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DEMAN

OPTICAL SORTING OF SPROUTS

EXPERTISE

ARTIFICIAL INTELLIGENCE, OPTICAL SORTING, DATA COLLECTION, MACHINE VISION, WEBHMI

vintecc
CREATING SMARTER MACHINES

PROJECT DESCRIPTION

Deman nv had developed a mechanically working sorting machine.
The software nevertheless was not working properly and jeopardized overall performance.
Vintecc was pulled into the project and together with Pieter-Jan Deman we re-engineered the machine from top to bottom.

ABOUT DEMAN

Deman nv is a family company that is at it's third generation. The company was founded as a local forge for local farmers by Marcel Deman. Nowadays Deman nv is a well-known company in the field of agro machinery. Through expertise and craftmanship Deman nv can build and repair a wide spread of machines and metal constructions. In 1971 the company started making its first Brussels sprout harvester based on their own design and expertise.

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OPTICAL SORTING THROUGH ARTIFICIAL INTELLIGENCE TECHNIQUES

OPTISORT

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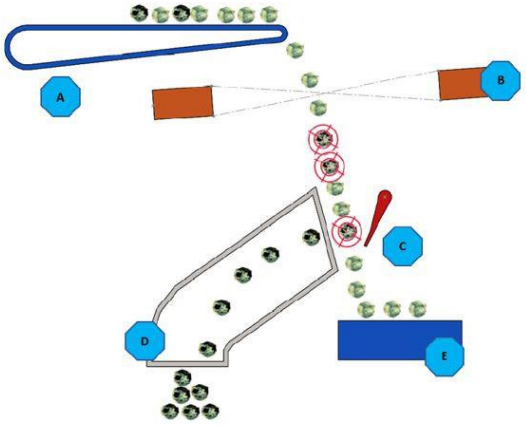
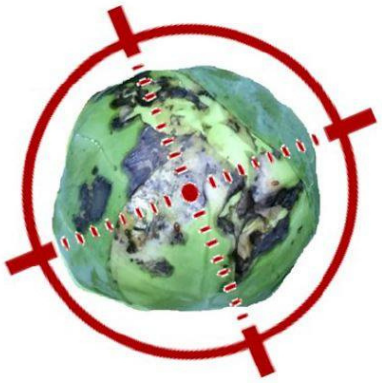


A: Toevoerriem
B: LED verlichting + optische camera's
C: Kleppenbalk
D: Afval, afgekeurde spruiten
E: Goedgekeurde spruiten



NEW PRODUCT

The Solution

Selection of the correct hardware components such as lighting with even distribution, camera's, etc. pointed out to be very crucial.
Problems such as **over- or underlighting** make the sensor input (camera's) hard to use or even not useful for the algorithms at all.
Also, an even distribution of the light is necessary in order to make the same evaluation regardless of the sprout's position in the image.
Finally, a correct synchronisation between camera and lighting was required to capture good quality images to be processed by our algorithms.
Disturbances of sunlight or other surrounding light sources were accounted for.

For image processing, an algorithm was trained to make a correct distinction between good and bad sprouts.

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GLENN AESAERT

IN 2019 A DOUBLE CAPACITY SORTING MACHINE WAS BUILT AND INSTALLED IN THE PACKAGING LINE OF A CUSTOMER.

The Result

The project resulted in a **performant, modular and cost efficient sorting machine** for Brussels sprouts which can be built upon harvesters or used stationary.

The machine outperforms competition by far. A result of 2.99% false rejects and 0.69% false accepts was recorded whereas market standard accepts up to 5%.

The project on the other hand allowed Deman nv to enter the market of vision based sorting machines. D**ouble capacity sorting machines are now widely installed in the packaging lines of customers.**

Adjustment of the algorithm parameters in the web interface