PROJECT FINAL REPORT

Grant Agreement Number: FP7-SME-2011-286598
Project Acronym: SmartDress

SMARTDRESS

Funding Scheme: FP7 Research for the benefit of SMEs – Capacities

Project title: Adaptive tip dress control for automated resistance spot welding

Period covered: from 01/12/2011 to 30/11/2013

Name of the scientific representative of the project's co-ordinator:

Sullivan Smith, Principal Project Leader, TWI

Project website address: www.smartdress-project.eu

Organisation of the author:
TWI Ltd
Granta Park, Great Abington
CAMBRIDGE CB21 6AL
United Kingdom
Tel: + 44 (0) 1223 899000
Fax: + 44 (0) 1223 89 0952
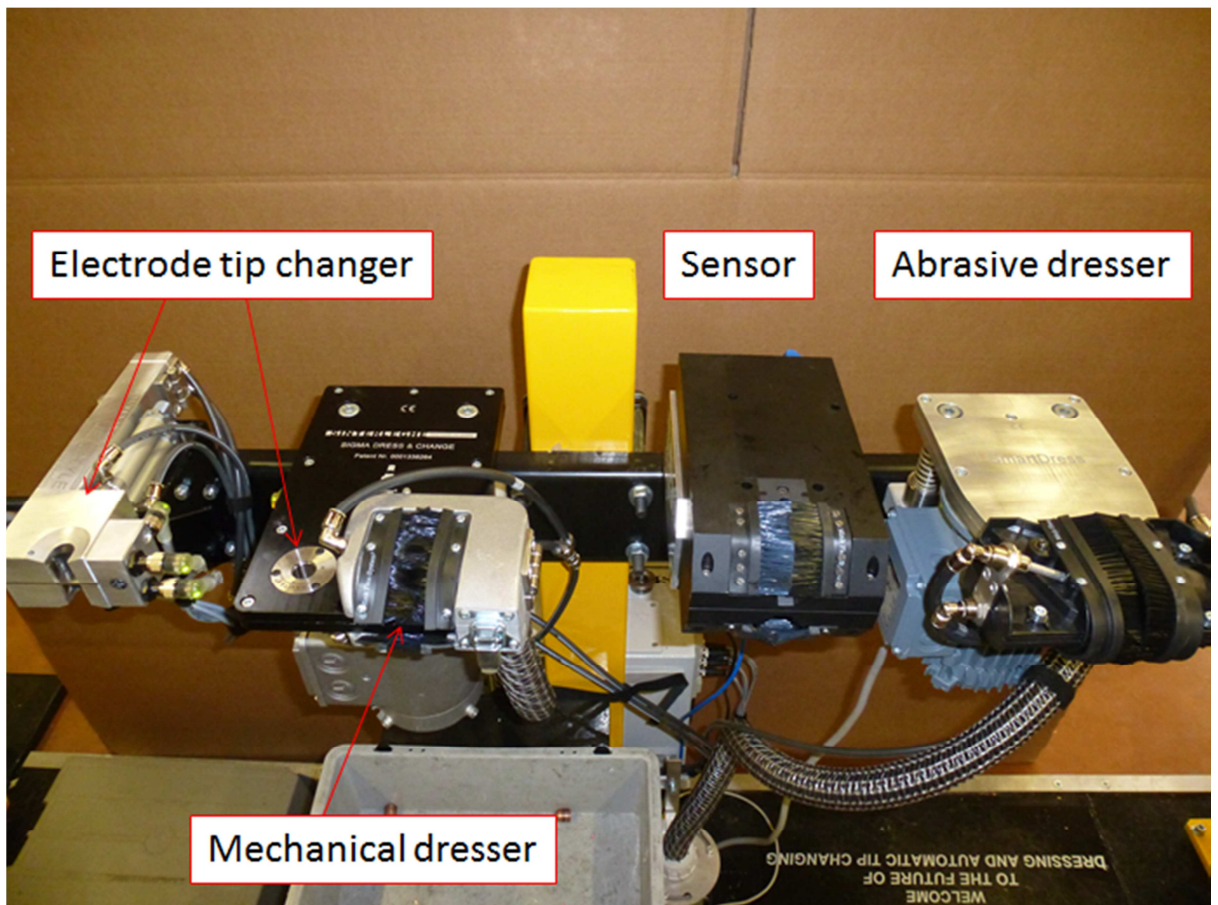E-mail: Sullivan.Smith@twi.co.uk

SEVENTH FRAMEWORK PROGRAMME
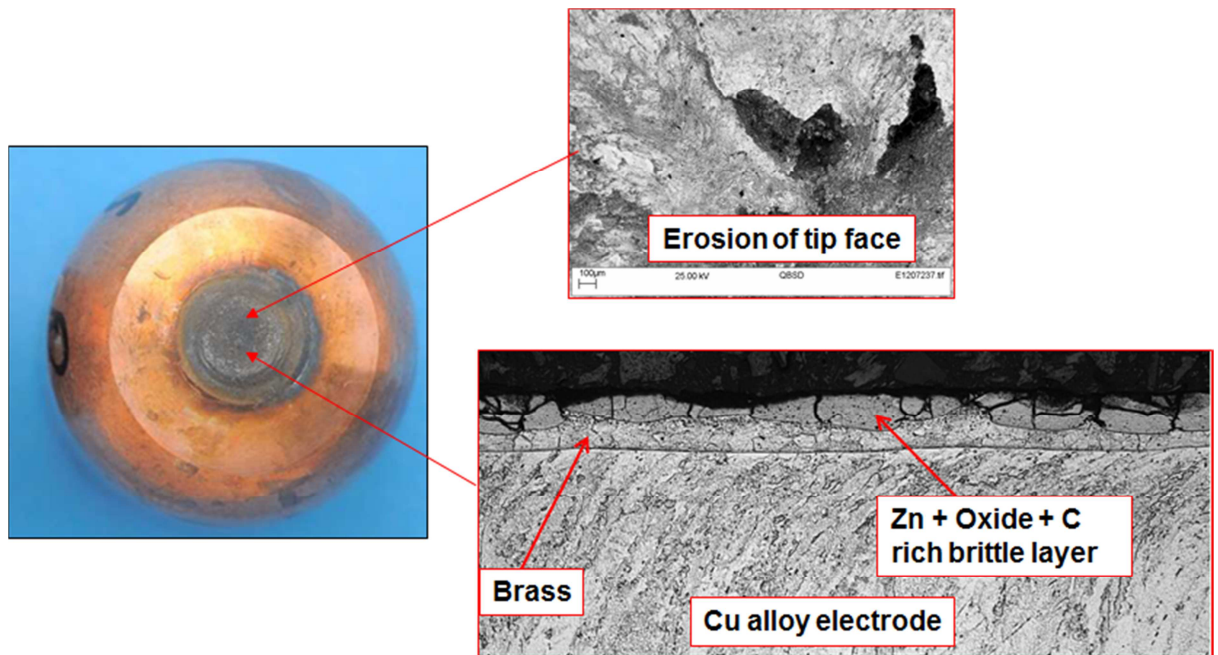
Research for the benefit of SMEs
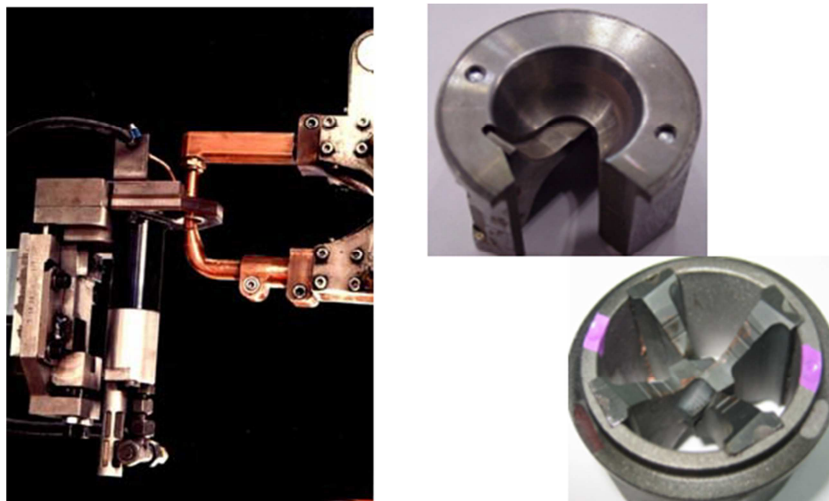
PROJECT FINAL REPORT - FIGURES

Figure 1. Automated car production employing resistance spot welding
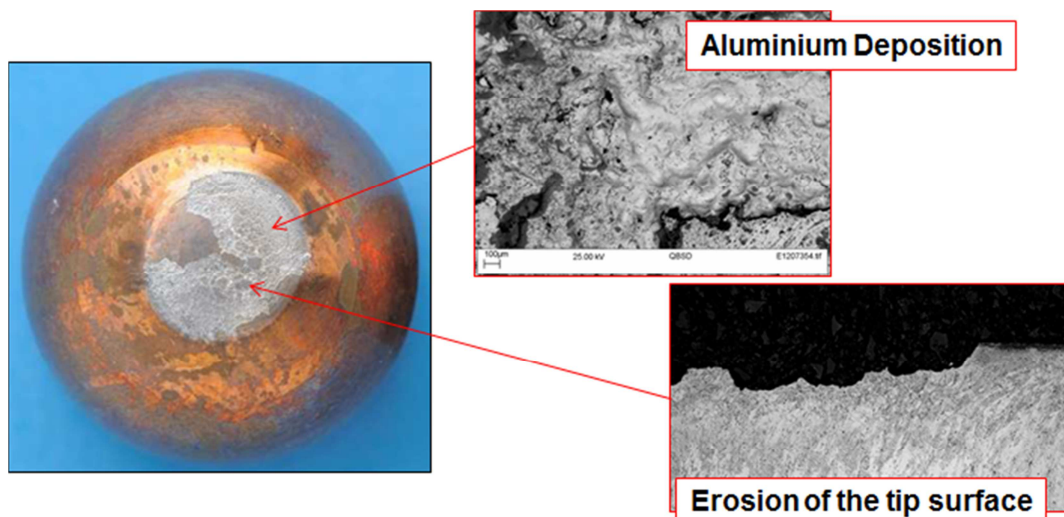

Figure 2. The SmartDress system

Figure 3. Degradation mechanisms of an electrode tip used to weld zinc coated steel
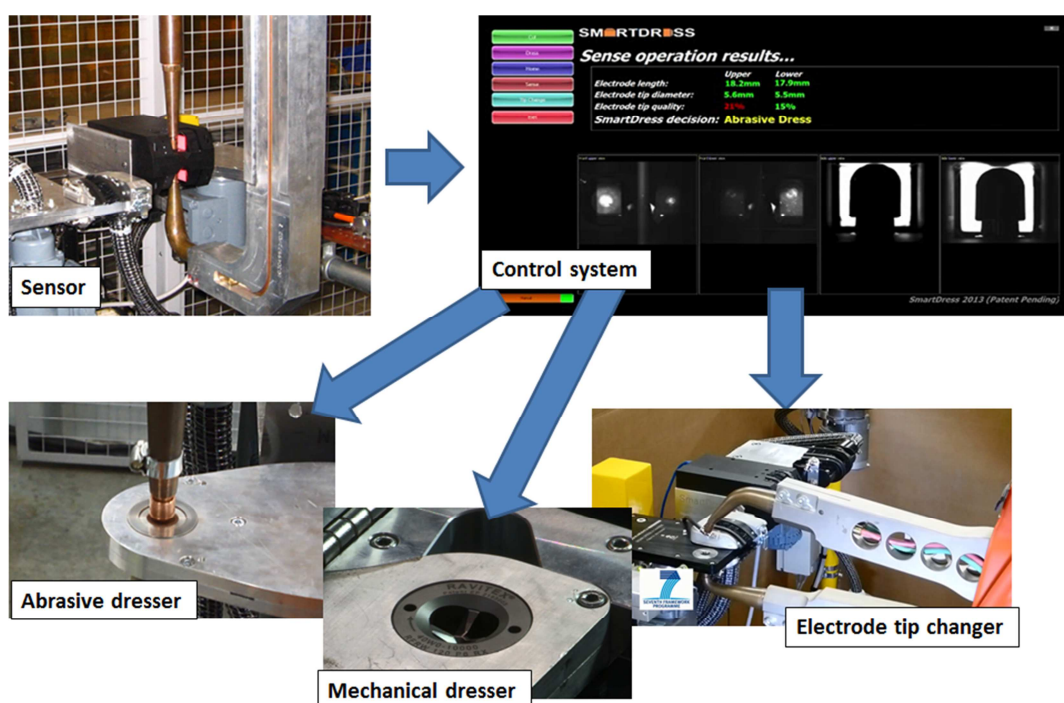

Figure 4. State of the art electrode tip dressing using metallic bladed dressers (cutters)
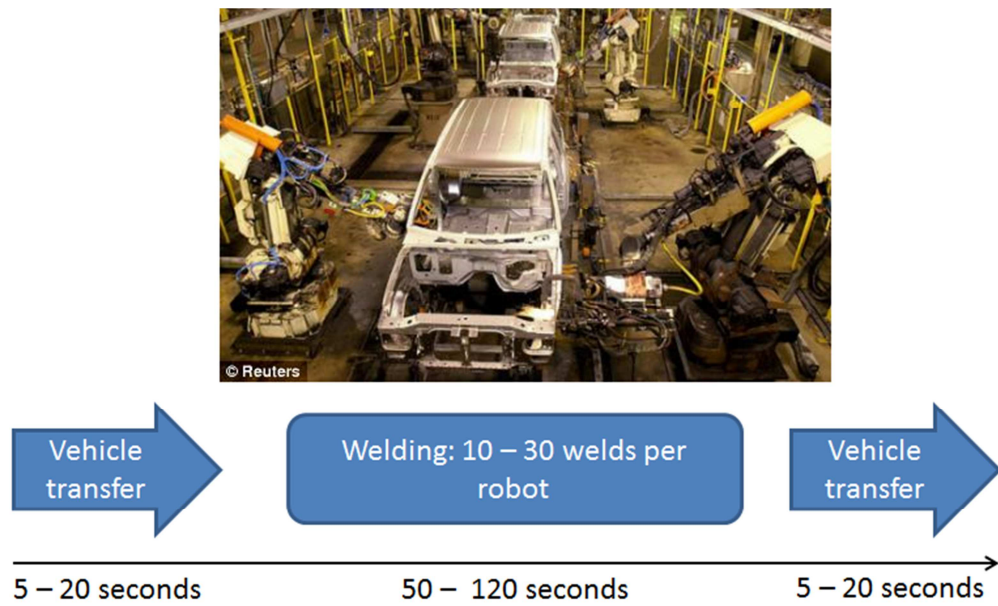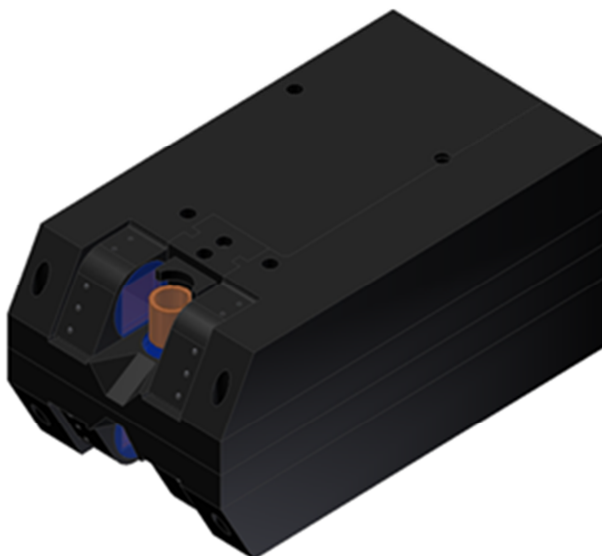
Figure 5. Degradation mechanisms of an electrode tip used to weld aluminium
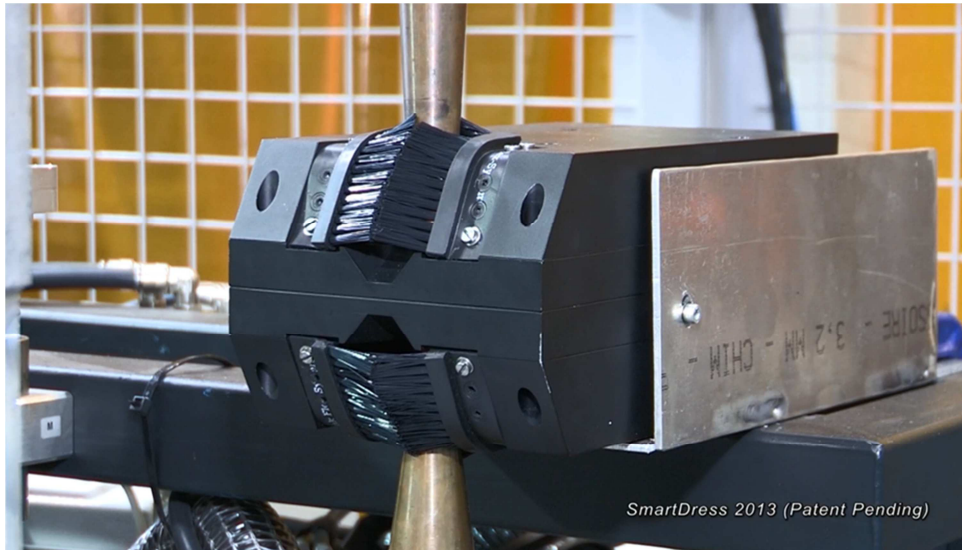

Figure 6. The elements of the SmartDress system

Figure 7. Example of timings in a spot welding production cell

Figure 8. Drawing of the optical sensor and electrode position during measurement.

Figure 9. Electrode tip measurement by the optical sensor
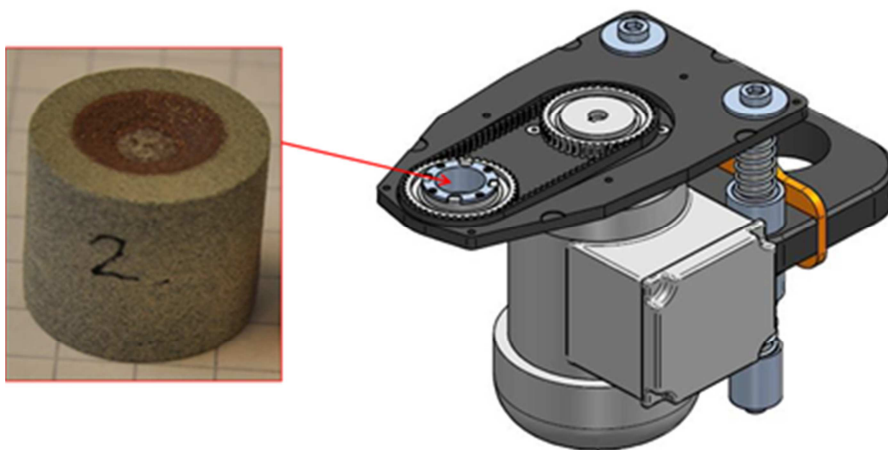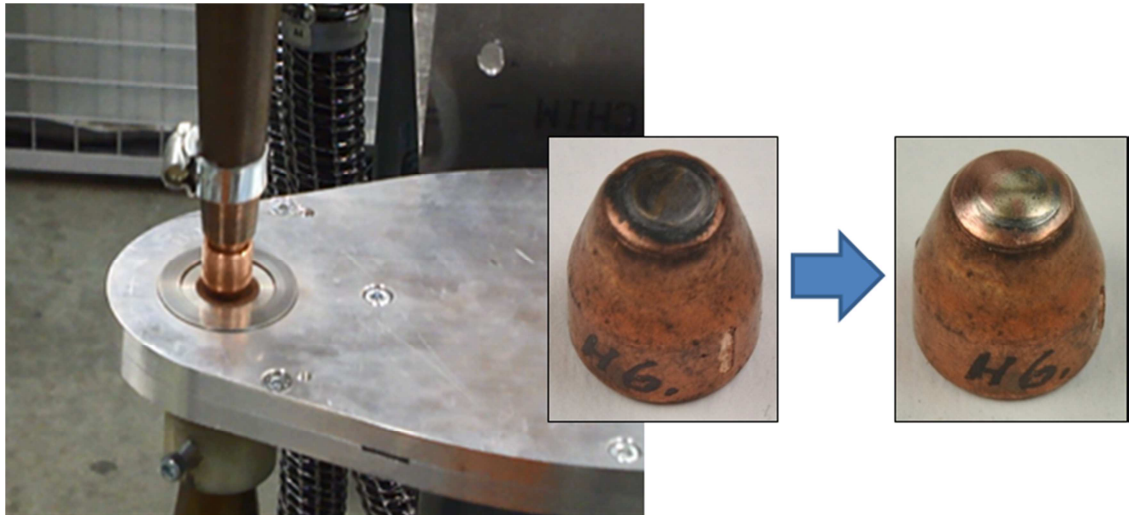

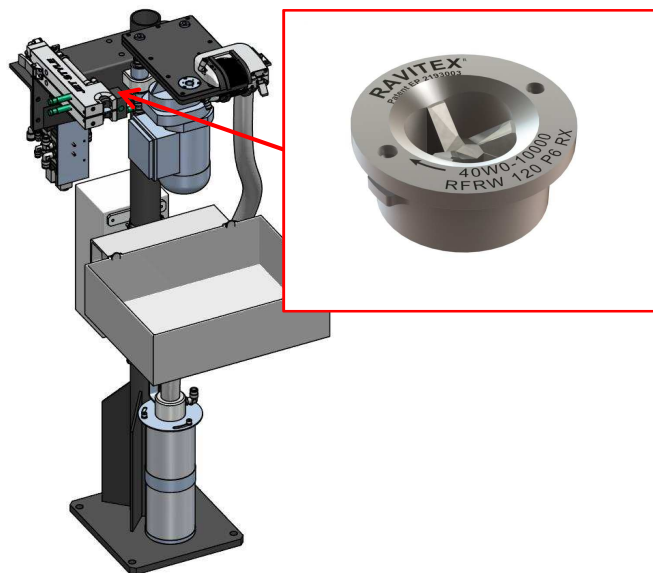**Figure 10.** GUI Production set-up window.
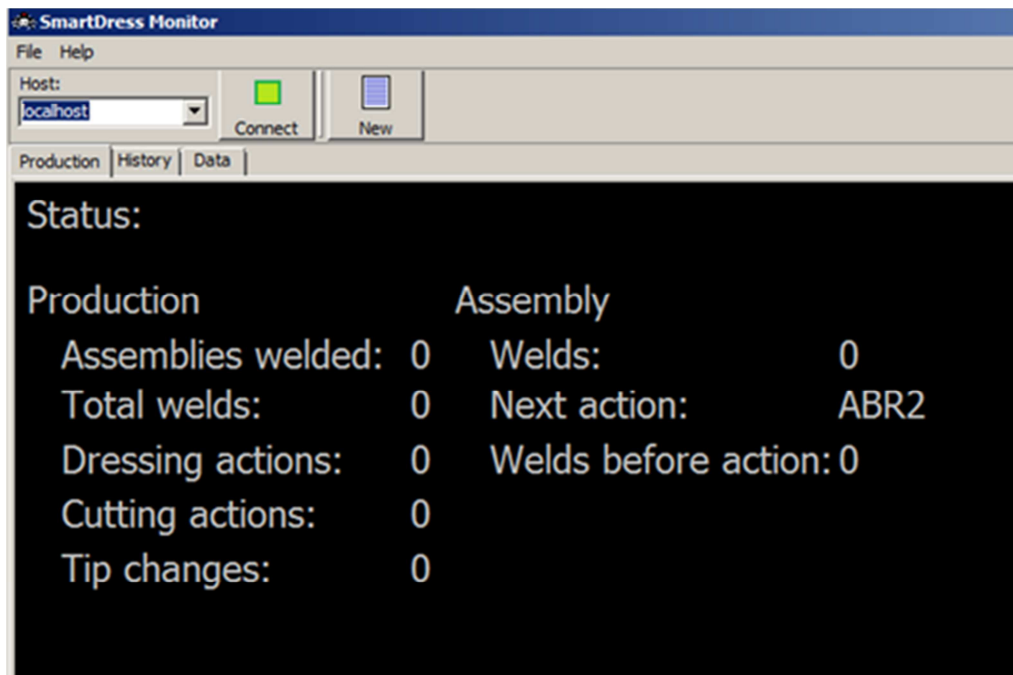
Figure 11. GUI SmartDress monitor window.

Figure 12. Abrasive dresser subsystem; abrasive insert and technical drawing of the dresser.
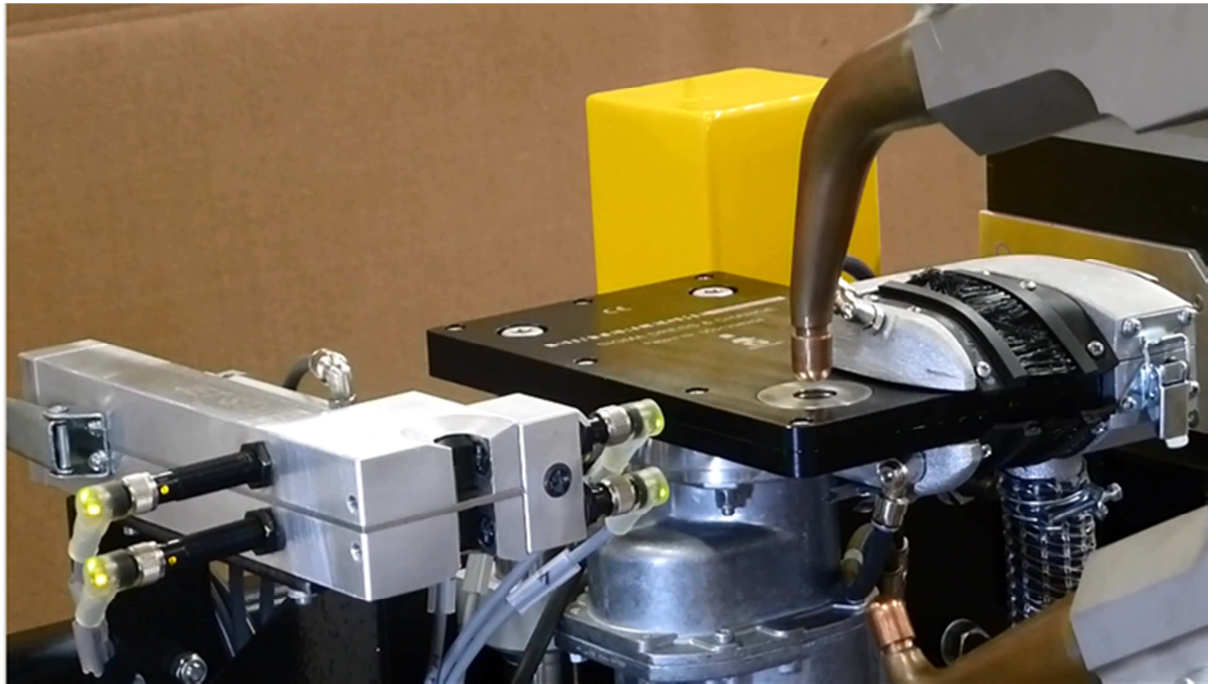
Figure 13. Abrasive dressing in action

Figure 14. Technical drawing of the Sinterleghe mechanical dresser station and a Ravitex® dressing (cutting) insert.

Figure 15. The Sinterleghe electrode tip changer. Left side: Tip magazine feeder, right side: electrode tip removal tool.

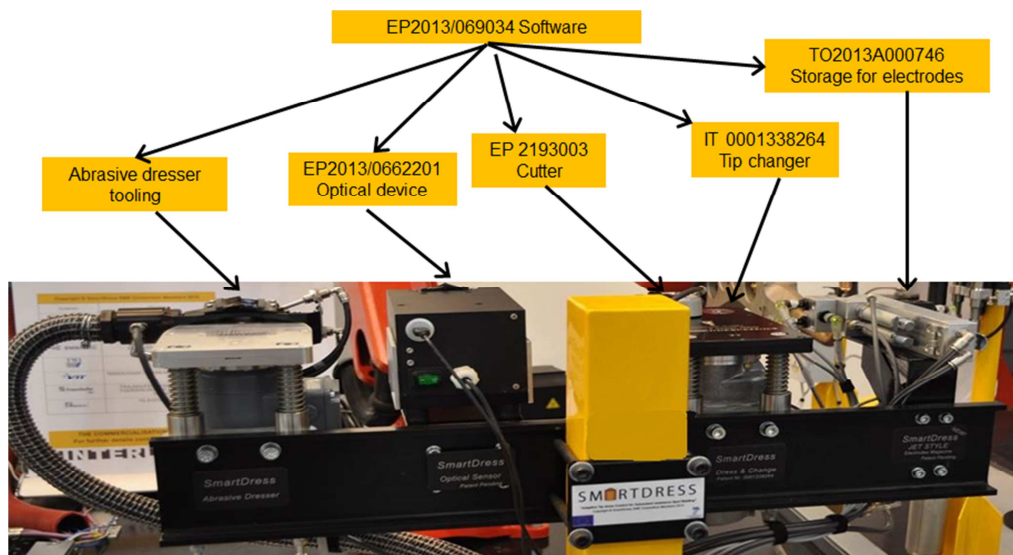**Figure 16.** The SmartDress system in operation

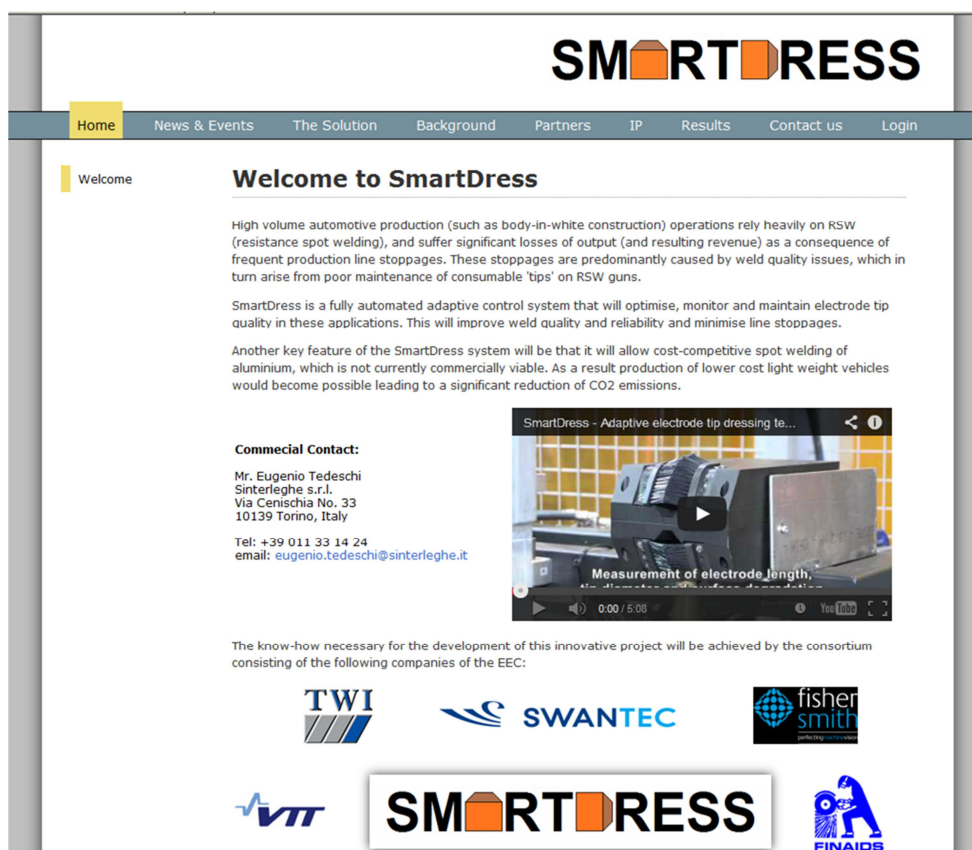**Figure 17.** The SmartDress system and all relevant foreground and background IP.

Figure 18. Project website home page.