

AI-DRIVEN PROCESSING SYSTEMS

for the fruit and vegetable industry

Natural variation in fruit and vegetables makes consistent processing challenging. Differences in size, shape, color, and ripeness cause conventional automation to fall short, resulting in quality loss, waste, and reliance on manual labor. With our AI driven processing systems, built on the [STAQ framework](#), each product is individually recognized and processed based on position, orientation, and product specific characteristics. **The result is accurate and flexible processing with consistent quality.**

STAQ FRAMEWORK - THE CORE OF OUR PROCESSING SYSTEMS

STAQ combines Vision AI, robotics, and sensor technology, translating human actions into technology. STAQ stands for see, think, act by QING:

- **THINK:** AI interprets the data and determines the optimal action for each product based on quality, position, and product characteristics.
- **SEE:** Cameras such as 2D vision, 3D vision, and line scanning analyze each product individually.
- **ACT:** Robots execute the processing step with high precision. The system continuously learns from each cycle and improves itself.

WHAT IT DELIVERS

- Reduced dependence on manual labor
- Consistent and predictable product quality
- Less waste and higher yield
- Minimal risk of recalls and claims
- Product specific processing on an individual item basis
- Valuable data for continuous process optimization

PROCESSING APPLICATIONS & INTEGRATION

STAQ forms the intelligent core of the system and integrates seamlessly into existing production lines or as a stand alone system.

AI driven quality inspection forms the foundation of the processing systems, including:

- Coring of iceberg lettuce, cabbage, and similar products
- Pitting of olives and stone fruit
- Positioning, cutting, and processing of fruit and vegetables



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Adres

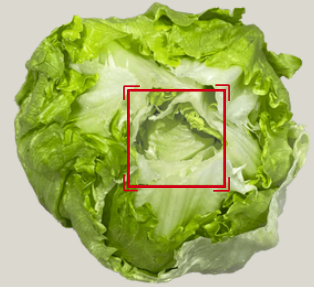
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SUCCESS STORY

Automated coring of iceberg lettuce

Partner:	Extractacore, UK based machine builder for vegetable processing
Issue:	Reducing product waste while maximizing yield from every head of lettuce



THE CHALLENGE

Extractacore used conventional vision technology for iceberg lettuce coring. Due to high product variation, the system was unable to accurately determine the position and orientation of the core. To ensure complete core removal, cuts were made too generously, which, due to a lack of shape and positioning data, resulted in inaccurate knife placement and product losses of up to 30 percent.

THE SOLUTION

Using the Robovision AI platform, QING integrated the **STAQ software** into Extractacore's existing production line while retaining the existing robot.

By adding AI and a 3D camera, the see and think components determine the exact position and orientation of each head of lettuce, enabling the robot (act) to position the knife precisely and cut only where necessary.

RESULTS

- Up to 90 percent reduction in waste
- Higher efficiency with 24/7 operation
- Processing speed of one head per second
- Insight into process and product data
- Scalable solution for multiple applications

STAQ PROCESSING SYSTEM SPECIFICATIONS

- STAQ controlled
- Vision AI based with 3D image processing
- Food grade 6 axis robot
- Stainless steel execution
- Single and double conveyor configurations
- Expandable with an automatic filling station for tray loading

