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08/03/2016



Nederlandse Vereniging Techniek in de Landbouw



"This project has received funding from the European Union"



KBBE.2012.2.3-03:

Call: "Automation in food packaging systems"

- Food industry is facing:
 - high numbers of food products and varieties and packaging types
 - small batches and small runs
 - need for operational flexibility







KBBE.2012.2.3-03:

Automation in food packaging systems

- Fresh and processed food
- Convenience and hygiene is important
- Integration of advanced technologies within robotics
- In-line quality control
- Intelligent management, ensuring traceability







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





Partners & budget

Wageningen UR (NL)

Danish Technological Institite (DK)

Tecnalia (ES)

KU Leuven (B)

University of Manchester (UK)

Fraunhofer AVV (D)

Lacquey (NL)

ITENE (ES)

InnospeXion (DK)

Marel (IS)

Tecnalia-AZTI (ES)

Cam-Tech (DK)

XaarJet AB (S)

Marks & Spencer (UK)





Budget € 12M

Funding € 9M

Duration: 4 years (Kick off: November 2012)









Packaging concept

























First results







Robotic Bin Picking of Chicken Breasts Project "PicknPack"

For more info, contact: Gert.Kootstra@wur.nl















D4.4. Quality parameters

Combination of sensor information to estimate quality



- 1. @ Object level: *Quality properties*
- 2. @ pixel level: *Virtual images*



	Property	Measurement device
Vine tomatoes		
1	Maturation stage	Hyperspectral + RGB
2	External defects	Hyperspectral + RGB
3	Internal damages	X-ray
4	Colour	Hyperspectral + RGB
5	size	RGB + 3D
6	Shape	3D
Table grapes		
1	External defects	RGB + hyperspectral + 3D
2	Internal damages	X-ray
3	Colour	Hyperspectral + RGB
4	size	RGB + 3D
5	Shape	3D
Ready meals		
1	Colour	Hyperspectral + RGB
2	Topping	Hyperspectral + RGB
3	Size	RGB + 3D
4	Composition	Microwave

QAS submodule - Hardware

Completion of QAS submodule hardware (June 15)





height: 2m15, width: 1m40



D4.5. QAS submodule - Hardware

Mounting spaces for sensor PC's







D4.5. Sensor Integration @KUL

First phase: development on conveyor systemSecond phase: development on sectional frame





D4.5. Sensor Integration @KUL





- Basic tests with motors pulling web of packages
 - Only at Linear speed
- Functional test on QAS module (5 cm/s) (RGB + hyperspectral)
 - Tomatoes
 - Ready meals (mixed/pure)







Sensor Integration @KUL

Solution for glossy spots: use of polarizers





Standard illumination





Use of polarizers





Submodule integration in Line







Using the QAS module













Direct decorative printing













Laser seal and cut



Movie from University of Lincoln: Laser seal and cut





PicknPack WP6



- Printing of top foil in line
- Sealing, check of seal and cutting







Packaging concept







EXPRESS RELIEF 250mg Take the pain out of your digital printing with the Process Metallic Color System[™] by Color-Logic.

















Data connection variability

Communication structure \neq mechanical interconnections!







Planning

- Year 1: Design ready
- Year 2: Modules ready (building)
- Year 3: Integartion of modules and building up flexibility
- Year 4: Demonstration
- In parrallel:
 - improvements of innovations and achieving flexibility.





Thank you

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