



EUROPEAN  
COMMISSION

Community Research



## **PICKNPACK**

Flexible robotic systems for automated adaptive packaging of fresh and processed food products

### **GRANT AGREEMENT Number 311987**

**Report on the deliverable 10.3**

**The Workshops**

**(September 30<sup>th</sup> 2016)**

**Lead beneficiary: University of Manchester (No. 5)**

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**Public**

## Table of Contents

1	Project Objectives for the period .....	3
1.1.1	Overall aims .....	3
1.1.2	Linked events .....	3
1.1.3	Workshop Content and Structure .....	3
1.1.4	Communication .....	3
1.1.5	Logistical organisation .....	3
2	Summary of Achievements .....	4
3	Achievements .....	4
	Workshops .....	4
3.1.1	1st Workshop .....	4
3.1.2	2 <sup>nd</sup> workshop .....	5
3.1.3	3 <sup>rd</sup> Workshop .....	5
3.1.4	Fourth workshop .....	6
3.1.5	Fifth workshop .....	7
3.1.6	Sixth Workshop.....	7
4	The Summer School.....	8
5	Impact.....	9
6	Appendix.....	10
6.1.1	1 <sup>st</sup> workshop 31 <sup>st</sup> October 2013 .....	10
6.1.2	2nd workshop 25 June 2014 .....	11
6.1.3	3 <sup>rd</sup> Workshop 7 <sup>th</sup> May 2015 .....	13
6.1.4	4 <sup>th</sup> Workshop 4 <sup>th</sup> September 2015.....	14
6.1.5	5 <sup>th</sup> Workshop 26 <sup>th</sup> 7 27 <sup>th</sup> May 2016.....	15
6.1.6	6 <sup>th</sup> Workshop 13 <sup>th</sup> & 14 <sup>th</sup> September 2016 .....	18

# 1 Project Objectives for the period

## 1.1.1 Overall aims

To organise a set of 6 workshops to achieve the widest dissemination of technical results of the project within the food manufacturing sector, promote the uptake of advanced manufacturing techniques and foster on going research and development which will support the adoption of 21<sup>st</sup> century manufacturing processes within the industry.

The workshops were to be targeted primarily at the industrial sector to foster the rapid uptake of the technical outputs of the project. A wide European geographical distribution of venues was planned amongst the members of the Consortium to make maximum use of the regional and national databases and network with potential interested manufacturers and users of the technology. This would also benefit from regional/ national information on relevant conference and exhibitions that could cosponsor our workshops and enhance impact and dissemination. All partners were asked to provide a list of their known national and regional stakeholders so that a central dissemination database could be established.

The venue and timing of each workshop was to be agreed by the project Board.

## 1.1.2 Linked events

Where possible it was planned to associate each workshop with an exhibition of state of the art working equipment in order to attract the maximum number of industrial registrants. Initially such display equipment would be provided by invitation form supportive industrial contacts with the final two workshop featuring exclusively demonstrations of the PicknPack developed prototype systems. The final two workshops were also planned to link with organisations of the Summer School (10.5) in order to exploit the availability of the PicknPack prototype automated line for direct hands on experience where possible.

## 1.1.3 Workshop Content and Structure

All workshops were planned as one day events with the exception of the 5<sup>th</sup> workshop in Wageningen in May 2016 which became a two day event. Each workshop was initiated with an overview of the PicknPack project and supported by presentations on developments in key workpackages as they evolved. As outputs were naturally sparse at the early workshops international experts were invited to give presentations that would be attractive to both industry and academia and thus foster interest in our events. All workshops had a forum discussion session to generate feedback to the consortium.

## 1.1.4 Communication

The programme and venue for each workshop was to be promoted on our website and on linked websites such as CFA and FDF in the UK. Each partner was asked to promote the event in their own websites and disseminate the information through their own regional and national networks. A similar request was made to each Member of our international Industrial Advisory Board.

A report on each workshop together with relevant illustrations to be posted on the website and every technical presentation archived together with associated video clips and the final professional PicknPack film.

## 1.1.5 Logistical organisation

The events were to be organized centrally by University of Manchester but with the full cooperation of the host national partner. Website registration would be provided and all data centrally archived. Registration was to be free although a late cancellation no show fee could be imposed. All workpackage teams were strongly encouraged to attend each workshop to interact with the industrial attendees and obtain personal feedback on their ideas and plans. This personal interaction would widen industrial contacts, broaden our experience and lead to future routes to exploitation of our reports.

## 2 Summary of Achievements

- Workshop No1 was held in Wageningen on 31 October 2013 with the support of a number of 8 international speakers.  
Registered attendance: 29
- Workshop No2 was held at the University of Lincoln's National Centre for food Manufacturing on 25 June 2014 with a number of industrial speakers and 10 Industrial exhibition stands.  
Registered attendance: 53
- Workshop No 3 was held on the 7 May 2015 in Association with the Indumation Fair and Exhibition and with the support of Flanders Food, Sirris and Angoria.  
Registered attendance: 45
- Workshop No4 was held on the 4 September 2015 in MediaCity UK in association with the Innovate UK Autonomous Systems SIG Northern Robotics Network Launch Conference and large Industrial Exhibition. A display booth for PicknPack and relevant publicity information was organised at the exhibition site.  
Registered attendance: 42
- Workshop No5 was held on 26 & 27 May in Wageningen in association with the first PicknPack demonstrator event.  
Registered attendance on 26 May: 70  
Registered attendance on 27 May: 48
- Workshop No6 event and the Summer School held at the University of Lincoln's National Centre for Food Manufacturing on 13 & 14 September in association with the second PicknPack demonstrator event.  
Registered attendance on 13 September: 42  
Registered attendance on 14 September: students 83 and 10 supervisors
- All workshops except the first were associated with external or PicknPack project working robotic displays and where possible were linked to events organised by external consortia.
- All technical presentations and video clips including the final video have been archived on the website.

A high quality conference folder and associated publicity material were designed and printed and distributed widely at the workshop and at external events. A roll up display unit was also designed and used at workshops and conferences

## 3 Achievements

### Workshops

#### 3.1.1 1st Workshop

Erik Pekkeriet presented an overview of the PicknPack project and outlined the plans for the various development stages that would result in a working prototype at the end of the project and the technical challenges that would have to be addressed. Martin van de Have from ABB Netherlands presented a series

of videos demonstrating the current state of the art in the automated manufacture of food and this was followed by a presentation by Mike Dudbridge who reviewed the current technology supporting the complete supply chain and the trend towards vendor managed inventory concepts.

Joyce Shroot then presented an industry view of the current technical challenges in the supply of fresh fruit and ready meals which were the target products for the PicknPack project and outlined practical issues that the project must address.

The final presentations were made by Consortium partners Zhipeng Wu and Richard van de Linde. The former outlined his ideas on novel microwave sensor technology and the use of FRID for traceability and the latter focussed on the challenges of the robotics gripping of soft fragile variable geometry food products.

John Gray then chaired a very lively discussion forum on the presentations which produced some very helpful comments on the future direction of the project. There was clearly much to learn.

### **3.1.2 2<sup>nd</sup> workshop**

Automation for Food Processing and Packaging

25<sup>th</sup> June at the National Centre for Food Manufacturing in Holbeach, UK.

It was planned to have the 2<sup>nd</sup> workshop in Madrid in association with the large Bi annual Ifema International Trade Fair for Fruit and Vegetables exhibition. Support was to be provided by both ABB and Omron who promised to provide a state of the art set of exhibitions and publicity through their Spanish customer databases. Unfortunately, the idea was not supported by our Spanish partners and the venue was then switched to the Holbeach campus in the UK. This was an excellent location as it had first class presentation facilities and a very large laboratory display area. It was also centred in a major food production locality.

A key feature of this workshop was the significant external and industrial input that outlined the current state of the art and the challenges faced by the Consortium if PicknPack is to make a significant contribution.

The external speakers included Alan Spreckly from ABB Global who described the development of highly innovative robotic systems and their application to the manufacture of food and other products, Andrew Macpherson, National team Leader, Festo who outlined the development of soft robotic grippers ideal for the manipulation of food products and Andrew Stark, CEO of PPMA who outlined the emerging requirements for packaging systems to meet retail consumer demands.

Emma Maguire a Food Specialist from Campden BRI described the key factors that must be consider in the hygienic design of food manufacturing equipment and stressed that the PicknPack Consortium must be aware of the issues.

A highly interactive discussion forum was chaired by Andrew Stark and excellent feedback obtained.

The event was supported by exhibitions some 15 industrial and other organisations including ABB, Festo, Rittal, Siemens, Eplan, Olympus Automation and PPMA.

### **3.1.3 3<sup>rd</sup> Workshop**

Food Factory of the Future

7<sup>th</sup> May at Indumation Expo in 2015

The workshop was held in Kortrijk in Belgium on 7<sup>th</sup> May 2015 at the Expo centre in Kortrijk in association with the large biennial Indumation fair and exhibition of industrial automation (100+ exhibitors). With strong support of the University of Leuven we liaised with the regional Food Factory of the Future project and its partners Flanders FOOD, Sirris and Agoria to organise a joint workshop which we could represent to their wide network of regional industrial companies in the food industry. The event attracted about 50 attendees who apart from some of the presenters were exclusively from regional industry.

An overview of the PicknPack project was given by Gert Kootstra and detailed presentations given on aspects of novel instrumentation, data processing and traceability. Peter Wyn an Economist from Fevia (The Federation of the Belgium Food Industry) gave an overview of the impact of automation on the food sector and Sybraam van Breem from Friesland Campina described in detail the video presentations the installation of an innovative automated production line for cheese processing.

There were two industrial panel debating sessions the first focussing on sensor technology and the second on robotics and automation. A key feedback factor raised was the increasing importance of data acquisition and management (industry 4.0 and IOT) which emphasised the relevance of current outputs from WP2 and WP3 and WP4.

On the advice of the local organiser all presentation (bar one) and debates were delivered in Dutch. A comprehensive report on the event has been provided in English by Agoria and is available on the PicknPack website.

At the conclusion of the workshop a series of guided tours was arranged to take attendees around the adjacent industrial exhibition each tour being themed on specific topics such as automation, packaging and sensors.

### **3.1.4 Fourth workshop**

Powering Productivity in Food Manufacturing

4<sup>th</sup> September 2015 at MediaCity UK, Salford, UK

The 4<sup>th</sup> workshop took place at the MediaCity UK exhibition site on Salford in association with the launch of Innovate UK's Robotics and Autonomous Systems Special Interests Group's Northern Robotics Network. This was a large industrial event with a total attendance of about 300 registrants and over 40 industrial exhibits of robotics systems applications. The programme of the event covered a range of industrial sectors including aerospace, nuclear, transport, Smart Cities and food manufacturing. The inclusion of a food manufacturing stream was considered to be very relevant because of the strategic importance of this economic sector in the region.

Apart from regional and central UK Government support the event was cosponsored by a number of major UK and International manufactures, trade associations and professional engineering institutions.

The food manufacturing stream was sponsored by the UK's Defra Food Manufacturing Engineering Group (FMEG) which is a partner in the Northern Robotics Network. The morning session was concerned with advances in general manufacturing with presentations being given by speakers from Siemens, ABB, Festo, Rolls Royce and the UK's Advanced Manufacturing Research Centre. The Siemens presentation focussed on the impact of Industry 4.0 on manufacturing which had a resonance with the later PicknPack presentation on WP2.

The afternoon session includes a detailed project overview given by Erik, a presentation on project instrumentation given by Wouter, an overview of future trends in the sector given by Mike and a review of developments in data processing and traceability given by Zhipeng.

In accordance with suggestions from the Commission the scope of the workshop was broadened to include the outputs of another relevant large E.C. project in this case presentations on soft robotics which are very relevant to the processing of fragile pliable food products were given by Steve Davies and Samia Nefti-Mezziani for the current E.C Smart-E project.

The PicknPack workshop stream has some 50 attendees which was close to room capacity with registrants from a range of companies including PepsiCo, Heinz, Omron and OAL and IML Groups.

The presentations at the workshop were filmed by the IET which has links to other professional engineering websites worldwide. All content including the PicknPack workshop has been made available on the IET website.

### **3.1.5 Fifth workshop**

Demonstration workshop

25<sup>th</sup> & 26<sup>th</sup> My 2016 at Wageningen UR

In accordance with a Board decision the final two workshops were to be combined with a full practical demonstration of the functionality of an integrated line that demonstrated the feasibility of all aspects of the PicknPack concept. No other technology was to be demonstrated at the event.

Because of the technical infrastructure required to support the extensive line integration process the demonstrator was assembled in Wageningen which thus determined the venue for the fifth workshop.

A two day event was planned to maximise attendance which each day was divided into identical afternoon and morning sessions. Each session having two parallel options one being attendance at a two hour technical session and the other being at a two hour guided tour of the working demonstrator and set of display booths.

Delegates were assigned by colour coded badges, and this arrangement allowed total flexibility to the attendees and feedback was excellent.

The technical presentations included:

- A project overview by Erik Pekkeriet
- An overview of the robotics and automation aspects by Richard van de Linde
- A description of the sensing module and the communication system by Wouter Saeys
- An overview of the system architecture and the GUI by Herman Bruyninchx
- The application of RFID technology for security and product traceability by Zhipeng Wu
- An overview of the novel automated purging and cleaning robot by Roman Murcek

Each day ended with a presentation by Idoia Olabarietta on the exploitation and expected routes to market of the technology. Comments and feedback were invited in a final discussion session. All presentations are published on the website.

The event was attended by about 100 people over the two days. It was clear that the event created a great interest in the outputs of the project and that the combination of a well organised workshop and demonstrator event was a success.

### **3.1.6 Sixth Workshop**

Demonstration workshop

13<sup>th</sup> September 2016 at National Centre for Food Manufacturing, University of Lincoln, Holbeach Campus

The organisation of the final workshop demonstrator event at a venue other than Wageningen posed significant logistic and technical problems for the Consortium. The compromise solution was to hold the event at the Holbeach Campus in the UK with a full compliment of display booths but without the full demonstrator line. A professionally produced video film of the project would be available to compensate for any loss of impact. A great advantage of Holbeach is that it was ideally placed through its strong regional food industry connections to host a Summer School for young technical personnel.

Similar to the Wageningen event, a two day demonstrator workshop was planned but with the second day focused on the School event. Because of the limited number of modules on display a simple structure was used to plan the event with a morning technical session being followed by a demonstration session which allowed delegates total choice as to where to focus their interests.

Both the technical presentations and presenters were similar to those given at the Wageningen event in May and listed above. A key difference was the inclusion of up to date video clips and the most recent technical results.

As before the event concluded with a presentation by Idoia Olabarietta on impact analysis and routes to exploitation again similar to her previous presentation but updated with fresh data. All these presentations will be posted on the website.

The event attracted some 40 registrants mostly from the UK but representing international companies such as ABB, KUKA, Siemens, Festo, Bakkavor and Del Monte. Feedback was again excellent and invitations received to give presentations at future technical meetings. These invitations will of course be followed up.

During the event an opportunity was taken to convene a meeting of representatives from some of the leading academic and commercial UK groups focusing on food manufacturing and aspects of E-Agri to explore how best to exploit the emerging technology for the benefit of the food manufacturing sector.

## **4 The Summer School**

14<sup>th</sup> September 2016 at the National Centre for Food Manufacturing, University of Lincoln, Hobeach Campus

Although not strictly a project workshop the Summer School was an inherent element in the workshop programme as it had to be coordinated closely with this programme.

The focus on the PicknPack May 2016 event in Wageningen was to present a fully working demonstration and to obtain maximum impact and future exploitation. It was decided by the Board not to combine a Summer School with this event and dilute already limited technical resources. This decision restricted the Summer School activity to the September 2016 event which was held at the University of Lincoln's Holbeach campus.

This campus was an excellent choice as the University's Centre for Food Manufacturing has very strong connections with major food manufacturing in the region and liaison with local university associated technical colleges. The Centre agreed to assist in organizing the student cohorts with a mixture of attendees from industry and technical colleges. They also advised us on the ideal programme structure for the event. The target figure was 100 attendees which was fixed by the room capacity and safety restrictions at the demonstration site. At the event we had 83 student registrants with an additional nine industrial and academic supervisors.



The event began with a detailed overview of the PicknPack project presented by Erik Pekkeriet and supported by an impressive video of the full working line. This was followed by a well-illustrated presentation of the role and advantages of automation in the food industry given by Mike Dudbridge who also outlined the possibilities of factory of the future concepts. The students were then directed in organized groups to the large machine display area which had sets of working modules of the PicknPack automated line and a set of booths each of which had poster displays and examples of relevant equipment associated with each workpackage in the programme. Some 32 PicknPack researchers were in attendance to interact directly with the students and to answer any technical questions posed.

An added demonstration feature was the operation of a large (1000kg payload) robot cell moving bulk food material in an emulated food factory test site. Due to commercial sensitivity the cell was shrouded during the previous Industry Day but the commissioning company was persuaded to run the demonstrator for our "School" event. A 6m high platform was available so that groups of students could obtain an overview of the rapid movement and precision placement of large bulk food containers which provides an innovative material handling solution for industrial level food mixing and preparation.

The enthusiasm and interest of the students was obvious and the researchers became completely involved in the interaction process.

The event ended in a wrap up session chaired by Mike Dudbridge who encouraged comment and feedback from the students. It was clear that we had made an impact and inspired an interest in latest technology. The feedback obtained from accompanying academy and industrial supervisory staff was also excellent and the event was judged to be a complete success.

Food manufacturing companies represented included Bakkavor, Nestle, Greenvale, Dalehead, ADDO Food Group and Foldhill Foods. As some of the attendees were under the age of 18, due to UK law no attendance lists can be published or photographs can be presented.

For audit purposes this information can be obtained in confidence from Professor Val Braybrooks, Dean of the National Centre for Food Manufacturing, University of Lincoln, Holbeach campus, UK.

## 5 Impact

It will be seen from the attached list of workshop registrants that the majority of the approximately 300 registrants was from industry and thus we achieved one of the primary aims of the programme. All but the first workshop had demonstrations of advanced technology and working exhibitions with workshop No3 and No5 being associated with large external events. As indicated above a similar arrangement was planned for workshops No2.

From the beginning there was strong support from major European / international innovative robotics and automation companies such as Omron, ABB, Festo, Kuka, Seimens, E-plan, Rittal and smaller companies such as Olympus automation and Packaging Automation. Food Manufacturing companies both large and small are also well represented in the lists.

Early feedback was generally non-committal as the project was regarded as somewhat ambitious but all useful comments were passed to appropriate workshop package Leaders.

The most important events were clearly the workshops No5 and No6 where all the results were on display and most importantly all the workpackage teams were present to interact directly with the attendees on a one to one basis. It was perhaps a missed opportunity that few workpackage team members attended earlier workshops.

It is thought that the programme of workshops did achieve the primary aim of bringing the objectives and outputs of the PicknPack project to the attention of a wide group of relevant industrial companies in Europe and the feedback on their organisation and content has always been excellent.

The School event was regarded as a complete success and we have had several requests to organise a similar event next year. We are in discussion with Lincoln to plan such an event.

## 6 Appendix

List of registrants (Names and Affiliations)

### 6.1.1 1<sup>st</sup> workshop 31<sup>st</sup> October 2013

Hans	Izeboud	Aris bv	Director
Harry	Friemann	Private	Software Engineer
Jeannette	Lankhaar	Marel Stork Poultry Processing B.V.	Innovation Coordinator
Hans	Stam	Rolan Robotics BV	Dir.
Igor	Jovanovic	Omron	Development Team Leader
Leo	Crezee	Special Product Design	Director
Rene	van der Wal	TEB Industrial Projects Wageningen University & Research Center	Businessunit manager Researcher, Computer Vision & Robotics
Ruud	Barth		
Stijn	Leijdekkers	AgroTechnIQ	
Arie	Kamp	Viscon B.V.	Sales Manager Head of Process Development - Meal Solutions
Andy	Loveless	2 Sisters Food Group	
Rui	Cardadeiro	Packaging Automation Ltd	Senior R&D Eng
Theo	Bookelmann	Tegema	System Architect
Ernest	Kappers	EPLAN Software & Service	Product Marketing Manager Technical Advisor Sensors For Food project
Steven	Vermeir	MeBioS, KU Leuven	
Linus	Schleupher	Dr. Linus Schleupner GmbH	Managing Director
Sanja	Maksimovic-		Scientist Intelligent Systems/ Computer Vision
Roman	Damjanovic	WUR	
	Murcek	Fraunhofer AVV	
	van de		
Rick	Zedde	Wageningen UR	
John	Gray	University of Manchester	
Erik	Pekkeriet	Wageningen University & Research Center	
Zhipeng	Wu	University of Manchester	
Alan	Spreckley	ABB	
Joyce	Shroot	Fresh Food Factory	
Richard	van de Linde	Lacquey	
Mike	Dudbridge	University of Lincoln	
Martin	van de Have	ABBNL	
Margreet	Bruins		
Jennifer	Meijer		

## 6.1.2 2nd workshop 25 June 2014

Robert	Axon		UV Technology Limited
David	Abrahams		Rittal
Moses	Ajayi	Lecturer in Food Engineering	University of Lincoln
Nasreen	Akhtar	Administration Assistant	University of Manchester
Gordon	Attenborough	Head of Sector - Design and Production	The IET
Val	Braybrooks	Dean of Holbeach & NCFM	University of Lincoln
Ruth	Britton	Senior Technician	University of Lincoln
Robert	Brooks		OMRON
Nigel	Butterworth		Bakkavor
			The University of Nottingham and
Catherine	Carville		Buhler
Russell	Cooke		Bakkavor
Bart	De Ketelaere		KU Leuven
Colin	Dowding	Senior Lecturer	University of Lincoln
Tom	Duckett	Professor of Computer Science	University of Lincoln
		Principle Lecturer and Manager of	
Mike	Dudbridge	National Centre for Food Manufacturing	University of Lincoln
Alan	France	OEE Business Manager	Olympus Automation Ltd
Frederica	Franceschini	Research Associate	University of Lincoln
Tim	Gordon	Head of School of Engineering	University of Lincoln
		Professor of Robotics and Systems	
John	Gray	Engineering	University of Manchester
Steve	Green	Head of Operations	QV Foods
Alexandra	Green	Marketing Executive	Eplan
Sharon	Green	Head of Skills and Work Based Learning	University of Lincoln
Paul	Griffin		
Marc	Hanheide	Senior Lecturer	University of Lincoln
Andrew	Howard		UV Technology Limited
Ricardo	Hummel		Gousto
Peter	Jennings	Technical Director	ACO Building Drainage
Tim	Jones		Olympus Automation Ltd
Hugh	Jones		Bakkavor
Gary	Kitchin	Managing Director	HMK Technical Services Ltd
		Msc Research Student Postgraduate	
Keerthy	Kusuman	Student	University of Lincoln
Andy	Lane	Business Development Manager	Seimens
Richard	Lindley		Bakkavor
Stephen	Mather		Propec Business
Iain	McLean	Business Development Manager	IML Group Plc
Zhaozong	Meng	Research Associate	University of Manchester
Cahyo	Muvianto	Research Associate	University of Manchester
Steve	O'Brien	Director	UV Technology Limited
Anthony	O'Grady	Branch Manager Ireland	CSB-System AG
Denise	Phan	Operations Manager	Gousto
Greg	Potts		Festo

Gabby	Smith	Laboratory Assistant	University of Lincoln
Alan	Spreckley		ABB
Tony	Ward	Regional Sales Manager	Eplan
Peter	Whitefield		Food Processing Magazine
Cera	Wong		Hethel Engineering Centre
Zhipeng	Wu	Professor of Antennas and Propagation	University of Manchester
Emma	Maguire		Campden BRI
Erik	Pekkeriet	Food Scientist	Wageningen UR
Richard	Seager	PicknPack Project Coordinator	Marel
Richard	van de Linde	Technical Director	Lacquey
Andrew	MacPherson	Director	Festo
Andrew	Stark	Chief Operating Officer	PPMA

### 6.1.3 3<sup>rd</sup> Workshop 7<sup>th</sup> May 2015

## ROBOTICA & SENSORTECHOLOGIE (07/05/2015)

Naam	Voornaam	Bedrijf/organisatie
Coghe	Stefan	Flanders' FOOD
Danial	Mindy	ADM Cocoa
De Beul	Jan	Colruyt Group service / vlevico
De Clercq	Hilde	Gudrun Commercial
De Geest	Dominique	Innovatiecentrum
De Graef	Veerle	Flanders' FOOD
De Witte	Nico	Vives
Debusscher	Sven	Siemens
Dejaeghere	Ludo	Spi
Dejonghe	Annie	Altreonic NV
Durie	Chris	Endress+Hauser
Frank	Zwerts	Visys nv (key technology)
Geerts	Lieselotte	Flanders' FOOD
Gyselink	Geert	Diversey part of sealedair
Heens	brecht	Dewilde Engineering nv
Herman	Bruyninckx	KU Leuven
Heughebaert	Patrick	Dewilde Engineering nv
Hoorne	Kevin	Libeert nv
Kerkhove	Thomas	AutoJet Technologies
Kootstra	Gert	Wageningen UR
Lagae	Arnold	VDM Lipids NV
Lerno	Johan	Cosmo group
Mahdessian	Joseph	Dewilde Engineering nv
Peelaers	Bert	VISYS (Key Technology)
POTARGENT	Johan	AMS
Saey	Wouter	KU Leuven, Departement Biosystemen
VAN BEEM	Sybram	Friesland Campina
Van de Voorde	Kris	IMEC
Van Durme	Stefaan	Krohne
Van Eecke	Philip	Milcobel

supported by



Agentschap  
Ondernemen



Nieuw  
Industrieel  
Beleid



Naam	Voornaam	Bedrijf/organisatie
Van Geel	Renaat	NUCOMAT
Van Gucht	Petra	Cosmo Group
Van Hoecke	Karel	Van Hoecke Automation
Vanderborght	Bram	VUB
Vanderpoorten	Maarten	Vanderpoorten
Vanderroost	Mike	Pack4Food vzw
Vandevelde	Stefaan	Colruyt Group
Vermeir	Steven	MeBioS - KU Leuven
Vincent	Filiep	Sirris
Vits	Jeroen	Agoria
Vogeleer	Jan	GEA PE NV - COURTOY TM
Weyn	Pieter	FEVIA
Windels	Philip	NV Vanden Borre
Wu	Zhipeng	University of Manchester

#### 6.1.4 4<sup>th</sup> Workshop 4<sup>th</sup> September 2015

Stephen	White	Automation Development and Business IT Manager	OAL Group
Richard	Heath	Meals Category Engineer, Europe	KraftHeinz
John	Martin	CI Manager	Oscar Mayer
Igor	Jovanovic	Development Team Leader	Omron
Mike	Wilson	General Industry Sales Manager	ABB Robotics
Stephen	Williams	Commercial Relationship Manager	Lloyds Bank
Gregg	Menzies	Regional Manager HP & Leasing Regional Manager Commercial Finance	Lloyds Bank
Andrew	Stringfellow		Lloyds Bank
	Kara-		
Mohamed	Mohamed		University of Manchester
Peter	Challenger	Senior Production Manager	Rowan Foods ( Oscar Mayer )
Simon	Watson	Lecturer	University of Manchester Oxford Technical Solutions Ltd
Martin	Parry	Product Manager	Ltd
Sandra	Pallarés Gual	Senior Software developer	Omron
Robert	Ashworth	Food and Beverage Key Accounts Manager	Parmley Graham

Iain	McLean		IML Group
Barbara	Warburg	Associate Principal Innovation Engineer	PepsiCo International
Megan	Phipps	Head of Sector- Design and Production	The Institution of Engineering and Technology
Nick	Calow	Technology Development Manager	HMK Automation & Drives
Martin	Howarth	Director National Centre of Food Engineering	Sheffield Hallam University
Bob	HinchCliffe	Director of Engineering	Stelram Engineering Ltd
Sergio	Blanco-Rosete	TechnicalOperationsManager	United Biscuits
Paul	Ndede		DEFRA
Erik	Mul	Technical Product Manager	ACO Building and Drainage
William	Heath		University of Manchester
Tony	Brown		University of Manchester
Barry	Lennox		University of Manchester
Zhaozong	Meng		University of Manchester
Nasreen	Akhtar		University of Manchester
John	Gray		University of Manchester
Zhipeng	Wu		University of Manchester
Erik	Pekkeriet		Wageningen UR
Wouter	Saeyns		KU Leuven
Samia	Nefti-Meziani		University of Salford
Steve	Davies		University of Salford
Andy	Rawsthorne	Course Leader Food Engineering / Senior Lecturer in Automation & Robotics	Sheffield Hallam University
Sion	Davenport		
Craig	Shaw	Engineering Manager	Rowan Foods
Gordon	Attenborough		The IET
Megan	Phipps	Head of Sector – Design and Production	IML Group
Geoff	Pegman		RU Robots
Mike	Mountain		FMEG
Soren	Ostergard		DTI

### 6.1.5 5<sup>th</sup> Workshop 26<sup>th</sup> 7 27<sup>th</sup> May 2016

Eric	Augustinus	Heemskerk vaste planten	
Jan	Baars	Ammy Consultancy	Consultant
Maarten	Baks	Zetes	
Hanno Jan	Bart	Budelpack	
Chris	Bevers	KOAT	Sales Engineer
Carlos	Blanes	ai2 Institute	Phd Candidate. MSc Mechanical Engineer
Egbert	Bok	Modiform	Productmanager
Harro	Bosch	Omron Electronics B.V.	Product Marketing Manager
Carlo	Bouw	Bouwkracht Consultancy	Integrated Automation
Tom	Bouwman	Harvest House	

Jesper	Brandsgaard	SKY-LIGHT A/S	Key Account Manager
Jesper	Brandsgaard	SKY-LIGHT A/S	Key Account Manager
Erwin	Brakenhoff	Greenco	
Gerard	Brouwer	Brouwer Food Talent	Company Owner
Jaap	Buis	Fresco Flowers	
	Canter		
Carlo	Visscher	Actemium	Client Manager
Angelique	Christiaens	Christiaens Agro Systems BV	
Leo	Crezee	MOBA	R&D manager
Leo	de Jong	Scherpenhuizen	Director
		University of Technology	
Mark	de Jong	Eindhoven	Bachelor Student Applied Physics
Raymond	de Jong	Hilverdadeboer	
Rene	de Jonge	KOAT	Sales manager
Sipke	de Man	Haagse Hogeschool-Delft	Student
Arnoud	de Vries	Nature's Pride	Manager Operations
Martijn	Dekker	RedStar	Manager bedrijfsbureau
Hans	Dekker	Sligro Food Group	Adjunct Directeur Productie
Johan	den Engelse	Frug I Com	
Bertus	Dunnewind	Marel	
Willem	Endhoven	HighTechNL	managing director
Salvador	Estevan	DULCESOL	
Florian	Flořdorf	Bivano GmbH	
Erik	Fritsma	Moba B.V.	Project Manager R&D
Arie	Geluk	Jasa Packaging Systems BV	Operational manager
		VDMA Food Processing	
		Machinery and Packaging	
Peter	Golz	Machinery	Deputy Managing Director
Johan	Grootscholten	Green Career Consult	
Pierre	Hagenaars	Het Packhuys BV	Director
Ragnheidur	Halldorsdottir	Marel	Director of Quality Assurance
		Wageningen UR Greenhouse	
Jochen	Hemming	Horticulture	
Paul	Hendriks	Eosta BV	Packaging Manager
Patricia	Hoogervorst	NFO	Innovatiemakelaar
Tim	Huijben	Viscon Fresh Produce B.V.	Area Sales Manager
Erik	in't Groen	Batenburg Data Vision	
Hans	Izeboud	Aris bv	Director
Inge Jonkers en	Jonkers en		
Kevin Vos	Vos	Vergeer holland	Quality department
Igor	Jovanovic	Omron	Development Team Leader
Sanne	Kegel	Vannature	
R	Kling	RedStar	GM
Arjan	Kok	Bosman Van Zaal	New Business & Innovation
J.	Kommer	Greenpack	
Peet	Koppes	Vezet	Manager E&A
		Marel Stork Poultry Processing	
Jeannette	Lankhaar	B.V.	Innovation Coordinator



Tarek	Laoukili	Scherpenhuizen	
Stijn	Leijdekkers	AgroTechnIQ	Engineer
Shanghua	Li	ABB - Corporate Research	Principle Scientist
Bert	Lodewijks	TOMRA Sorting Solutions	Head of Application Development
Harry	Logtenberg	ProQopt	
Sjef	Loomans	Berg Hortimotive	Sales Manager
Lalli	Loponen	Omron Europe B.V.	Industry Market Manager
Patrick	Maes	Special Fruit	
Martin	Mellado	Instituto ai2 UPV	Professor
Eelke	Mooij	PWR Pack International B.V.	Automation Manager
Monique	Nieuwenhuis	WUR	
Coen	Overvliet	Haagse Hogeschool-Delft	Student
Pavel	Paclik	PR Sys Design	director
Noud	Penninga	Scherpenhuizen	
Erik	Peterse	Holland Fyto U.A.	Project Manager
Ivo	Ploegsma	Food Tech Brainport	Director
Gerrit	Polder	Wageningen UR	
Henk	Reitsma	Greefa	
Sven	Rusch	Aris bv	Sales & Support
Xiomara	Salas	Bakker Barendrecht	R&D specialist
Tim	Samshuijzen	Moba B.V.	Software Architect
Heico	Sandee	Smart Robotics	Managing Director
Jan Dick	Schoneveld	Hilverdadeboer	
Nienke	Schuring	Nature's Pack	Project leader convenience
Ben	Schut	HIH	Manager Food
Jack	Simons	Schouten Sorting Equipment	Mechatronics Software Developer
Merijn	Sinke	Viscon Group B.V.	Product development manager
JR	Slabbekoorn	Onbekend	
AJ	Slabbekoorn	Onbekend	
marcel	smit	schneider-electric	
Harrie	Spapens	Van Wees Waalwijk	Manager Engineering
Hans	Stam	Rolan Robotics BV	dir
		National Centre for Food	Lead for Research & Higher
Mark	Swainson	Manufacturing (UK)	Education.
Loek	Teeuwen	Heemskerk vaste planten	
Haayo	Terpstra	ABB b.v.	Business Development Manager
Preben	Thomsen	SKY-LIGHT A/S	Sales Director
		Wageningen UR Greenhouse	researcher mechatronics & agro-
Toon	Tielen	Horticulture	robotics
Matthijs	Tinholt	PWR Pack International BV	Software engineer
Marcel	Toonen	Lenze	
	van Basten		
Hugo	Batenburg	Haagse Hogeschool-Delft	Student
Antoon	van de Ven	Westland Municipality	Strategy Horticulture Policy
Koos	van der Meij	VGB	
Frans	van der Steen	Marel Meat Processing BV	R&D Manager
RenÃ©	van der Wal	TEB	Businessunitmanager

Rene Andries	van der Wal van der Werf van der	TEB Industrial Projects Van Wees Waalwijk	Managing Director
Arjan Gerrit Mari Karel	Zanden van Emous van Gool van Hattum van	Alba Trading BV Roboxis Packaging BV Scherpenhuizen B.V. JMF groep bv.	owner  Director
Dennis RenÃ©	Heerwaarden van Heijst van	Haagse Hogeschool-Delft Van Wees Waalwijk	Student Sales Manager
John Rick Sjors	Hooijdonk van Kesteren van Leeuwen	OMRON Europe Haagse Hogeschool-Delft WPS	Marketing Manager Industries Student R&D Engineer, vision and robotics Team leader Electro-mechanical Design
Eric Ben Jack Ed	van Wanrooij van Waveren Verhoosel Vermeeren	Tomra Sorting BV Greenpack TNO Taks Handling Systems BV Eindhoven University of Technology	Technisch Directeur  Bachelor Student Computer Science
Maarten Marco Raffaele Kevin Aad Erik	Visscher Vissers Vito Vos Vreugdenhil Wanders	Christiaens Agro Systems BV Omron Vergeer holland Kwekerij Vreugdenberg B.V.	Robotics Engineer  Production Engineer Tooling Bachelor Student in Computer Science
Cameron Sijmen	Weibel Woutersen	Eindhoven University of Technology Technolution B.V.	

### 6.1.6 6<sup>th</sup> Workshop 13<sup>th</sup> & 14<sup>th</sup> September 2016

Moses Angelo Renata Val Keith	Ajayi Alles Bartekova Braybrooks Brewood	National Centre for Food Manufacturing, University of Lincoln Fresh Del Monte ABB Ltd University of Lincoln University of Lincoln	Lecturer in Food Engineering  Business Development Manager Dean Senior Lecturer Food & Beverage Industry Marketing Manager
Robert Andrew	Brooks Bulley	Omron Electronics BV Del Monte	Engineering Supervisor Account Manager - Food & Beverage Industries
Mathew Rui Ann Jin Tom David	Campbell Cardadeiro Casey Chu Collison Cruickshank	SIEMENS PLC Packaging Automation Ltd University of Lincoln University of Lincoln Produce World Group Ltd Gousto	Senior R&D Eng.  Agri- Food Trainee COO

Tony	Dowling	KUKA Robotics UK Ltd	Robot Sales Specialist
Tom	Duckett	University of Lincoln	Professor
Mark	Edwards	Focused Project Engineering Limited	
Sharon	Green	University of Lincoln	
Colin	Harris	Festo	Business Development Manager
Siamand	Hassan	University of Lincoln, National Center for Food Manufacturing	PhD Food Science/Technology
Bob	Hinchcliffe	Stelram Engineering Ltd	Technical Director
IAN	HOUSTON	FESTO	NATIONAL TEAM MANAGER
Tobias	Jonch	CAM-Tech	Software
Frans	Kampers	Wageningen UR	Manager Innovative Technologies
Eugene	kerklaan	Kitchen.blue	GM
Sam	Le Rouse	Dalehead Foods	Technical Apprentice
Richard	Lindley	Bakkavor Desserts	Business Improvement Manager National Team Manager Food and Beverage Industry
Andrew	MacPherson	Festo ltd	
Iain	McLean	Food Processing	
Angelo	Mencarelli	Wageningen UR	Researcher
Abdul	Moiz	University Of Agriculture, Faisalabad, Pakistan.	Student
Jake	Norman	OAL	Innovation & Marketing Manager
Will	Shields	Produce World Group Ltd National Centre for Food Manufacturing	Agri-food Trainee
Mark	Swainson		Lead for Higher Education & Research.
Keith	Thornhill	Siemens Digital Factory Wageningen UR Greenhouse	Business Manger Food & Beverage
Bart	van Tuijl	Horticulture	Technical Researcher Automation Development & Business
Stephen	White	OAL Group	IT Manager
Peter	Whitfield	Appetite for Engineering and Skills	Consultant
Karen	Wilson	University of Lincoln	
Dave	Woolrich	Packaging Automation	Design Engineer
Simon	Lushey	Marks & Spencer	
Mike	Mountain	FMEG	Deputy Chairman
Marta	Pasieozna	Bakkavor	