

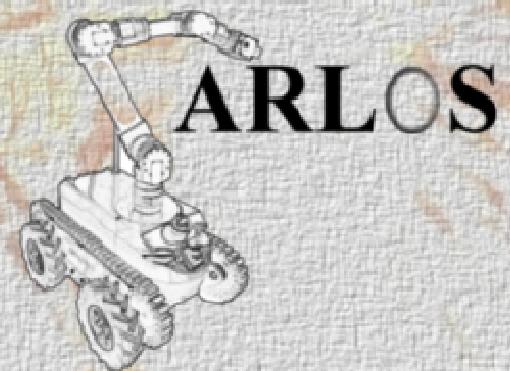


Grant Agreement Nº 606363
FP7 - SME - 2013

Cooperative Robot for Large Spaces Manufacturing

www.carlosproject.eu

*ERF Workshop on Mobile Manipulation in Manufacturing,
Vienna, 13th March 2015*



ASTILLEROS
JOSE VALIÑA, S.A.



CARLoS, a cooperative mobile robot manipulator for stud welding and pre-outfitting marking



- A robot based on
 - Off-the-shelf components
 - ROS-based control software
 - Modular approach: platform-process-interaction
- Stud welding and marking capabilities in a real scenario
- A robot that is flexible and with quick Rol

1. Application
2. Navigation
3. Process
4. Cooperation



- Pre-outfitting, one ship example
 - Over 2,000,000 pins welded
 - Over 10,000 hours of man power



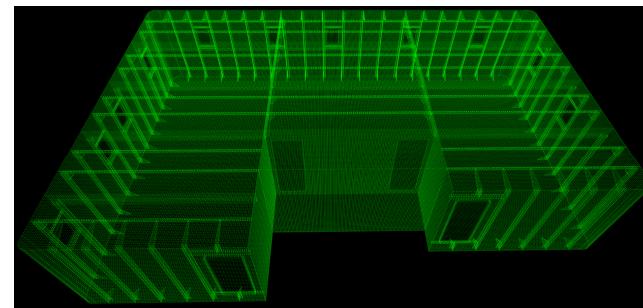
– *There is no automated solution yet*

- Robot functional requirements
 - Autonomous navigation
 - Autonomous stud welding and marking
 - Dependability
 - Cooperative
 - Supports human tasks (by marking)
 - Demand human cooperation to solve uncertainty



6

1. Application
2. **Navigation**
3. Process
4. Cooperation



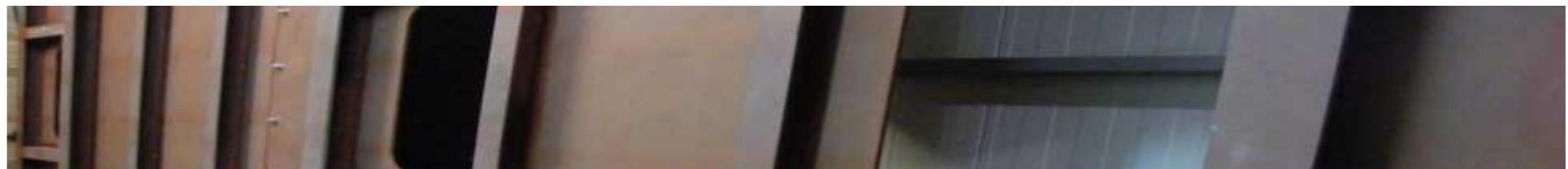


Navigation laboratory trials

- Laboratory trials

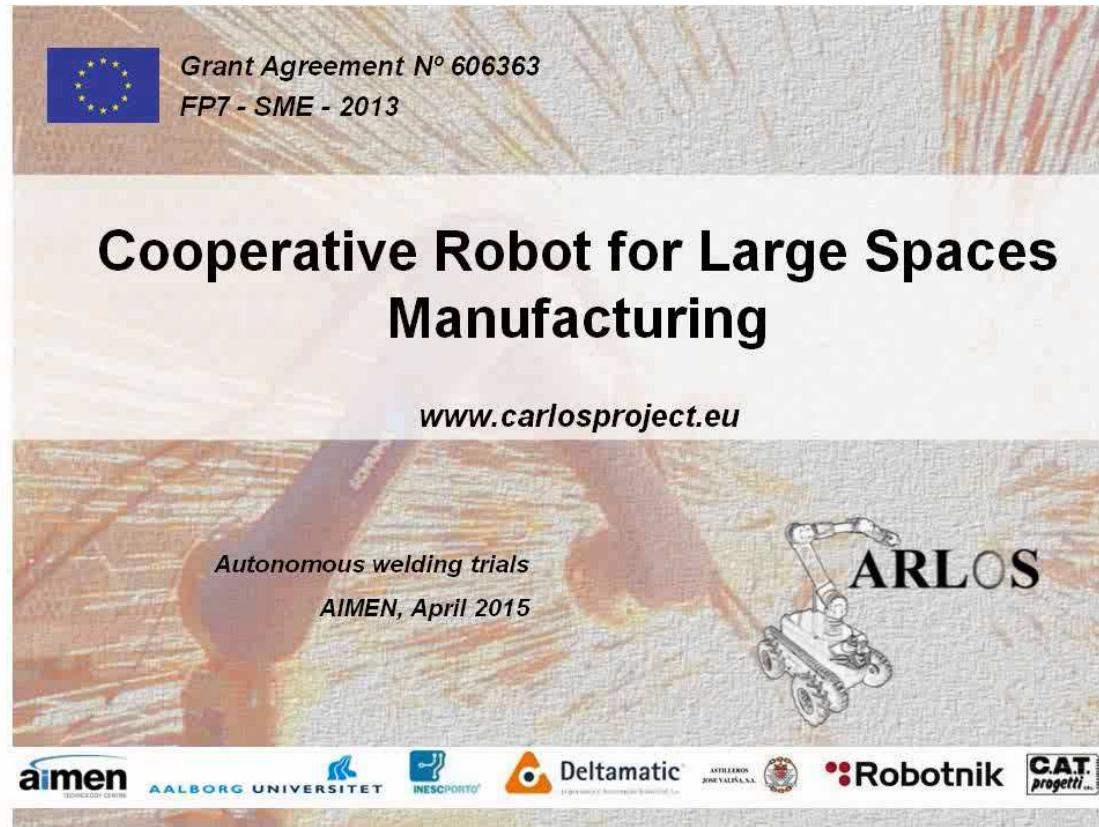


1. Application
2. Navigation
3. **Process**
4. Cooperation

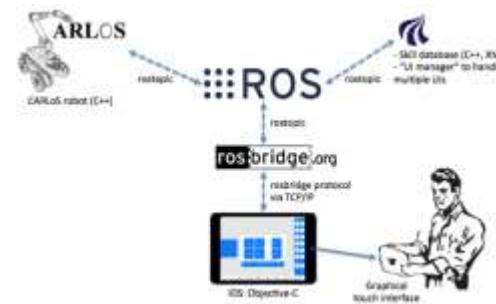


9 9

- Laboratory trials



1. Application
2. Navigation
3. Process
4. Cooperation





- Laboratory trials

CARLoS

Work Package 4 - Human-Robot Cooperation for Stud-Welding and Marking

First operator assisted stud-welding test with robot



www.carlosproject.eu

Funded by the European Community's Seventh Framework Programme
(FP7 SME 2013) under grant agreement no 606363



Thank you for your attention

Antón García Diaz | Project coordinator

T +34 986 344 000 | anton.garcia.diaz@aimen.es



This project has received funding from the European Union's Seventh Framework Programme under grant agreement No 606363