New vision sensors for lab and in-line quality assessment

Introduction to Multispectral Imaging and VideometerLab 2

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Videometer profile

- Videometer A/S is a Danish company founded in 1999
- Spin-out from the Technical University of Denmark
- Expert in laboratory and on-line spectral imaging
- Main applications include
  - Food
  - Pharmaceuticals
  - Surfaces and Materials
    - paper, textile, metal, plastic
  - Biotechnology
Why use imaging?

- Mimic human vision
- Eliminate subjective assessment
- Non-homogeneous samples
- Focus in on certain areas of a sample
- Gather information on shape, size and texture
- For rapid quality assessment
Applications

Spectral imaging parameters - colour, shape and texture give important information across a variety of applications on both the product and the manufacturing process

- Product conformity/grading
- Shelf life/spoilage
- Manufacturing problems
- Microbial cultures
- Surface treatments
Traditional Color Imaging

Uses only 3 broadband filters for Red, Green and Blue
Traditional Color Imaging

With limited spectral resolution, Chlorophyll a and b give almost the same RGB signals, and are difficult to distinguish.
Multispectral Imaging

ultraviolet (UV)

near-infrared (NIR)

N images obtained at N specific wavelengths
Using specific wavelengths for imaging, chlorophyll a and b can easily be distinguished.

Chlorophyll a
- low
- high
- high
- low

Chlorophyll b
- high
- low
- low
- high
VideometerLab 2

Lab based device for spectral imaging

- 18-20 spectral bands in the range 360 nm to 1050 nm
- 1200×1200 or 2056×2056 pixels per band
- Very homogeneous and diffuse illumination
- Strobed LED light source
- 10 seconds per sample including handling
- Optional backlight strobe
- Software for calibration, acquisition, and analysis
- Patented technology
VideometerLab XY

Industrial-scale multispectral imaging

- VideometerLab Sphere with Multispectral light
- Scanning XY positioning system
- Presentation plate for samples
- Vibration Device for even distribution of samples
- Vacuum system for automatic removal of samples
Multi Spectral Imaging Solutions

Laboratory and industrial scale multi spectral imaging for immediate quality assessment