 6-7 July 2015, 2-4 November 2015	<a href="http://mikrocentrum.nl/ev enementen/themabijeenkomsten/ros-industrial-toekomst-van-flexibele-robotica/">http://mikrocentrum.nl/ev enementen/themabijeenkomsten/ros-industrial-toekomst-van-flexibele-robotica/</a> <a href="http://www.alten.nl/en/alten-mecha-tron-ics/what-wedo/training/">http://www.alten.nl/en/alten-mecha-tron-ics/what-wedo/training/</a> <a href="http://mikrocentrum.nl/opleidingen/mechatronica-robotica-elektro-en-industriele-automatisering/cursus-ros-industrial/">http://mikrocentrum.nl/opleidingen/mechatronica-robotica-elektro-en-industriele-automatisering/cursus-ros-industrial/</a>	Introduction to ROS. Participants learn the basics of ROS and motion planning. A practical programming case is part of the training.
ALT	ROS demonstration	Demo Slofare	Demo	17 March 2015	<a href="http://www.slofware.nl/">http://www.slofware.nl/</a> <a href="http://www.derobv.nl/">http://www.derobv.nl/</a>	Showed how ROS-I motion planning can be used to control an industrial Fanuc robot arm for large scale 3D printing.
ALT	Application of the Robot Operating System in Industry	High Tech systems	Fair-presentation	25 March 2015	<a href="http://www.hightechsystems.nl/en/programme/p rogramme-2015/software-engineering/simon-jansen">http://www.hightechsystems.nl/en/programme/p rogramme-2015/software-engineering/simon-jansen</a> <a href="http://www.hightechsystems.nl/_Resources/Persistent/975dab-c44be4b235e1d5996e3c0a40847d8ff989/Simon%20Jansen.pdf">http://www.hightechsystems.nl/_Resources/Persistent/975dab-c44be4b235e1d5996e3c0a40847d8ff989/Simon%20Jansen.pdf</a>	The viability of ROS-Industrial for developing adaptive and flexible robot solutions for industrial applications has been presented.
ALT	ROS-Industrial Nieuwsbrief		newsletter	March 2015	<a href="http://us3.campaign-archive2.com/?u=52becd356ac0727bfdaa7eb3f&amp;id=47c2ffdd07&amp;e=de30bbbd91">http://us3.campaign-archive2.com/?u=52becd356ac0727bfdaa7eb3f&amp;id=47c2ffdd07&amp;e=de30bbbd91</a>	Inform subscribers about latest developments in ROS and flexible smart robotics and upcoming ROS events.
ALT		Vision & robotics fair	Demo	3-4 June 2015	<a href="http://www.vision-robotics.nl/">http://www.vision-robotics.nl/</a> <a href="http://rosindustrial.org/news/2015/4/16/planning-and-control-of-hightech-motion-stage-using-ros-i">http://rosindustrial.org/news/2015/4/16/planning-and-control-of-hightech-motion-stage-using-ros-i</a>	Showed how ROS-I motion planning can be used to control a 5-DOF motion stage in a Transmission Electron Microscope (TEM).

					ndustrial	
TUBS, PIAP, DTI, ...	R5-COP project booth	ARTEMIS Co-Summit "Smart Industry: impact of software innovation", Berlin	International conference and exhibition	March 10/11 2015	<a href="http://www.artemis-ia.eu/co-summit-2015/index.html">http://www.artemis-ia.eu/co-summit-2015/index.html</a>	Demonstrated PIAP HMI, PIAP Scout robot and Mir100 robot as well as MLF from DTI. Won exhibition award.
CAMEA	R5-COP poster display	INTER-TRAFFIC Istanbul 2015	International trade fair	27-29 <sup>th</sup> of May 2015, Istanbul	<a href="http://www.intertraffic.com/">http://www.intertraffic.com/</a>	The event is traffic oriented trade fair where CAMEA had own booth. There were posters (presenting current results within R5-COP project) displayed.
CAMEA	R5-COP poster display	MSV BRNO 2015	International trade fair	14-18 <sup>th</sup> of September 2015, Brno	<a href="http://www.bvv.cz/en/msv/">http://www.bvv.cz/en/msv/</a>	The event is industrial trade fair where CAMEA had own booth. There were posters (presenting current results within R5-COP project) displayed.
CAMEA	R5-COP poster display	ITS WORLD CONGRESS Bordeaux	International trade fair	5-9 <sup>th</sup> of October 2015	<a href="http://itsworldcongress.com/">http://itsworldcongress.com/</a>	The event is traffic oriented trade fair where CAMEA had own booth. There were posters (presenting current results within R5-COP project) displayed.
FAU	Francesca Saglietti, David Föhrweiser, Stefan Winzinger, Raimar Lill	41st Euro-micro Conference on Software Engineering and Advanced Applications (SEAA 2015)	International conference	August 2015, Funchal, Madeira, Portugal	<a href="https://paginas.fe.up.pt/~dsd-seaa-2015/seaa2015/">https://paginas.fe.up.pt/~dsd-seaa-2015/seaa2015/</a>	FAU was presenting its research results at conferences and workshops
FAU	Francesca Saglietti, Stefan Winzinger, Raimar Lill	International Conference on Computer Safety, Reliability & Security (SAFE-COMP 2015), Workshop DECSoS	workshop	September 2015, Delft, the Netherlands	<a href="http://safe-comp2015.tudelft.nl/">http://safe-comp2015.tudelft.nl/</a>	FAU was presenting its research results at conferences and workshops
SMR	Workshop on motion planning	ROSCon	International conference	Oct 3 and 4, 2015	<a href="http://roscon.ros.org/2015/">http://roscon.ros.org/2015/</a>	See deliverable D93.40
VTT	Master's thesis "Performance evaluation of Time-of-Flight	Aalto University			<a href="https://aaltodoc.aalto.fi/handle/123456789/19184">https://aaltodoc.aalto.fi/handle/123456789/19184</a>	

	cameras” by Matti Laukkanen					
TUBS	A scriptable, standards-compliant reporting and logging extension for SystemC	Samos Conference/ViPES Workshop	International conference	July 19, 2015	<a href="http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=7358369#">http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=7358369#</a>	
TUBS	Website <a href="http://r5-cop.eu">http://r5-cop.eu</a>	Internet	website		<a href="http://r5-cop.eu">http://r5-cop.eu</a>	Presenting the project aims, the consortium and results to the public.
TUBS		TU Night	Local open house presentation	June 27, 2015		Public presentation of current research activities.
TUBS	“Tag der Informatik”	Open house presentation	Local	Jan 26, 2016		Public presentation of current research activities with focus on recruitment and public relations.
TUBS	Reconfigurable ROS-based Resilient Reasoning Robotic Cooperating Platforms -- R5-COP	The Parliament Magazine	European Parliament magazine	Nov 16, 2015	<a href="https://www.theparliament-magazine.eu/articles/magazines/issue-423-16-november-2015">https://www.theparliament-magazine.eu/articles/magazines/issue-423-16-november-2015</a>	
TUBS, MIR, PIAP	R5-COP Project Presentation	ICT-2015	International conference	Oct 20-22, 2015	<a href="https://ec.europa.eu/digital-agenda/en/ict2015-innovate-connect-transform-lisbon-20-22-october-2015">https://ec.europa.eu/digital-agenda/en/ict2015-innovate-connect-transform-lisbon-20-22-october-2015</a>	R5-COP was one of three features at the ARTEMIS-IA booth.
TUBS (ARTEMIS-IA)	Lots of visibility at ICT2015	ARTEMIS Newsletter	Mail newsletter and website	Nov 03, 2015	<a href="https://artemis-ia.eu/news/lots-of-visibility-at-ict2015.html">https://artemis-ia.eu/news/lots-of-visibility-at-ict2015.html</a>	Follow-up to ICT-2015 presentation
TUBS	Robots on the rise -- one year into the R5-COP project	ARTEMIS Newsletter	Mail newsletter and website	Mar 17, 2015	<a href="https://artemis-ia.eu/news/robots-on-the-rise-one-year-into-the-r5-cop-project.html">https://artemis-ia.eu/news/robots-on-the-rise-one-year-into-the-r5-cop-project.html</a>	Dedicated project feature included in the ARTEMIS Newsletter resulting from Co-Summit presentation (March 2015)
BME	Tadeusz P. Dobrowiecki (BME), Johan Schoukens: Reducing the measurement time of the Best Linear Approximation of a Nonlinear System using improved aver-	IEEE Int. Instrumentation and Measurement Technology Conf. (I2MTC 2015), Pisa, Italy	Conference	May 11-14, 2015	<a href="http://2015.imtc.iee">http://2015.imtc.iee</a> <a href="http://2016.imtc.iee">http://2016.imtc.iee</a> <a href="http://e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf">e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf</a>	BME presented its scientific results related to measurements and the processing of sensor data in case of non-linear problems (WP22, WP25).



	aging methods					
BME	Laszlo Sujbert and Gyorgy Orosz (BME): FFT-based Spectrum Analysis in the Case of Data Loss	IEEE Int. Instrumentation and Measurement Technology Conf. (I2MTC 2015), Pisa, Italy	Conference	May 11-14, 2015	<a href="http://2015.imtc.iee-e-ims.org/">http://2015.imtc.iee-e-ims.org/</a> <a href="http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf">http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf</a>	BME presented its scientific results related to the processing of sensor data in case of data loss (WP22, WP25).
BME	István Engedy, Gábor Horváth (BME): Path Reconstruction based on Gyroscope Bias Estimation using GPS	IEEE Int. Instrumentation and Measurement Technology Conf. (I2MTC 2015), Pisa, Italy	Conference	May 11-14, 2015	<a href="http://2015.imtc.iee-e-ims.org/">http://2015.imtc.iee-e-ims.org/</a> <a href="http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf">http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf</a>	BME presented its scientific results related to path reconstruction and localization (WP25).
BME	Balázs Renczes, István Kollár (BME), P. Carbone, A. Moschitta, Vilmos Pálfi, Tamás Virosztek (BME): Analyzing Numerical Optimization Problems of Finite Resolution Sine Wave Fitting Algorithms	IEEE Int. Instrumentation and Measurement Technology Conf. (I2MTC 2015), Pisa, Italy	Conference	May 11-14, 2015	<a href="http://2015.imtc.iee-e-ims.org/">http://2015.imtc.iee-e-ims.org/</a> <a href="http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf">http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf</a>	BME presented its scientific results related to the theoretical background of processing sensor data (WP22).
BME	Péter Györke, Béla Pataki (BME): Energy harvesting wireless sensors for smart home applications	IEEE Int. Instrumentation and Measurement Technology Conf. (I2MTC 2015), Pisa, Italy	Conference	May 11-14, 2015	<a href="http://2015.imtc.iee-e-ims.org/">http://2015.imtc.iee-e-ims.org/</a> <a href="http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf">http://2016.imtc.iee-e-ims.org/sites/2015.imtc.ieee-ims.org/files/I2MTC-2015_final-program_v7.pdf</a>	BME presented its scientific results related to application of wireless sensors that are also relevant for R5-COP (WP22, WP25).
BME	Lajos Csepentő, Zoltán Micskei (BME): Evaluating Symbolic Execution-based Test Tools	IEEE Int. Conf. on Software Testing, Verification and Validation (ICST), Graz, Austria	Conference	13-17 April 2015	<a href="http://dx.doi.org/10.1109/ICST.2015.7102587">http://dx.doi.org/10.1109/ICST.2015.7102587</a> DOI: 10.1109/ICST.2015.7102587,	BME presented its scientific results related to source code based test tools that can be used for test case analysis and classification (WP34).
BME	Dávid Honfi, András Vörös, Zoltán Micskei (BME): SEViz:	IEEE Int. Conf. on Software Testing,	Conference	13-17 April 2015	<a href="http://dx.doi.org/10.1109/ICST.2015.7102631">http://dx.doi.org/10.1109/ICST.2015.7102631</a> DOI:	BME presented its scientific results related to the visualization of the coverage of test cases that can be used for test classification (WP34).

	A Tool for Visualizing Symbolic Execution	Verification and Validation (ICST), Tool Track, Graz, Austria,			10.1109/ICST.2015.7102631,	
BME	Ákos Hajdu, András Vörös, Tamás Bartha (BME): New search strategies for the Petri net CEGAR approach	Int. Conf. on Application and Theory of Petri Nets and Concurrency (PN 2015), Brussels, Belgium	Conference	21-26 June, 2015	<a href="http://www.ulb.ac.be/di/verif/pn2015acsd2015/index.html">http://www.ulb.ac.be/di/verif/pn2015acsd2015/index.html</a> <a href="http://dx.doi.org/10.1007/978-3-319-19488-2_16">http://dx.doi.org/10.1007/978-3-319-19488-2_16</a> DOI: 10.1007/978-3-319-19488-2_16.	BME presented its scientific results related to verification of temporal properties that can be checked on design models before applying it for on-line verification (WP34).
BME	Vince Molnár, Dániel Darvas, András Vörös, Tamás Bartha (BME): Saturation-based incremental LTL model checking with inductive proofs	Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2015), London, UK	Conference	13-18 April, 2015	<a href="http://www.eta-aps.org/2015/tacas">http://www.eta-aps.org/2015/tacas</a> <a href="http://dx.doi.org/10.1007/978-3-662-46681-0_58">http://dx.doi.org/10.1007/978-3-662-46681-0_58</a> DOI: 10.1007/978-3-662-46681-0_58.	BME presented its scientific results related to incremental verification of temporal properties that are also used for on-line verification (WP34).
BME	Tamás Mészáros (BME): Agent-based Information Acquisition and Sharing	Ph.D. Thesis (in Hungarian) BME, Dept. of Measurement and Information Systems, Budapest, Hungary	Ph.D. thesis defence at BME	19 January, 2016	<a href="http://www.doktori.hu/index.php?menuid=193&amp;vid=15395&amp;lang=EN">http://www.doktori.hu/index.php?menuid=193&amp;vid=15395&amp;lang=EN</a> <a href="http://www.mit.bme.hu/system/files/user_files/36/mt_tezis-fuzet.pdf">http://www.mit.bme.hu/system/files/user_files/36/mt_tezis-fuzet.pdf</a>	The thesis includes results related to information sharing of agents that is analyzed for handling of conflict situations via cooperation (WP32).
BME	Tamás Tóth, András Vörös, István Majzik (BME): A decomposition method for the verification of a real-time safety-critical protocol.	7th Int. Workshop on Software Engineering for Resilient Systems (SERENE 2015), Paris, France	Conference	7-8 September, 2015	<a href="http://serene.disim.univaq.it/2015/">http://serene.disim.univaq.it/2015/</a>	BME presented its scientific results related to decomposition that can be used in verification of safety properties (WP34).
BME	Oszkár Semeráth, Ágnes Barta, Zoltán Szatmári, Ákos Horváth, Dániel Varró (BME): Formal Validation of Domain-Specific Languages with Derived Features and Well-	Int. Journal on Software and Systems Modelling (SoSym), Springer Verlag	Journal	30 July 2015	<a href="http://link.springer.com/article/10.1007%2Fs10270-015-0485-x">http://link.springer.com/article/10.1007%2Fs10270-015-0485-x</a> DOI: 10.1007/s10270-015-0485-x	BME presented its scientific results related to incremental test data (test context) generation and test classification (WP34).

	Formedness Constraints					
BME	VIK MIT is Participating in the Development of Cooperative Robots (Koopératív robotokat fejleszt a VIK MIT), in Hungarian	Web portal of the faculty of Electrical Engineering and Informatics, BME	Web portal (national)	8 December, 2015	<a href="https://www.vik.bme.hu/hir/910kooperativrobotokatfejlesztavikmit">https://www.vik.bme.hu/hir/910kooperativrobotokatfejlesztavikmit</a>	BME published an online article about its role in R5-COP (overview of its activities for the general public of the faculty).
BME	László Sujbert, György Orosz (BME): FFT-based Spectrum Analysis in the Case of Data Loss.	IEEE Transactions on Instrumentation and Measurement. No 99. pp 1-9, 2016,	Journal	13 January, 2016	<a href="http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=19">http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=19</a> <a href="http://dx.doi.org/10.1109/TIM.2015.2508278">http://dx.doi.org/10.1109/TIM.2015.2508278</a>	BME published its scientific results related to processing sensor data in case of data loss (WP22, WP25)
SAX	Introducing R5-Cop	Mikroniek, Issue 2015-6	Professional journal article	December 2015	<a href="http://dspe.nl/mikroniek">dspe.nl/mikroniek</a>	Introduction to the project: background, objectives, structure, partners, Dutch contribution, ROS

#### 4 Activities planned for 3<sup>rd</sup> project year

Partner	Title / Scope	Event / medium				Short description
		Name	Type	Date	Website / link	
CAMEA	R5-COP poster display and alternatively demo	NTER-TRAFFIC AMSTERDAM 2016	International trade fair	5-8 <sup>th</sup> of May 2016, Amsterdam	<a href="http://www.intertraffic.com/">http://www.intertraffic.com/</a>	The event is traffic oriented trade fair where CAMEA will have own booth. There will be displayed poster presenting current results within R5-COP project and alternatively we will show real demo of embedded video processing or similar.
CAMEA	R5-COP poster display and alternatively demo	TranspoQuip 2016	International trade fair	4-6 <sup>th</sup> of October 2016, Sao Paulo	<a href="http://itsworldcongress.com/">http://itsworldcongress.com/</a>	The event is transportation oriented trade fair where CAMEA will have own booth. There will be displayed poster presenting current results within R5-COP project and alternatively we will show real demo of embedded video processing or similar.
SINTEF, DTI, PIAP	Workshop: "How Do We Surpass Cur-	European Robotics Forum 2016	European forum	21-23 March 2016	<a href="http://www.erf2016.eu/">http://www.erf2016.eu/</a>	ERF is an annual event that has become the most influential meeting of the European robotics com-

	rent Barriers to Efficient Deployment of New Robotics in Industry?"					munity.
SINTEF	Vind: a robot self-localization framework	IEEE Mediterranean Control Conference	International conference	June 21-24 2016	<a href="http://med2016.org/">http://med2016.org/</a>	The 24th MED'16 is organized by the Mediterranean Control Association (MCA), a non-profit organization registered in the Republic of Cyprus. MCA was established in June 1998 with goals to promote initiatives for enhancing scientific exchanges, to disseminate information, to coordinate research networks, and to facilitate technology transfer primarily within the countries of the Mediterranean region.
TUBS		TU Day	Local open house presentation	2016		Public presentation of current research activities.
BME	Tamás B. Bakó and Tamás Dabóczy (BME): Improved-Speed Parameter Tuning of Deconvolution Algorithm.	IEEE Transactions on Instrumentation and Measurement, 2016.	Journal	2016 (in print)	<a href="http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=19">http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=19</a>	BME published its scientific results related to the theoretical background of processing sensor data (WP22).