Sweet Pepper Harvesting Robot

Fact Sheet

Project Information

**SWEEPER**

Grant agreement ID: 644313

**DOIs**

10.3030/644313

**Funded under**

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

**Total cost**

€ 4,345,912.49

**EU contribution**

€ 4,028,311.50

**Coordinated by**

STICHTING WAGENINGEN RESEARCH

Netherlands

**Closed project**

EC signature date
8 December 2014

**Start date**
1 February 2015

**End date**
31 October 2018

This project is featured in...
Objective

In modern greenhouses there is a high demand to automate labour. The availability of a skilled workforce that accepts repetitive tasks in harsh greenhouse climate conditions is decreasing rapidly. The resulting increase in labour costs and reduced capacity puts major pressure on the competitiveness of the European greenhouse sector. Present robotization of this labour has entered an high level of technological readiness. However, a gap remains which halts the transition from science to economic and societal impact; the so called ‘Technological Innovation Gap’. In the EU-FP7-project CROPS extensive research has been performed on agricultural robotics. One of the applications was a sweet pepper harvesting robot. It was shown that such a robot is economically and technically viable. The proven hardware and software modules (TRL:6) developed in CROPS will be used as the groundwork. The successful CROPS software modules based on the Robotic-Operating-System (ROS) will be maintained and expanded in SWEEPER. Also the gripper end-effector will be retained. This patent pending module is able to grasp the sweet pepper without the need of an accurate measurement of the position and orientation of the fruit. From the CROPS project, also gained knowledge will directly be put to benefit. In several experiments, it turned out that different growers use different cropping systems ranging in crop density. In SWEEPER, the cropping system itself will be optimized to facilitate robotic harvesting. In CROPS it was concluded that instead of a 9DOF, a 4DOF robot arm is sufficient, greatly reducing costs. To improve the level of robotic cognitive abilities, plant models will be applied to approximate location of sweet peppers. This “model-based vision” will increase and speed up fruit detection. Based on the insights of CROPS, sensors will be placed onto the gripper only. Also a LightField sensor will be introduced which is able to record both colour and 3D information simultaneously.
Keywords

Robot  Harvester  High Value Crops  Commercialization  Market  Crop Optimization

Programme(s)

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

H2020-EU.2.1.1.5. - Advanced interfaces and robots: Robotics and smart spaces

Topic(s)

ICT-23-2014 - Robotics

Call for proposal

H2020-ICT-2014

See other projects for this call

Sub call

H2020-ICT-2014-1

Funding Scheme

IA - Innovation action
Coordinator

STICHTING WAGENINGEN RESEARCH
Net EU contribution
€ 1 287 284,48

Address
Droevendaalsesteeg 4
6708 PB Wageningen
Netherlands

Region
Oost-Nederland > Gelderland > Veluwe

Activity type
Research Organisations

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

Other funding
€ 0,00

Participants (10)

UMEA UNIVERSITET
Sweden
Net EU contribution
€ 876 375,00

Address
Universitetomradet
901 87 Umea

Region
Norra Sverige > Övre Norrland > Västerbottens län

Activity type
Higher or Secondary Education Establishments

Links
<table>
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<tr>
<th>Organisation Name</th>
<th>Country</th>
<th>Net EU Contribution</th>
<th>Address</th>
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<tr>
<td>PROEFSTATION VOOR DE GROENTETEELT</td>
<td>Belgium</td>
<td>€ 558 386,63</td>
<td>Duffelsesteenweg 101 2860 Sint-katelijne-waver</td>
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<tr>
<td>BEN-GURION UNIVERSITY OF THE NEGEV</td>
<td>Israel</td>
<td>€ 565 196,38</td>
<td>84105 Beer sheva</td>
</tr>
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</table>
Higher or Secondary Education Establishments

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

Other funding
€ 0,00

IRMATO INDUSTRIAL SOLUTIONS VEGHEL B.V. Netherlands
Net EU contribution
€ 64 026,38

Address
Leeuwenhoeckweg 6
5466 AL Veghel

Region
Zuid-Nederland > Noord-Brabant > Noordoost-Noord-Brabant

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

Other funding
€ 27 439,87

THIRD-PARTY

IRMATO GROUP BV Netherlands
Net EU contribution
€ 0,00

Address
Amentstraat 17
6039 RA Stramproy

Region
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

Other funding

€ 0,00

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IRMATO ORIENTED HANDLING SYSTEMS BV

Net EU contribution

€ 7 000,00

Address

Leeuwenhoeckweg 6
5466 AL Veghel

Region

Zuid-Nederland > Noord-Brabant > Noordoost-Noord-Brabant

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

Other funding

€ 3 000,00

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IRMATO INDUSTRIAL AUTOMATION BV

Net EU contribution

€ 288 175,13

Address
Leeuwenhoeckweg 6
5466 AL Veghel

Region
Zuid-Nederland > Noord-Brabant > Noordoost-Noord-Brabant

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

Other funding
€ 123 503,62

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THIRD-PARTY

IRMATO ENGINEERING WEERT BV

Netherlands
Net EU contribution
€ 13 300,00

Address
Amenstraat 17
6039 AA Stramproy

Region
Zuid-Nederland > Limburg (NL) > Midden-Limburg

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

Other funding
€ 5 700,00

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DE TUINDERSHOEK BV

Netherlands
Net EU contribution
€ 105 192,50

Address
Tuindersweg 32
8271PK Ijsselmuiden

SME  i
Yes

Region
Oost-Nederland > Overijssel > Noord-Overijssel

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

Other funding
€ 45 082,50

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B&A AUTOMATION BVBA
Belgium

Net EU contribution
€ 263 375,00

Address
Hinnenboomstraat 1a
2320 Hoogstraten

SME  i
Yes

Region
Vlaams Gewest > Prov. Antwerpen > Arr. Turnhout

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
Other funding

€ 112 875,00

Last update: 20 July 2023

Permalink: https://cordis.europa.eu/project/id/644313

European Union, 2023