

Research for SME

Grant agreement n°: 606363

Call identifier: FP7-SME-2013-1

**CooperActive Robot for Large Spaces manufacturing
CARLoS**

Deliverable D6.1

[Project Website](#)

Work Package 6

[Knowledge transfer, dissemination and exploitation](#)

Document type : Other
Version : 0
Date of issue : 29th November 2013
Dissemination level : Public
Lead beneficiary : AIMEN

**Project Funded by the European Commission under the
Programme “Capacities”.
Research for the Benefit of SMEs**



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Executive Summary

This report is part of the deliverable of Work Package 6, D6.1 Project Website. The report summarizes the structure and current contents of the web site of the CARLoS project.

It consists of three parts. First, a short introduction to the general structure of the web site is provided. Second, the public access structure and contents are described. Finally, the structure and contents of the restricted collaborative area of the CARLoS website is shown.



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1 INTRODUCTION

A web site for the CARLoS project has been set up at the URL www.carlosproject.eu for public access. The web site is a tool for dissemination, information sharing, and contact of the consortium with the rest of the community, as well as a tool for the consortium to enable collaborative work, progress monitoring and progress and task managing.

The web site is divided in public access sections and restricted access sections, as described below.

Public access: Several links perform this part with public information related to the CARLoS project, a brief summary of the project, objectives, partners, etc. The sections listed below are included in the webpage:

- The CARLoS project (main -entry- page)
- Consortium
- Work Packages
- Publications
- Events
- Contact
- Download



Figure 1 Main page of the project website



All the public sections have the same heading with links to the rest of section and search box, as well as a link to the restricted area. Also, all the sections have the same footage with the logos of the project and the 7th framework programme.



Figure 2 Heading of the different public sections in the website



Figure 3 Footage of the website

Restricted access: a special link with restricted access, called “Members area”, is included on the website. This link is only accessible for project members with login and password access. This area brings a collaborative space to:

- share confidential documents and information
- to schedule events, tasks and networking actions within the consortium section
- to discuss issues and to generate documents related to CARLOS using collaborative tools

2 PUBLIC ACCESS

Next, the current contents of the public sections of the website are described.

2.1 The CARLOS Project

This section is also the main page and it shows the following general description of the project:

The CARLOS project aims to apply recent advances in cooperative mobile robotics, to a representative industrial scenario in shipyards. CARLOS robot will be built using off-the-shelf technology under a modular approach. The final prototype will be demonstrated as a robot co-worker for fit-out operations inside blocks of ship superstructures. Currently, there is no automated solution to these tasks.



Large semi-structured manufacturing spaces present serious challenges for robot mobility, safety and reliability. This is clearly the case of shipbuilding environments. Shipyards exhibit unique features that challenge but also make of major interest the deployment of mobile robots able to take on arduous repetitive tasks in which productivity may not be improved but at the expense of worker wages.

The problem at hand in CARLoS proposal are the fit-out operations of ship cabins that include stud welding and marking of CAD mode information onto the raw superstructure to assist posterior fit-out operations. Only these operations are estimated to have a market of over € 3,000 million in Europe for a robot able to take on the tasks.

The CARLoS project will contribute to strength the technological level and global market position of:

- European SMEs that develop, supply, and integrate mechatronic, sensing, and electronic technologies for industrial applications.*
- European SMEs providing fit-out services to shipyards in the first place, and to industrial and civil construction.*
- The main features of the CARLoS robot are:*
- High mobility inside ship blocks*
- Semi-autonomous decision-making on the work to do*
- Autonomous stud welding capability*
- Autonomous pre-outfitting marking capability*
- Highly usable and easy controlled by a shipyard worker*

CARLoS is supported by the European Commission and puts together 5 SMEs located in 3 different countries, 3 RTD performers in 3 different countries.

Finally, the support of the 7th framework programme to the project is acknowledged in the bottom of the page.

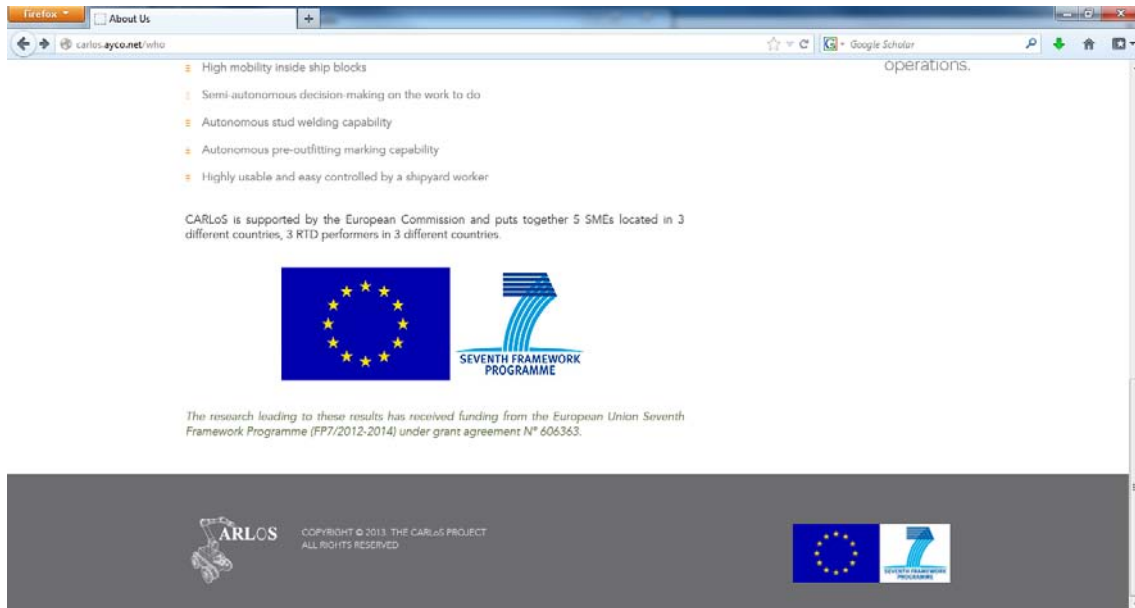


Figure 4 View of the bottom of the main page

2.2 Consortium

This section describes the profiles of the partners, providing a link to their website and showing their logo as well.

AIMEN Technology Centre

www.aimen.es

AIMEN(Coordinator) is a Non Profit association constituted by 110 companies, which supplies technological support to more than 400 companies dedicated to industrial or commercial activity related to metallurgy, automotive sector, mechanics, shipbuilding and others. AIMEN promotes and undertakes research, as well as improves design, simulation and joining technologies.

AIMEN has a large experience in R&D projects involving Materials Processing Technology and Robotics. AIMEN has a "Joining Technology Plant" and an electronics/robotics laboratory that provides facilities and expertise to develop the tasks involved in the project.

Aalborg Universitet

www.aau.dk

The mission of the mechanical engineering department is to generate knowledge related to industrial production, and to disseminate this knowledge for the benefit of society, industry and students. Knowledge building is based on strategic and applied research with a generic nature.



The focus of the group involved on CARLoS project is on design of model and sensor based control systems, human machine interfaces, automatic and real-time shop floor control and mobile robots. The group has been active in a number of national and EU projects e.g PACO-Plus, Eco2Painter, Flexplaint, Imcor, Pipeweld, Little helper, TAPAS and GISA.

Instituto de Engenharia de Sistemas e Computadores

www.inescporto.pt

INESC TEC is an Associated Laboratory coordinated by INESC Porto, a private non-profit institution having as associates the University of Porto, INESC and the Polytechnic Institute of Porto.

Under INESC TEC, 12 Units are active in research, technology transfer, knowledge valorisation and launching of spin-off companies. Its main areas are Telecommunications and Multimedia, Power Systems, Manufacturing Systems, Industrial Management, Information and Computer Graphics Systems, Optoelectronics and Electronic Systems, Robotics and Intelligent Systems, Artificial Intelligence, Real-Time Systems, Computer Science, Critical Software Systems and Innovation.

ROBOTNIK Automation SLL

www.robotnik.es

Robotnik Automation is a Spanish SME founded in 2002, and is mainly dedicated to the development of robotics related products, R&D projects so as production automation and robotic engineering services.

We have also obtained the EIBT (Innovative and High-Tech Enterprise) qualification, by the ANCES National Network, which recognizes Robotnik as a high tech company, with an innovative environment and high professional and technological formation.

C.A.T. Progetti srl

www.catprogetti.it

The company was founded in 1984 as a performer of hardware and software projects for machine tools and related equipment. From 2006 we have established with sponsorship of C.N.A. (National Confederation of small companies and artisans) and other 7 members consortium MECINBO to develop engineering, design and manufacture of special machines, Bin Picking Robots with 3D vision.



DELTAMATIC, S.A.

www.deltamatic.pt

Founded in September, 1999, DELTAMATIC has a core business, the design, development and manufacturing of industrial automation systems. DELTAMATIC, ISO9001 certified, devotes itself to the development of solutions for industrial processes' automation in several industrial activity domains, namely food industry, loads' movement industry, water treatment industry, etc.

DELTAMATIC's competences concerns project and engineering, software, electric panels and electrical systems, for the industry in general. Its human team sustains high technical competences which are characterized by the using of solutions technically high advanced.

ATEIN NAVAL, S.A.

www.ateinnaval.com

ATENASA was founded in 1978 dedicated to the design, manufacturing and installation of thermal, acoustic and fireproof insulations, and naval accommodation (Pre-outfitting, HVAC, exhaust and intake ducts, etc).

ATENASA has a long experience in Industry, Tertiary and Shipbuilding sectors, especially in Defense. ATEIN NAVAL is a main supplier in Navantia Shipyard, as in BAE and ASC (Australia), and with the Armada Española.

ATENASA is certified ISO 9001:2008, and in process to obtain ISO 14.000 and OHSAS 18.000

ASTILLEROS JOSE VALIÑA, S.A.

www.astillerosjosevalina.es

Since their foundation in 1951, Shipyards José Valiña, S.A have been dedicated to the construction of steel hull ships of multiple types, floating artefacts, repairs, lengthenings and conversions, fabrication of diverse industrial and naval machinery, plus machining and assembly of metallic structures.

2.3 Work packages

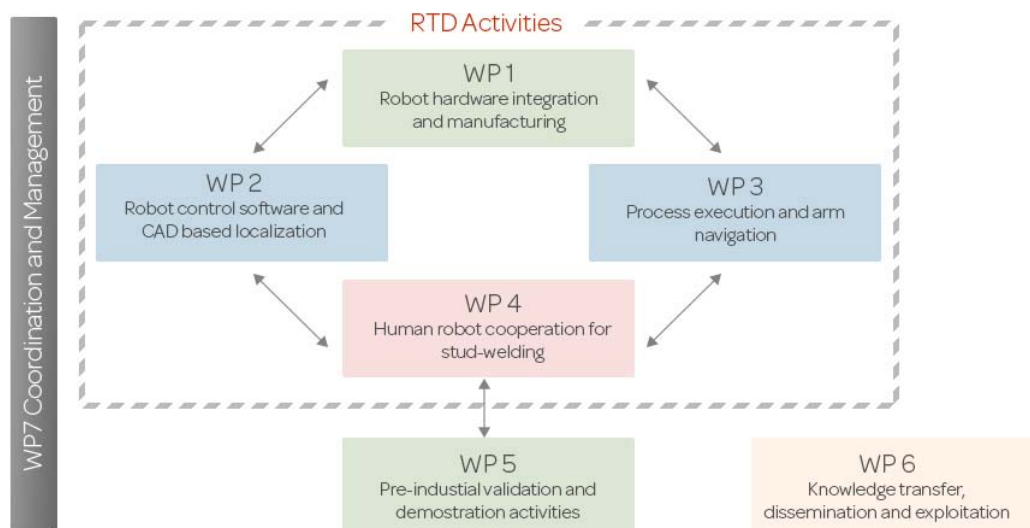
This section describes the main activities to address in the CARLOS project.



The work plan has been designed to end up with a prototype of the CARLOS robot at the end of the project period. The development process comprises four basic working packages to construct the robot and one package that focussed on testing and tuning on the ship.

- The overall selection and integration of the hardware components.
- The autonomous and semi-autonomous navigation systems.
- The development of the tool as well as the control for the stud welding and the drawing processes.
- The human robot communication and the embedding of the robot programs within a skill-based structure.
- The evaluation of the robot.

We have mapped the above working structure directly into 7 work packages according to the following structure:

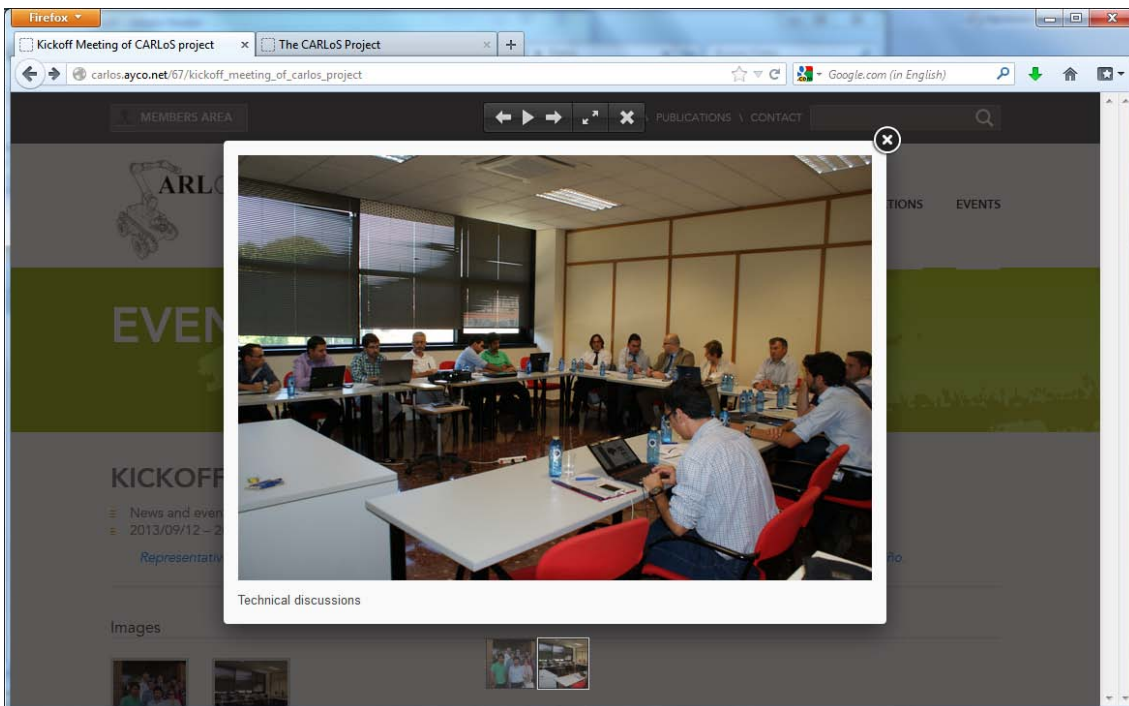
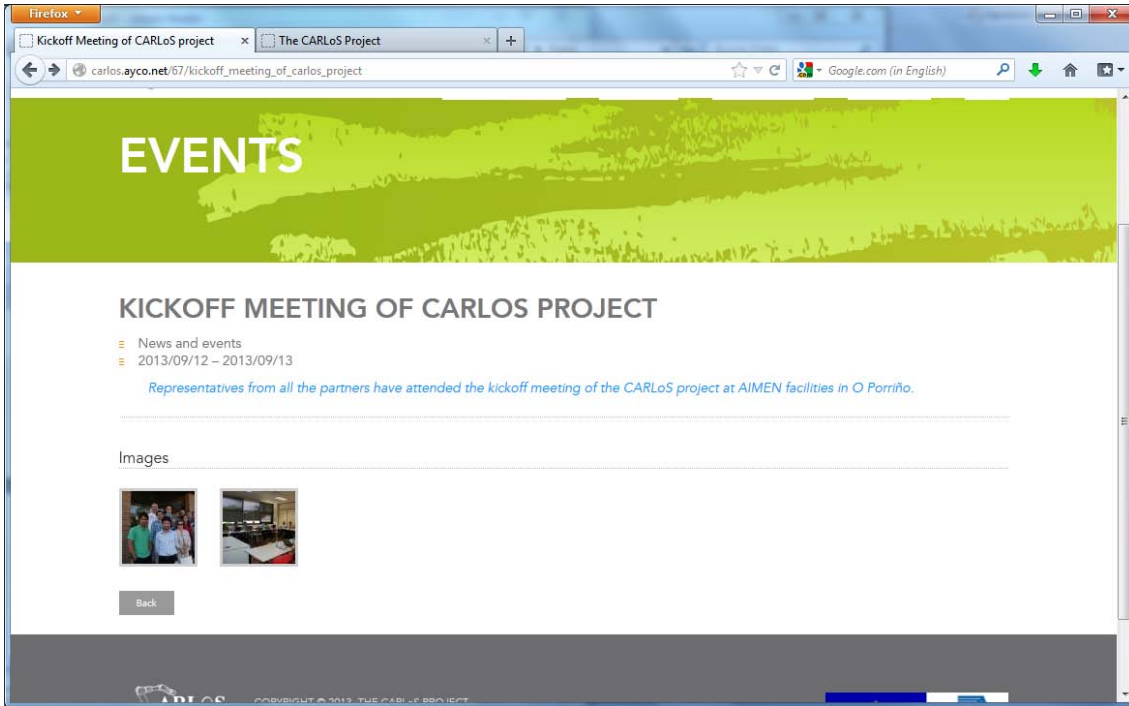


2.4 Publications

This section will show a list of publications (e.g. papers, presentations) related to the activities undertaken in the CARLOS project.

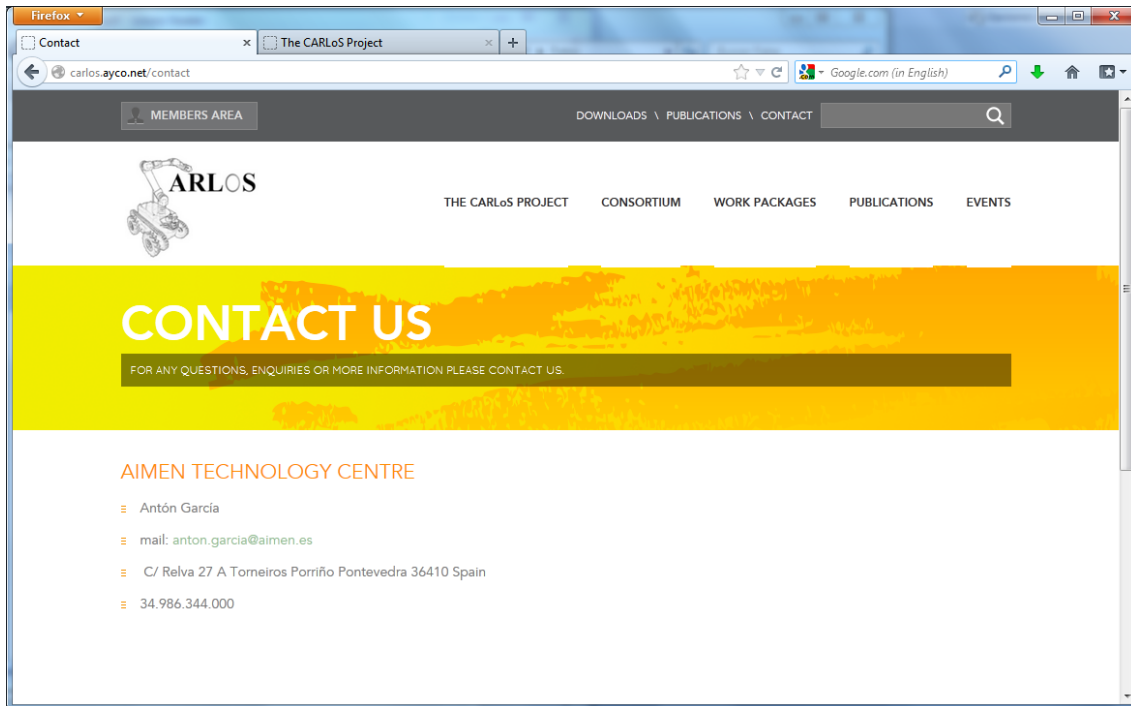
2.5 Events

This section will announce and show events related to the CARLOS project. Currently, a mention to the Kickoff meeting at AIMEN -with photos of the meeting- is included in this section.



2.6 Contact

This section provides contact data of the project coordinator to receive any enquiries on the project.



3 RESTRICTED ACCESS COLLABORATIVE AREA

This area provides a collaborative space to share documents and information related to the project between the partners in an efficient and flexible manner. Login and password are required prior to have access to this area.

The main structure of the collaborative space is as follows:

- Shared documents
- Wiki
- Calendar
- Tasks
- Contact
- Discussion Groups

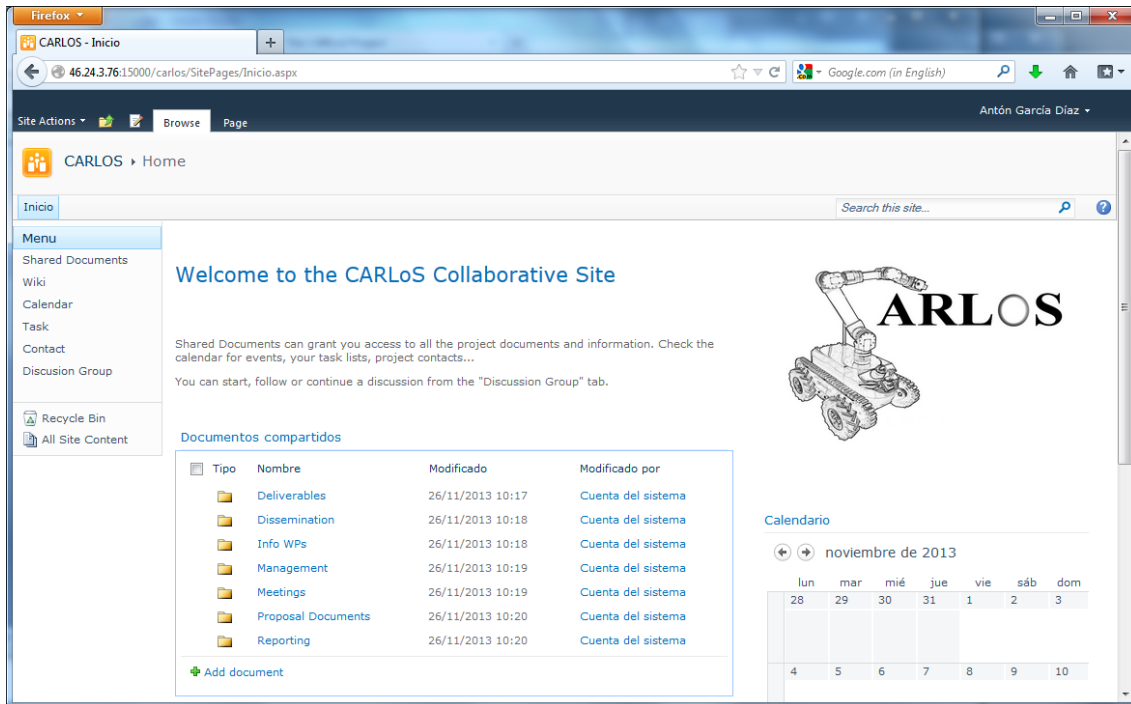


Figure 5 Welcome page to the restricted collaborative area

This structure allows performing different collaborative actions. Firstly, it allows sharing documents organised in a folder structure. Secondly, this area provides wiki tools for collaborative generation of documentation. Also, scheduling and networking tools (calendar, tasks lists, and contact data from partners) are available to facilitate consortium interaction. Finally, discussion groups may be easily organised driven by any partner to address different issues requiring discussions and contributions from different partners.