

Optic Info revolutionizes tea quality assessments with Unispectral

Hyperspectral imaging identifies impurities, optimizes production costs and maximizes efficiency

Introduction

Working within a multi-billion dollar global industry is getting tougher for producers. Tea production is no exception. From declining auction prices and questions over quality to unfavorable climatic conditions and pests, tea makers recognize that transformation is key to remaining competitive.

The challenge: tea inspection

Ensuring the highest price for tea at auction is only possible with a robust inspection process at different stages of production that minimizes major trade risks, such as products not meeting agreed specifications.

Manufacturers must contend with a range of defects during production including:

- clogging (collection of coarse tea leaves from bushes, insufficient cleaning)
- mixed tea: results from poor sorting or incorrect selection of blended varieties
- sourness: due to poor processing, fermentation and drying
- mustiness: increased humidity (>9%) can make tea unsuitable for consumption

Inspecting tea throughout the production and storage processes is as important as it is time-intensive when performed manually. While manual checks reduce the risk of costly production errors from reaching customers, they do not eliminate them.

The power of spectral imaging

[Optic Info](#), a specialist in hyperspectral image applications, however, recognized a quicker, more effective and affordable approach with the latest hyperspectral imaging technology.

In recent years its team of machine learning experts utilized the latest hardware to meet the challenges of industries including: food, medical, industrial and environmental. Building on this success, Optic Info set out to develop a high-efficiency inspection solution for the tea industry.

An expert in machine learning development, Optic Info understands how applications benefit from the imaging technology's ability to revolutionize tea quality assessment process - taking it to new levels of accuracy. Hyperspectral imaging technology allows tea manufacturers to quickly identify quality issues once hidden from the human eye.

To ensure the best results for tea manufacturers, Optic Info sought out the best value hyperspectral camera for its application.

Tea impurities classification

The Unispectral advantage

For tea manufacturers, Unispectral's hyperspectral cameras help preserve product quality and purity. Tried and tested across a range of industries, Unispectral's range of hardware

has built a strong reputation among OEMs, thanks to its size and unparalleled cost-performance ratio. This, combined with its team's deep insights into hyperspectral applications, impressed the engineers at Optic Info.

Committed to optimizing industrial processes and maximizing customer efficiency, the team quickly recognized the value offered by Unispectral's Monarch Pro.



Meet the Monarch Pro

Proven for agricultural, food, industrial, scientific and commercial use, and with 1.3MP image resolution, [Monarch Pro](#) is more than the hyperspectral camera - it's Unispectral's flagship hyperspectral imaging camera.

Monarch Hyperspectral PCB Camera

After evaluating Unispectral's flagship Monarch Pro, the customer decided on the Monarch PCB - the only PCB camera available - as an OEM component for serial production. Developed specially for effortless integration at an affordable price, the PCB delivers OEMs with all the benefits of Monarch Pro - without added weight and size, thanks to the aluminum-waterproof casing.

The hyperspectral imaging camera enables Optic Info's application to capture and analyze the unique spectral signatures of tea leaves and impurities - ensuring users benefit from a comprehensive understanding of product composition, gained by evaluating factors such as moisture content and chemical composition.

As well as ensuring the accurate grading and sorting of tea leaves, Unispectral's hyperspectral cameras excel at detecting impurities (eg foreign materials, insects, and contaminants) and picks up subtle color variations often overlooked by conventional methods.

Working with Unispectral allows Optic Info and its customers to easily distinguish between different tea varieties and grades - delivering the consistent and accurate classification demanded by a competitive marketplace.

A revolutionary approach to quality assurance

Incorporating Unispectral's hyperspectral imaging camera in its tea inspection system enables Optic Info and its customers within the tea industry to improve product quality

while streamlining quality inspection automation.

The result? A single machine that does the work of up to four workers across a seven-hour shift.

Since introducing the robust hardware and user-friendly software, Optic Info's customers report extraordinary benefits, including:

- **Maximizing profitability** by reducing manufacturing costs and boosting revenues
- **Staying ahead of the competition** by embracing cutting-edge spectral imaging technology with an outstanding cost-performance ratio
- **Enhancing product quality** by consistently delivering premium tea products meeting customer expectations
- **Boosting operational efficiency** and reducing waste through precise sorting and grading.
- **Establishing brand trust** through increased transparency and product authentication.

Conclusion

Unispectral's hyperspectral cameras enable Optic Info to revolutionize the tea production industry by equipping manufacturers with the unrivaled insights they want and need.

[Optic Info CEO Dr. Cai Yefan](#) explains: “Our tea inspection solution integrates hyperspectral technology and Unispectral’s hardware with AI algorithms that take advantage of flexible sampling and high detection rates to reduce waste.

“There are more than 1,000 types of tea available and our solution uniquely, quickly and non-invasively detects and analyzes its freshness, variety, content and other characteristics to equip manufacturers with the accuracy they need in the modern marketplace.

“The visual test results - via the Monarch PCB - allow manufacturers to realize the benefits of full-sample testing and avoid potential omissions and errors in random inspection, while - above all else - ensuring maximum safety.”

This deep understanding of the quality and purity of tea leaves allows its customers to elevate tea production processes, build partner confidence and set new benchmarks.

Monarch PCB embodies Unispectral’s ‘More is less’ philosophy, thanks to spectral imaging solutions with less cost, weight and complexity to give OEMs more value.

Discover how Unispectral’s unrivaled range of hyperspectral cameras can transform your business, as well as your customers’ business, contact us today.