A Reconfigurable robot workCell for fast set-up of automated assembly processes in SMEs

Fact Sheet

Project Information

ReconCell

Grant agreement ID: 680431

Project website

DOI
10.3030/680431

Project closed

EC signature date
2 October 2015

Start date
1 November 2015

End date
28 February 2019

Funded under
INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Total cost
€ 6 306 457,00

EU contribution
€ 5 561 569,00

Coordinated by
INSTITUT JOZEF STEFAN
Slovenia

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Objective

ReconCell develops a new type of robot workcell, its required process infrastructures and the economic framework for automated robot assembly, especially designed for the needs of SMEs. SMEs would benefit from robotic automation, but often cannot use it due to set-up & maintenance complexity. This requires expert knowledge and time for configuration and programming, which is too costly for them. Robotic automation is, thus, normally economically infeasible for SMEs, especially for small batch sizes. ReconCell develops an easy to (re-)configure and (re-)program workcell, making robot solutions commercially viable even for small batch sizes (~1000 units) by reducing set-up & maintenance effort substantially.

Specifically, the ReconCell System is based on a layered concept where we start together with the customer with business modelling the planned product assembly based on the ReconCell System to assess its economic viability and provide decisive Key Performance Indicators (KPIs). On approval, the next layer of the ReconCell System implements assembly with automated testing in simulation. Here we use reconfigurable hardware elements to design the required workcell layout and assembly processes. After verification, product assembly takes place in the real workcell under machine vision-based monitoring and novel force-based control of execution to assure product quality using the KPIs. We demonstrate the capabilities of the layered ReconCell System on three real use cases provided by the SMEs of our consortium and two more use cases, established through an open call. In addition, the consortium has started to establish a network of potential ReconCell users to disseminate information about ReconCell technologies to all actors in the value chain, and to raise awareness about the possibilities of automated robot assembly in SMEs. The final aim is to establish a company that commercializes the workcell and associated technologies developed in the ReconCell project.

Fields of science (EuroSciVoc)

natural sciences > computer and information sciences > software > software applications > system software > **operating systems**

engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > **control systems**

engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > sensors > **optical sensors**

social sciences > economics and business > business and management > **innovation management**

natural sciences > computer and information sciences > artificial intelligence > **computer vision**

Keywords

Autonomous robots | automated robot assembly | robot programming | reconfiguration | simulation | business modeling

Programme(s)

H2020-EU.2.1.1. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT) MAIN PROGRAMME

H2020-EU.2.1.5.1. - Technologies for Factories of the Future

Topic(s)

FoF-09-2015 - ICT Innovation for Manufacturing SMEs (I4MS)

Call for proposal

H2020-FoF-2014-2015

See other projects for this call

Sub call

H2020-FoF-2015

Funding Scheme

IA - Innovation action

Coordinator

INSTITUT JOZEF STEFAN

Net EU contribution

€ 1 002 482,00

Total cost

€ 1 002 482,00

Address

Jamova 39
1000 Ljubljana
Slovenia

Region

Slovenija > Zahodna Slovenija > Osrednjeslovenska

Activity type

Research Organisations

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Participants (8)

SYDDANSK UNIVERSITET

Denmark

Net EU contribution

€ 1 080 060,00

Address

CAMPUSVEJ 55
5230 Odense M

Region

Danmark > Syddanmark > Fyn

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 1 080 060,00

RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN

Germany

Net EU contribution

€ 926 980,00

Address

TEMPLERGRABEN 55
52062 Aachen

Region

Nordrhein-Westfalen > Köln > Städteregion Aachen

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 926 980,00

GEORG-AUGUST-UNIVERSITAT GOTTINGEN STIFTUNG OFFENTLICHEN RECHTS

Germany

Net EU contribution

€ 813 975,00

Address

WILHELMSPLATZ 1
37073 Gottingen

Region

Niedersachsen > Braunschweig > Göttingen

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 813 975,00

BLUE OCEAN ROBOTICS APS

Denmark

Net EU contribution

€ 677 488,00

Address

KLOKKESTOBERVEJ 18
5230 Odense M

SME

Yes

Region

Danmark > Syddanmark > Fyn

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 967 840,00

INNOVAATION OY UUSI TEHDAS

Finland

Net EU contribution

€ 381 836,00

Address

HERMIANKATU 1
33720 Tampere

SME

Yes

Region

Manner-Suomi > Länsi-Suomi > Pirkanmaa

Activity type

Other

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 545 480,00

ELVEZ, PROIZVODNJA KABELSKE KONFEKCIJE IN PREDELAVA PLASTICNIH MAS DOO

Slovenia

Net EU contribution

€ 215 138,00

Address

ULICA ANTONA TOMSICA 35
1294 Visnja Gora

SME

Yes

Region

Slovenija > Zahodna Slovenija > Osrednjeslovenska

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes

HORIZON collaboration network

Total cost

€ 307 340,00

UAB PRECIZIKA METAL

Lithuania

Net EU contribution

€ 222 040,00

Address

LAKUNU 3
09108 Vilnius

SME

Yes

Region

Lietuva > Sostinės regionas > Vilniaus apskritis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 317 200,00

LOGICDATA ELECTRONIC & SOFTWARE ENTWICKLUNGS GMBH

Austria

Net EU contribution

€ 241 570,00

Address

WIRTSCHAFTSPARK 18
8530 Deutschlandsberg

SME

Yes

Region

Südösterreich > Steiermark > West- und Südsteiermark

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 345 100,00

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