

Sherlock

TECHNICAL SPECS

Windows-Based Machine Vision Software

Overview

Sherlock™ is a Windows based machine vision software environment specifically intended to simplify development and deployment of high performance alignment, gauging, inspection, assembly verification, and machine guidance tasks. With **absolutely no programming required**, System Integrators and End-Users of machine vision find the rapid prototyping environment of Sherlock greatly reduces development time and helps speed time-to-market.

Examples of what you can do from within using Sherlock software:

- Graphically organize your entire machine vision strategy
- Interactively experiment with the functions of the MVTools® library
- Confirm run-time executive performance
- Fine-tune variables and parameters
- Create custom vision algorithms
- Plot statistical data (SPC)
- Set or Read discrete I/O signals

The Sherlock software environment also provides Monitor, Surveillance, and SPC Reporter utilities for gaining insight into vision task program flow, internal/external events, internal variables, or other parameters as you run your machine vision application.

Sherlock capabilities are ideal for manufacturing applications in the automotive, consumer goods, textile, electronics, packaging, pharmaceutical, and plastics industries.



Key Features

- Configure applications from a point-and-click environment. No programming required!
- Comprehensive graphical interface allows rapid prototyping and deployment of your vision solution
- Open architecture allows you to develop or include custom algorithms and routines
- Flexible interface allows you to customize the front-end to suit your end-user requirements
- Provides extensive image processing and image analysis capabilities, including adaptive pattern matching algorithms for search, OCR, barcode and 2D Matrix reading

Applications

Sherlock is used in a wide variety of machine vision applications to provide quality assurance and control in manufacturing. Be it identifying and rejecting defective parts on a conveyor or guiding a robotic arm doing spot welds, Sherlock is up to the task. Armed with proven machine vision tools under a point-and-click, no programming interface, Sherlock is ready and capable of meeting the most demanding application challenges.

Specifications

System Requirements

- PC running Win98 or WinNT 4.0/2000
- 64MB of RAM, Windows NT/2000; 32MB for Windows 98
- 50MB of hard disk free space
- Coreco Imaging supported frame grabber (with license or dongle)
- SVGA monitor
- Keyboard and mouse

Supported Image Capture Boards

- Coreco Imaging frame grabbers: PCVision™, PCVision*plus*®, PC-RGB, IC-ASYN, PC-DIG, PC-CamLink
- All boards support external trigger, asynchronous frame reset, image capture while processing (image ping-pong), and strobe

Image Handling - "Stakeouts"

- Stakeouts are defined areas for image display and image processing
- Stakeouts can display stored bitmap images as well as live or captured camera images
- Can store and copy images to bitmap files
- Capable of panning, scrolling, cropping, and zooming (un-zooming) images

Regions of interest - "Peeks"

- All processing and analysis can be performed with one or multiple Peeks. Peeks can be single point peeks, line peeks, or area peeks as large as the whole image.
- Peeks can be interactively rotated, moved, resized or copy/pasted
- Peeks can be automatically placed relative to other object locations on newly acquired images
- Line Peeks include: Line, Circle and Arc
- Area Peeks include: Rectangle, Annulus, Torus and Point
- Composite Line Peeks include: Spoke, Bulls-eye and Rake

Image Processing within a Peek

- Contrast Enhancement: Equalize, Normalize
- Logical Operations: Image And, Image Or, Image XOR
- Math Operations: Image SubAbs, Image SubBA, Image SubAB, Image Add, Image Min, Image Max, Golden, Gain, Offset, HProject, VProject
- Thresholding: DynThresh, ThreshDn, ThreshIn, ThreshInv, Threshold, ThreshST, ThreshUp, ThresholdBand, ThresholdLB, ThresholdOB
- Morphology (Region growing/shrinking): Erode (3x3), Dilate (3x3)
- Edge Filtering: 1x11, 3x3, 3x3Sum, 5x5, FDiff, Kirsch, Laplace, Median, Prewitt, Roberts, SDiff, Sobel, Sharpen, Smooth
- Image Manipulation: Image Save, Image Retrieve, HFlip, VFlip, Invert, Rotate, Dice, Zoom
- Line Peeks: Dilate (1x3), Equalize, Erode (1x3), Golden, Gradient, Invert, Sharpen (1x3), Smooth, ThreshDn, ThreshIn, ThreshInv, Threshold, ThreshUp, 1x5, and more

Image Analysis within a Peek

- Edge: HVLine, MaxEdge, MaxBackEdge, FirstEdge, FirstBackEdge,

LineLength, EdgeCount, Protrude, InsideCaliper, OutsideCaliper, Wave

- Blob Analysis: Centroid, Connectivity, Count, Extrema, MultiCount
- Pattern Recognition: Search, SMART Search, SMART 360
- Single and 2D Barcode: SMART Postnet, SMART BAR(39, 128, BC-412, ECC 200, ITF(interleaved 2 of 5), UPCa)
- Optical Character Recognition (OCR): SMART OCR
- Contrast Detection: Variance
- Geometry: Circum, FindAngle, Diam
- Statistical: Average, MinMaxPosVal, Sum
- Optical Character Verification (OCV): Mark
- Lead: Number, Spacing, Width, Pitch, Footprint, Body Line
- Composite Peeks Only: Circum, Diam

Geometric Operations

- Distances, Angles, Best Line, Best Circle, Line Intersection, Line Perpendicular, Point to Line, and Line to Line

Variable Operations

- Label, merge, store, reuse, and report every point and value placed in your investigation

Report Generation

- Standard: Tolerant of any reading, collect and report off-line or real-time mean, variance, max, min, Cp, CpK for multiple readings, display real-time strip charts and read histograms, interface to 3rd party SPC packages
- Custom: Fully customizable inspection reports to the screen, serial, printer, and/or disk. Also interfaces easily to various 3rd party SPC software packages such as Applied Statics.

Calibration

- Each camera can be individually calibrated
- Linear and non-linear including perspective and optical distortion compensation
- Calibration is used to return camera coordinates (device coordinates) or real-world coordinates (physical coordinates)
- Multiple calibrations per camera
- Automatic recalibration

Illumination Control

- Automatically controls on/off, binary, or analog programmable lights

I/O

- Serial I/O
- Digital I/O (via 24-bit I/O add-in ISA board)
- Analog I/O (via add-in ISA board)
- file I/O
- Control SPC data or inspection reporter, and user defined audio output

Motion

- Support for PC or stand-alone motion controller via DLL or VisualBasic

Customization

- Custom Interface: Allows complete front end control of Sherlock in a "server" mode through VisualBasic OCX
- Custom algorithms: Complete source code in C++ comes standard for developing a completely custom application

Supporting Documentation

- Context-sensitive on-line help
- Example programs, images & sample VisualBasic interface programs
- Complete user's manual



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