



**Machine Vision**  
Technology Ltd. 

Seeing what needs to be seen

### **Vision Systems and Design.**

Machine vision technology is a major UK supplier of machine vision solutions to industry including Automotive, Pharmaceutical, Food Manufacture, Packaging and Brewing.

Our vision systems are used throughout automated production processes for inspection, guidance, identification, measurement, tracking and counting. This incorporates OCR reading and verification, plus 1D bar and 2D matrix codes.

Combining software expertise with application integration we offer a unique service in the machine vision industry, giving us many years of expertise and experience in vision technology for automated quality control.

Machine Vision Systems inspection plays an important role in achieving 100% (99.99 %!) quality control in manufacturing, reducing costs and ensuring a high level of customer satisfaction with no recall fines!

Machine vision system inspection consists of narrowly defined tasks such as verification of expiry dates, counting objects on a conveyor, reading serial numbers, and searching for defects. Manufacturers often prefer machine vision systems for visual inspections that require high speed, high magnification, 24/7 operation, and/or repeatability of measurements.

After an image is acquired it is processed.

Machine vision image processing methods include

- Pixel counting: counts the number of light or dark pixels
- Thresholding: converts an image with gray tones to simply black and white or using separation based on a grayscale value.

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- Segmentation: Partitioning a digital image into multiple segments to simplify and/or change the representation of an image into something that is more meaningful and easier to analyze.
- Blob discovery & manipulation: inspecting an image for discrete blobs of connected pixels (e.g. a black hole in a grey object) as image landmarks. These blobs frequently represent optical targets for machining, robotic capture, or manufacturing failure.
- Pattern recognition including template matching. Finding, matching, and/or counting specific patterns. This may include location of an object that may be rotated, partially hidden by another object, or varying in size.
- Barcode, Data Matrix and "2D barcode" reading.
- Optical character recognition: automated reading of text such as serial numbers and expiry dates.
- Gauging: measurement of object dimensions (e.g. in pixels, inches or millimeters).
- Edge detection: finding object edges.
- Neural net processing: weighted and self-training multi-variable decision making.
- Filtering (e.g. morphological filtering)
- Stitching: Combining of adjacent 2D or 3D images.

A common output from machine vision systems is pass/fail decisions. These decisions may in turn trigger mechanisms that reject failed items or sound an alarm. Other common outputs include object position and orientation information from guidance systems. Additionally, output types include numerical measurement data, data read from codes and characters, displays of the process or results, stored images, and process control signals.

If you would like more information or help to design and provide your vision system then do please contact us -

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