SICK AppSpace

GIVING SPACE TO YOUR IDEAS AND SOLUTIONS

SICK

Sensor Intelligence.

GIVING SPACE TO YOUR IDEAS AND SOLUTIONS

Looking for a sensor solution that is both tailored to your requirements and easy to operate? It can become reality with the SICK AppSpace eco-system. Intelligent software tools, high-performance programmable devices, and a dynamic developer community enable easy and efficient design of customized sensor systems and completely new, adaptive solutions for automation applications. With SICK on board, you can take the next steps toward the future and Industry 4.0.

High investment security
Through the use of an eco-system for a wide range of SICK devices

Quick and efficient development
Tailor-made SensorApps specially tuned to your requirements

High level of flexibility
With many degrees of freedom in the development of SensorApps

Less expensive to develop
Since SensorApps can be reused on various programmable SICK devices and are available worldwide

Expert service
Provided by developers for developers via the SICK Support Portal

Exchange of experience and networks
With other members due to automatic access to the SICK AppSpace Developer's Club

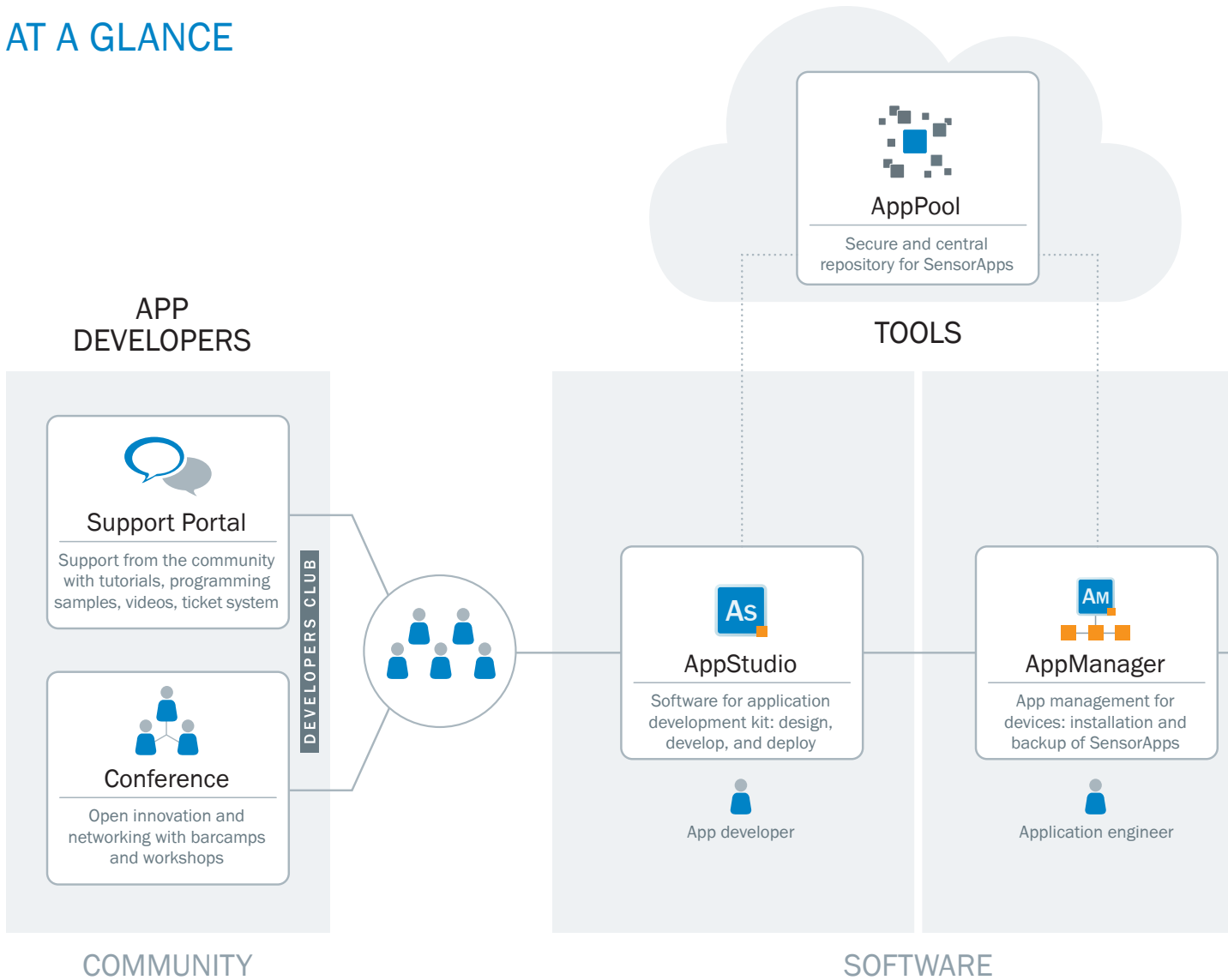### Risk-free introduction
Thanks to free 90-day trial license

> *SICK AppSpace is the connection of programmable sensors and customer-specific applications, driven by a dynamic community of developers.*

Detlef Deuil
Head of Product Management
Vertical Integration Products

AT A GLANCE

APPPool
Secure and central repository for SensorApps

APP DEVELOPERS

TOOLS

DEVELOPERS CLUB

Support Portal
Support from the community with tutorials, programming samples, videos, ticket system

Conference
Open innovation and networking with barcamps and workshops

AppStudio
Software for application development kit: design, develop, and deploy

App developer

AppManager
App management for devices: installation and backup of SensorApps

Application engineer

COMMUNITY

SOFTWARE

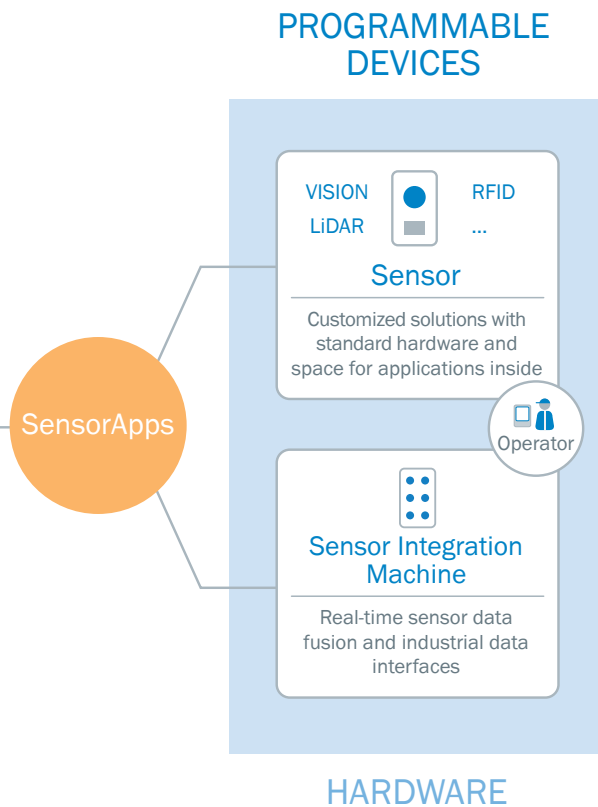## A strong community of developers

The SICK AppSpace Developers Club is the community of developers who create value on programmable devices. Besides access to the SICK AppStudio development tool, the one-year membership has many advantages: online developer support, trainings, software updates, author privileges in the SICK AppPool, and invitations to the annual SICK AppSpace Developers Conference, where you learn the latest updates and can actively shape the further development of SICK AppSpace.

Uniform software tools for all programmable sensors

With SICK AppSpace, system integrators and original equipment manufacturers (OEMs) simply develop the configuration for their applications themselves using the scripting language Lua. SICK AppStudio provides access to a broad range of functions that come preinstalled with the sensor. For the management and installation of your SensorApps, the SICK AppManager software is available for free.

SICK APP SPACE

PROGRAMMABLE
DEVICES

VISION   ● RFID
LiDAR   ▢ ...

Sensor

Customized solutions with
standard hardware and
space for applications inside

SensorApps

Operator

**Sensor Integration
Machine**

Real-time sensor data
fusion and industrial data
interfaces

HARDWARE

A platform for exchanging SensorApps

The SICK AppPool offers a secure and central repository
for SensorApps. Accessible from SICK AppStudio, SICK
AppManager, and the web, it is the place to showcase your best
SensorApps and to share them with individuals, teams, and
end-users. End-to-end encryption and flexible license models
protect your intellectual property.

A SensorApp for the hardware

Complete SensorApps can be installed on the respective
programmable device with SICK AppManager. Programmable
devices are available from the 2D and 3D vision, LiDAR, and
RFID areas; and the portfolio is constantly updated to include
further devices and sensor technologies. The Sensor Integra-
tion Machine (SIM) combines the algorithms and functions
from across all technologies while enabling data fusion and
evaluation at the same time.

FROM IDEA TO IMPLEMENTATION AND OPERATION

The SICK AppSpace eco-system contains two software tools, SICK AppStudio and SICK AppManager. Together they enable developers, application engineers, and operators to implement tailor-made sensor applications on programmable SICK devices.

Get creative with SICK AppStudio

By developers for developers

SICK AppStudio is an integrated development environment (IDE) to create customer-specific applications for programmable SICK devices. SensorApps are programmed in Lua script. A graphical flow editor can be used to connect existing function blocks. Additional modules can be imported into SensorApps, such as HALCON procedures for industrial image processing.

User interfaces for SensorApps are created with JavaScript and HTML5 based on the powerful SOPASair web development toolchain. A graphical UI Builder is also available for rapid prototyping. Integrated tools such as emulator, debugger, resource monitor, and an extensive range of documentation and programming samples make the development process extremely easy.
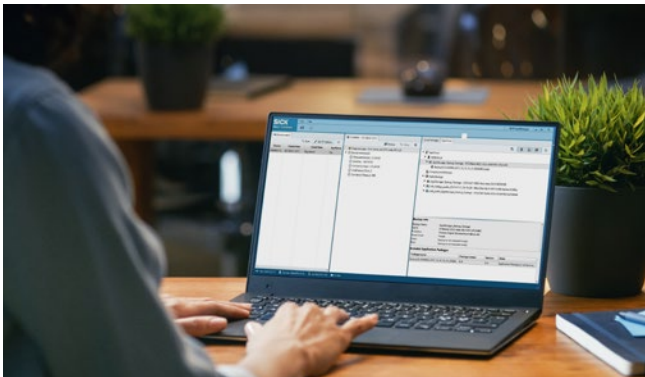
SICK AppStudio at a glance

- AppExplorer for displaying and managing SensorApps and components
- Graphical flow editor for block programming
- AppMonitor for monitoring system resources
- UI Builder for creation of web user interface
- Convenient debugger with visualization in 2D and 3D
- Recording and playback of data streams
- HALCON integration for image processing and analysis

AppTemplates – no programming required

Application engineers with no programming expertise can rely on AppTemplates. These special SensorApps provide a bundle of application-specific function blocks and can be configured via drag-and-drop. Developers can create their own AppTemplates from scratch or alter existing ones using SICK AppStudio.

www.sick.com/SICK_AppStudio

What's in it for the Developer?

- Highly flexible programming
- Easy to learn and use
- Comprehensive support

What are SensorApps at SICK?

A SensorApp is an application software which represents a sensor or device function. It consists of Lua script with function calls to the SICK Algorithm API. Other modules, like HALCON algorithms can be integrated as additional resources. A web-based user interface allows operational control of the application and can be fully customized by the developer.

Install and manage your SensorApps with SICK AppManager

Supporting you on-site

The SICK AppManager software tool makes installing, updating, and managing SensorApps on SICK devices easy and efficient. Users benefit from clear presentation of connected devices, available SensorApps, and firmware versions.

Instant access to SICK AppPool

SICK AppManager can be used by both application engineers and machine operators to access SensorApps from the cloud-based SICK AppPool, the central and secure place to share SensorApps in the SICK AppSpace eco-system.

www.sick.com/SICK_AppManager

Types of SensorApps at SICK

StandardApp
Solves a general sensor problem, may be useful in multiple applications without code changes.

CustomApp
Solves a specific sensor problem, customized to a specific application, use in other applications likely requires code changes.

DemoApp
Ready-to-use app for demonstration purposes.

AppTemplate
SensorApp with special structure that bundles multiple function blocks for solving applications, enables application engineers to setup up programmable SICK device without programming expertise, code changes are optional.

What's in it for the Application Engineer?
- Easy management of SensorApps
- Access to available solutions via SICK AppPool
- Graphical configuration of AppTemplates

What's in it for the Operator?
- Easy to use web user interfaces
- Developer network for customized solutions
- Best-in-class hardware support

SICK PROGRAMMABLE DEVICES – A NEW LEVEL OF FLEXIBILITY FOR YOUR APPLICATION SOLUTIONS

Every industry seeks tailor-made solutions that solve their specific task optimally. Programmable SICK devices make it easy to implement and customize cross-industry application solutions via SensorApps. Developers have the option of directly programming embedded sensor hardware, or they can implement multi-sensor solutions via Sensor Integration Machines.
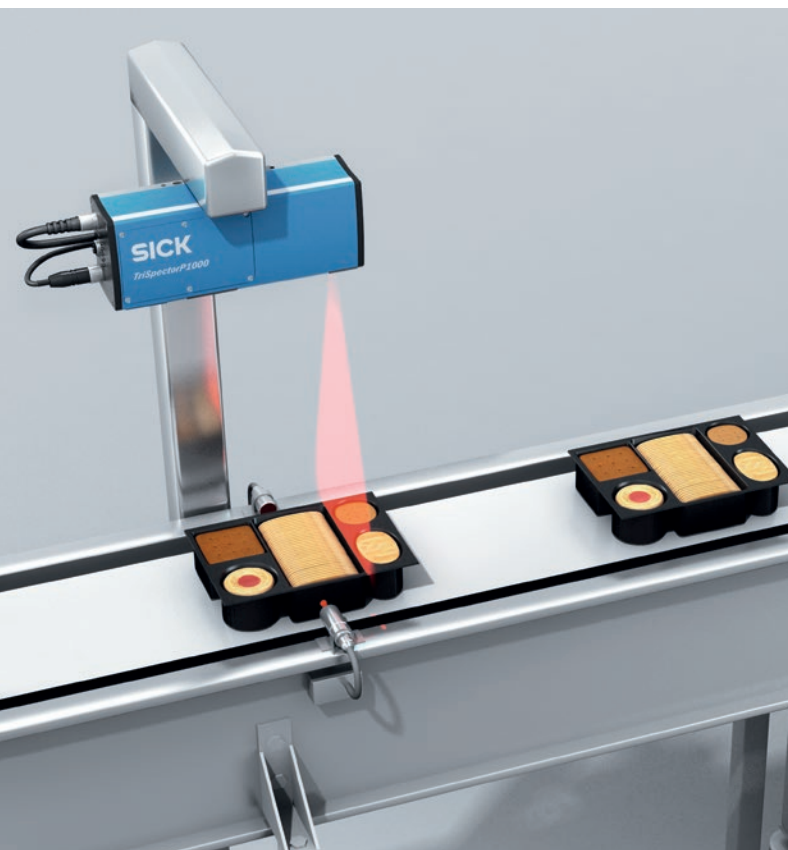
Programmable sensors
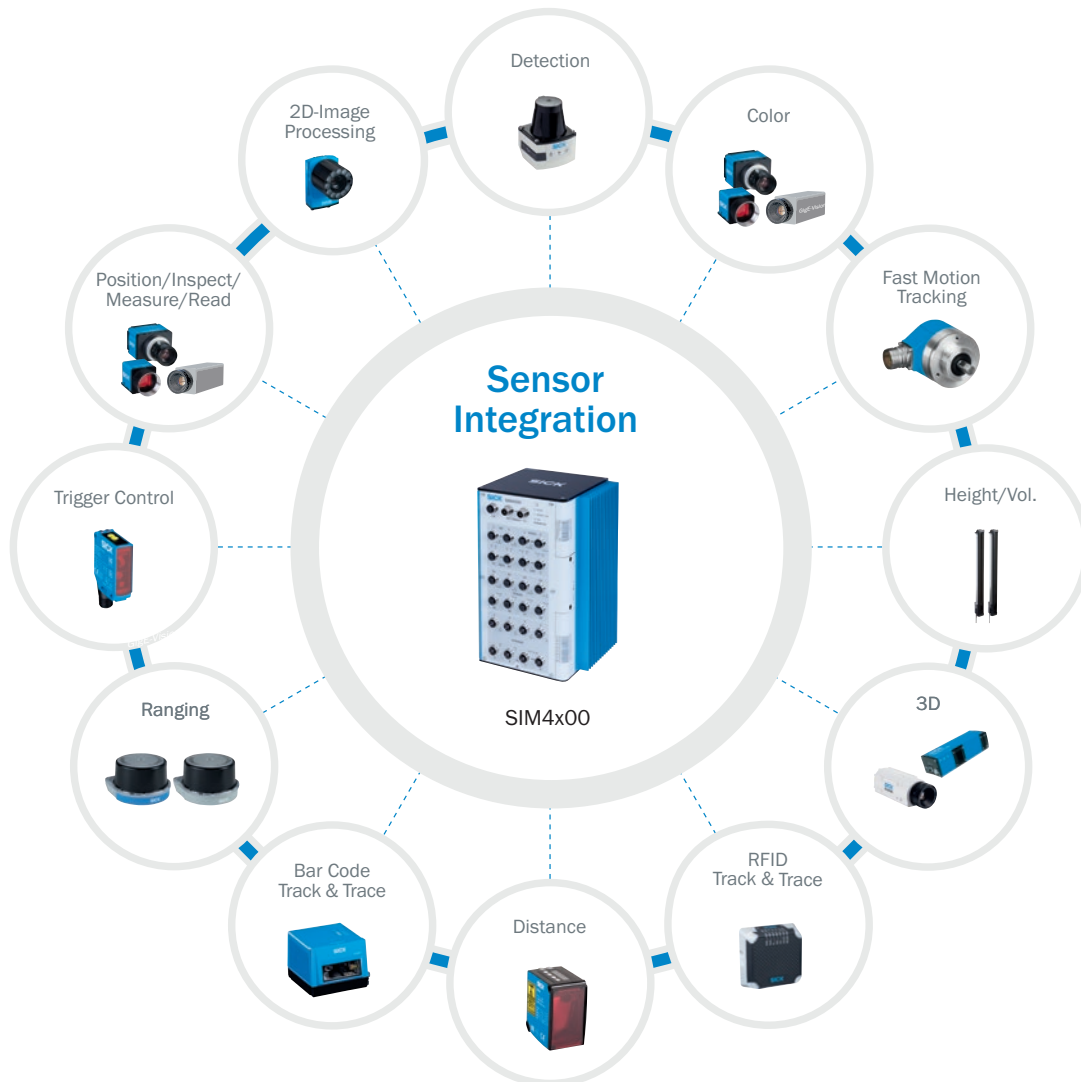
2D	3D	RFID	LiDAR

Powerful customization – directly on the sensor

Programmable sensors from SICK

Programmable sensors are available from the 2D and 3D vision, RFID and LiDAR areas. Based on proven technologies, these devices are expanded to allow free programmability, enabling tailor-made application solutions. Flexibility during development and performance in operation is ensured thanks to an extensive integrated programming interface (API) and built-in libraries such as the SICK Algorithm API or powerful products from our partners. As the SICK AppSpace eco-system grows, SICK is continuously expanding the range of programmable devices across various sensor technologies.

Sensor Integration — SIM4x00

Detection · Color · Fast Motion Tracking · Height/Vol. · 3D · RFID Track & Trace · Distance · Bar Code Track & Trace · Ranging · Trigger Control · Position/Inspect/Measure/Read · 2D-Image Processing

Make your multi-sensor solution come together with SICK Sensor Integration Machines

Sensor Integration Machines – Flexible. Intelligent. Communicative.

The Sensor Integration Machine (SIM) brings new opportunities when solving your challenges and creating custom solutions. The SIM is a one-box concept where data from multi-sensor systems can be merged, evaluated, archived, and transmitted. It considerably reduces integration effort as it removes the need for additional interface components, cabling, and driver installations. Dual-talk enables connectivity to both the machine controller for time-critical sensor results as well as to cloud services that create value based on pre-processed data for predictive maintenance, quality control or smart services.

Experience the benefits

The advantages of SIMs apply in all areas of factory and logistics automation: no matter whether it is a retrofit or vertical integration in line with Industry 4.0, e.g., data collection, archiving or distribution to cloud services. It enables process applications such as quality control, process analyses or predictive maintenance based on sensor data. At the same time, measured values, read results or true-false decisions can be transmitted to the existing machine controller (PLC) via fieldbuses or I/Os.

DESIGNING THE FUTURE TOGETHER

As a member of the SICK AppSpace Developers Club, you become part of the SICK AppSpace community. This puts you in the pole position to develop customized applications based on SensorApps and programmable devices. Members profit from countless benefits, including the annual SICK AppSpace Developers Conference where you can actively participate in designing the future of SICK AppSpace.

SICK Support Portal - competent support from the very beginning

The SICK Support Portal is the central platform for the daily work of a SICK AppSpace developer. It offers news, tutorials, software downloads, release notes, documentation, and FAQs. Many documented code samples are available for download and installation to illustrate device functions and features. Members of the SICK AppSpace Developers Club also have exclusive access to expert support via the ticket system.

SICK AppSpace Developers Conference – mutual exchange

The annual Developers Conference is the optimal platform to bring together all SICK AppSpace Developers Club members. The focus lies on an open dialog between members and SICK developers. In a bi-directional exchange, members can experience new developments hands-on in live hacking sessions and on market places. Open workshops, BarCamps, provide the unique opportunity to shape the future development of the SICK AppSpace eco-system. Users can share their experiences and discuss improvements across all areas from software, hardware, documentation, and support right up to networking within the community. The results are transparent and open for all members, including their impact on the roadmap of SICK AppSpace.

" *I really like the concept of the conference and its modern approach to working together. It gives us system integrators the opportunity to be part of the development process. Every delegate gets valuable practical feedback from development experiences. What's more, the event is very well organized and the atmosphere is fantastic.* "

Alex Heurkens from Pliant bv from the Netherlands

3D BELT PICKING WITH TRISPECTORP1000

Task

For a robot to automatically pick products that may have varying shape and color in order to package these, it needs to get the correct pick positions. The task for the 3D camera is to send each object's coordinates, including the height, to the robot controller for the management of the picking process.

Solution

It is a simple step by step procedure to set up the belt pick toolkit SensorApp in the interactive web user interface. In three different views the robot integrator can specify environment parameters like belt width and robot brand, align the camera's coordinate system to the robot's, and configure the camera to produce the required kind of pick positions for the products to be packed. Although the SensorApp is programmed in AppStudio, no programming expertize is required to use it.

Your benefits

Working with 3D vision in robot guidance projects increases both the reliability of the picking process and the quality of the products being handled. Object detection based on height neglects color or prints on the products and can even handle non-contrast scenarios, e.g. when belt and product have the same color. This means that the product design can be in virtually any geometry and color and still be detected. The robot's handling of the products can be gentler, as collisions and product damage can be prevented by adapting its motions to the real object height as measured by the TriSpectorP1000.

INSPECTION OF CONTROL ELEMENTS WITH INSPECTORP65x

Task

To ensure that innovative touch operating elements, of dishwashers, for example, function reliably for their entire service life, service-life tests must be carried out for the pilot series of the operating elements. By means of a robotic system with a programmable InspectorP65x camera, it must be ensured that the test finger on the robot arm can be directed in a repeatable and precise manner.

Solution

A symbol on the touch operating element is selected as a reference image which is used as the starting point for the robot program. The SensorApp in the InspectorP65x is programmed in such a way that the camera mounted on the robot arm detects the operating element using the reference image, and uses it to determine the position of the pushbuttons. The values are sent to the robot, which then moves into the actuation position in a repeatable manner and tests the individual pushbuttons with the test finger. The signals of the pushbutton actuation are measured in order to find out whether the parameters change during the course of service life.

Your benefits

The control of the robot by the InspectorP65x camera in the automated testing process results in high efficiency, an increase in repeatability, and thus in reliable values in the test results. By using the robot through the night, the throughput of the operating elements increases, saving time and relieving employee's workloads. There is also no need to carry out the precise alignment the operating elements manually, since the camera automatically aligns with the reference image. This quality level cannot be achieved when judging by eye or using a mechanical system. Communication between InspectorP65x and the robot controller takes place via Ethernet. With the high image resolution, the compact housing, exchangeable optics, and a choice of illumination, the InspectorP65x offers an optimal combination of performance and flexibility. With the HALCON image processing library, installed as standard, even the most challenging application demands can be met. An integrated web server makes it possible to visualize a graphical user interface on any browser-compatible display device.

PCB INSPECTION WITH SIM4x00 AND picoCam304x

Task

In the PCB industry, there is a wide range of inspection and identification tasks due to the huge variety of electronic components, plug connectors, and other components. To ensure the required product quality as well as consistent traceability along the individual production steps, industrial image processing is often used.

Solution

The SIM4x00 Sensor Integration Machine is used with two picoCam304x 2D streaming cameras. With a resolution of 4 megapixels, the cameras are suitable for both inspection tasks, e.g. for quality control activities such as component testing, and for identification tasks such as Data Matrix code reading on the printed circuit board. The SIM4x00 carries out both applications with the help of HALCON procedures and transfers the results to the higher-level PLC via fieldbus. SICK AppStudio is used to program the application.

Your benefits

The solution is easily scalable. You can expand it with additional lanes by adding more cameras to the SIM4x00 and extending the SensorApp or adding another app. What's more, the SIM4x00 controls and supplies the illumination directly without additional components. As a result, all of the components required for the solution come from a single source. Both the hardware and programming are independent of standard PCs and their interfaces, e.g., Windows, and therefore last considerably longer than these. No equipment cabinet is required as the SIM4x00 can be mounted directly on the application. The compact industrial streaming cameras enable installation even in situations with restricted space. The integrated HALCON image processing library also guarantees high accuracy levels and provides solutions for even the most demanding applications.

RFID-BASED ACCESS CONTROL WITH RFU6xx

Task

To control access to a defined area, all access rights and profiles for authorized persons and vehicles must be managed via software. Device-specific software is also required to manage access control and meet additional safety requirements.

Solution

The application software was programmed within SICK AppStudio and, when combined with RFU6xx RFID devices, provides a convenient and reliable solution enabling fast access for over 350 vehicles per hour. As the vehicle approaches the barrier the RFU6xx devices read the content from the transponder mounted on the windshield. If accepted, access is then granted.

Your benefits

The implemented solution stands out thanks to the straightforward management of access profiles and rights within the software. SICK AppSpace turns a standard device into a product that meets the demanding requirements for a modern access system with increased safety requirements. Access rights are saved locally on the RFID device without the need for additional hardware. Identification is quick and reliable, thereby reducing unwanted waiting times in peak hours.

ACHIEVING A GREAT DEAL TOGETHER

SICK AppSpace builds upon long-term partnerships in the integration of software in SICK AppStudio. This process is living, dynamic and not complete by a long shot.

MVTec and HALCON – seeing better together

The partnership with MVTec Software GmbH, which has been going strong since 2010, has been continuously expanded with the implementation of the extensive standard software HALCON for image processing for SICK AppSpace. The flexible software architecture allows for quick application development for industrial image processing and image analysis. The extensive image processing library is the perfect supplement to SICK's own algorithms and ensures very easy integration into SICK products.

The collaboration between SICK and MVTec represents a union of two strong brands. The perfect coordination between the two companies extends beyond just their products: SICK has an international reach as a leading manufacturer in the sensor sector, and has extensive expertise in the field of hardware. MVTec – an international technology leader for independent image processing software – is its ideal partner. This cooperation benefits customers in a range of industries, making it easier for them to access high-performance vision solutions.

HALCON
the power of machine vision

> " *We are delighted that SICK has decided to use the high-performance functionality of HALCON for a wider product portfolio. The reliable HALCON algorithms, which are used all over the world, will enable SICK to expand into new markets and industries. This will allow both companies to grow together and to pass on the beneficial effects of this synergy onto their customers.* "

Johannes Hiltner
HALCON Product Manager at MVTec

"

We are delighted that SICK was won over by our embedded concept and that the powerful functions of VisualApplets are being used in a wide range of sensor and integration technologies, making it possible to further develop SICK AppSpace.

Dr. Klaus-Henning Noffz
Chief Executive Officer at Silicon Software

Silicon Software – achieve more with embedding

Some programmable devices contain multi-core processors with FPGA-based hardware support (co-processors). FPGA programming has been enhanced with even more intelligence due to the implementation of VisualApplets from Silicon Software. Tailor-made algorithms can be created via drag-and-drop with graphic data flow charts and are transmitted to additional devices in just a few steps.

This collaboration is allowing SICK to offer its customers the right sensor solution with an even more focused approach. With the VisualApplets approach to FPGA programming using data flow charts on a graphic user interface and the wide range of functions with over 200 operators, the door to new markets and applications is open. This makes it very easy to use real-time data processing in programmable SICK devices and implement powerful application solutions. SICK application developers can benefit from the easy use and integration of VisualApplets in SICK products.

SiliconSoftware
speed up your vision

BY DEVELOPERS FOR DEVELOPERS

Product description

SICK AppStudio is a software tool for developing customer-specific applications on programmable SICK devices. Supported programming technologies include a graphical Flow Editor and Lua script for creating SensorApps. The Configurator view is available for configuring AppTemplates without programming knowledge. HALCON image processing procedures can also be integrated. Helpful integrated tools such as emulators, debuggers, resource monitors, and an extensive range of documentation and DemoApps make the development process easy. A web GUI can be created for machine operators using the ViewBuilder.

At a glance

- AppExplorer for displaying and managing SensorApp components
- Graphical Flow Editor for block programming
- AppMonitor for visualizing system performance and usage
- ViewBuilder for creating web GUIs
- Debugger with visualization of 2D and 3D images
- Recording and playback of data streams

Your benefits

- Editor with auto-completion function for program creation
- Application-specific configuration of AppTemplates via Configurator view without programming knowledge
- Emulator function for programming SensorApps without connected programmable device
- Debugging function for quick troubleshooting
- CPU and memory usage display on connected devices
- Quick integration and creation of SensorApps thanks to example programs
- Parallel connection of several programmable devices
- Validation option for assignment of SensorApps to the appropriate programmable device

➜ www.sick.com/SICK_AppStudio
For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Detailed technical data

Product features

Supported programming languages	Flow-based programming Lua
Language	English
Documentation	www.sick.com/SupportPortal
Supported product families	InspectorP63x, InspectorP64x, InspectorP65x, TriSpectorP1000, RFU62x, RFU63x, RFU65x, SIM4x00

Ordering information

Description	Type	Part no.
Application development kit, software license including 1 year of membership to SICK AppSpace Developers Club	SICK AppStudio	1610199

INSTALLATION AND MANAGEMENT OF SensorApps

Product description

The SICK AppManager software tool supports service technicians in the field with the installation of SensorApps on programmable SICK devices and the management of apps in the framework of the SICK AppSpace eco-system.

SICK AppManager can be used to access local SensorApps and SensorApps from the SICK AppPool. The tool can also be used to run firmware updates and create and manage device back-ups.

At a glance

- Clear display of connected devices as well as available SensorApps and firmware packages
- SensorApp downloads from the SICK AppPool

- Parallel installation on several devices
- Creation and management of device back-ups

Your benefits

- A clear display and easy operation facilitate the installation of SensorApps on programmable SICK devices in the field as well as app management
- Connection to the SICK AppPool enables worldwide availability of SensorApps

- Software package validation guarantees the correct assignment of SensorApps to the appropriate programmable device in the field
- Execution of firmware updates on SICK devices and creation and management of device back-ups without additional software

➜ **www.sick.com/SICK_AppManager**

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

Detailed technical data

Product features

Language	English
Documentation	www.sick.com/SupportPortal
Supported product families	InspectorP63x, InspectorP64x, InspectorP65x, TriSpectorP1000, RFU62x, RFU63x, RFU65x, SIM4x00

Ordering information

Description	Type
Software tool for the installation and management of SensorApp software packages on SICK AppSpace sensors and Sensor Integration Machines. No license required.	SICK AppManager

	InspectorP63x	**InspectorP64x**
	Programmable. Compact. Versatile.	Programmable. Cost-efficient. High-speed.

Technical data overview

Application development kit	SICK AppStudio	SICK AppStudio
Application management	SICK AppManager	SICK AppManager
Operator interfaces	Web server / SOPASair	Web server / SOPASair
Task	Positioning, inspection, measuring, reading	Positioning, inspection, measuring, reading
Technology	2D, snapshot, image analysis	2D, snapshot, image analysis
Sensor	CMOS matrix sensor, grayscale values	CMOS matrix sensor, grayscale values
Light source	White / blue	White / blue / red
Factory calibrated	–	–
Focus	Adjustable focus	Adjustable focus
Lens	C-mount or S-mount, exchangeable	Exchangeable (C-mount), to be ordered separately as an accessory
Optical format	1/1.8"	2/3"
Scan/frame rate	50 Hz	40 Hz
Resolution	1,280 px x 1,024 px (1.3 Mpixel) 1,600 px x 1,200 px (1.9 Mpixel)	1,600 px x 1,088 px (1.7 Mpixel)
Ethernet	✔ , TCP/IP	✔ , TCP/IP
Serial	✔ , RS-232, RS-422	✔ , RS-232, RS-422
CAN	✔	✔
Weight	430 g (only housing without lens and protective hood)	635 g (only housing without lens and protective hood)
Dimensions	108 mm x 63 mm x 46 mm (only housing without lens and protective hood)	142 mm x 90 mm x 46 mm (only housing without lens and protective hood)

At a glance

1.3 and 1.9 MP programmable 2D cameras - Flexible S- and C-mount lenses and integrated illumination *4Dpro* interfaces - Aiming laser, beeper and feedback spot - Powered by HALCON 12 library - Scripted in SICK AppStudio - Web operator interface	1.7 MP programmable 2D cameras - Flexible C-mount lens and integrated illumination *4Dpro* interfaces - Aiming laser, beeper and feedback spot - Powered by HALCON 12 library - Scripted in SICK AppStudio - Web operator interface

Detailed information	➜ www.sick.com/InspectorP63x	➜ www.sick.com/InspectorP64x

InspectorP65x	TriSpectorP1000
Programmable. Top performer. Long-range.	Tailor-made 3D solutions for flexible automation

SICK AppStudio	SICK AppStudio
SICK AppManager	SICK AppManager
Web server / SOPASair	Web server / SOPASair
Positioning, inspection, measuring, reading	Positioning, inspection, measuring, reading
2D, snapshot, image analysis	3D, LineScan, image analysis
CMOS matrix sensor, grayscale values	CMOS sensor, 3D measurements
White / blue / red	Visible red light (laser, 660 nm)
–	✔
Adjustable focus / dynamic focus control	–
Exchangeable (C-mount), to be ordered separately as an accessory / integrated	Fixed
1″	–
70 Hz / 40 Hz	2,000 3D profiles/s
2,048 px x 1,088 px (2.1 Mpixel) 2,048 px x 2,048 px (4.2 Mpixel)	0.049 mm/px / 0.215 mm/px / 0.43 mm/px 20 µm ... 50 µm / 40 µm ... 280 µm / 80 µm ... 670 µm
✔ , TCP/IP	✔ , TCP/IP
✔ , RS-232, RS-422	✔ , RS-232, RS-422
✔	–
635 g (only housing without lens and protective hood)	900 g / 1300 g / 1700 g
142 mm x 90 mm x 46 mm (only housing without lens and protective hood)	136 mm x 62 mm x 84 mm 217 mm x 62 mm x 84 mm 307 mm x 62 mm x 84 mm

- 2.1 and 4.2 MP programmable 2D cameras
- Flexible C-mount lens and integrated illumination
- *4Dpro* interfaces
- Aiming laser, beeper and feedback spot
- Powered by HALCON 12 library
- Scripted in SICK AppStudio
- Web operator interface

➜ www.sick.com/InspectorP65x

- 3D, 2D, and profile inspection of moving parts
- Imaging, lighting, and analysis in one housing
- SICK AppSpace, programmable 3D camera
- Full flexibility for tailored solutions
- SICK Algorithm API and HALCON
- Factory-calibrated 3D data
- Web user interface

➜ www.sick.com/TriSpectorP1000

RFU62x

Short-range ultra high frequency scanner

Technical data overview	
Application development kit	SICK AppStudio
Application management	SICK AppManager
Product category	Write/read device with integrated antenna
Note	SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)
Version	Mid Range
Frequency band	UHF (860 MHz ... 960 MHz)
Scanning range	≤ 2 m
Ethernet	✔ , TCP/IP
PROFINET	✔, PROFINET Single Port, PROFINET Dual Port optional over external fieldbus module
EtherNet/IP™	✔
EtherCAT®	✔ , optional over external fieldbus module
Serial	✔ , RS-232, RS-422, RS-485
CAN	✔
PROFIBUS DP	✔ , optional over external fieldbus module
DeviceNet™	✔ , optional available externally
USB	✔
CANopen	✔
Weight	780 g
Dimensions	137 mm x 131 mm x 56 mm

At a glance
• Compact UHF RFID read/write device with integrated antenna for scanning ranges of up to 1 m • Standard-compatible transponder interface (ISO/IEC 18000-6C/EPC C1G2) • Supports industry-standard data interfaces and fieldbuses, as well as PoE • microSD memory card for parameter cloning • Extensive diagnostic and service functions

Detailed information	➜ www.sick.com/RFU62x

RFU63x	RFU65x
Simple integration – intelligence included	The measuring RFID device with integrated passage and direction detection

SICK AppStudio	SICK AppStudio
SICK AppManager	SICK AppManager
Write/read device with integrated antenna / write/read device without integrated antenna	Write/read device with integrated antenna
SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)	SICK AppSpace functionalities can be enabled with the SD card accessory SDK6U-P00100 (for firmware ≥ 2.0.0)
Long Range	Long Range
UHF (860 MHz ... 960 MHz)	UHF (860 MHz ... 960 MHz)
≤ 10 m	≤ 10 m
✔ , TCP/IP	✔ , TCP/IP
✔, PROFINET Single Port, PROFINET Dual Port optional over external fieldbus module	✔, PROFINET Single Port, PROFINET Dual Port optional over external fieldbus module
✔	✔
–	–
✔ , RS-232, RS-422, RS-485	✔ , RS-232, RS-422, RS-485
✔	✔
✔ , optional over external fieldbus module	✔ , optional over external fieldbus module
✔ , optional available externally	✔ , optional available externally
✔	✔
✔	✔
3.5 kg	5.2 kg
239 mm x 197 mm x 40 mm 239 mm x 239 mm x 64 mm	400 mm x 252 mm x 70 mm

- UHF RFID read/write unit for industrial applications
- With or without integrated antenna, depending on the type (up to four external antennas can be connected)
- Standard-compliant transponder interface (ISO/IEC 18000-6C/EPC G2C1)
- Supports common industrial data interfaces and fieldbuses
- MicroSD memory card for device parameter cloning
- Several diagnostic and service options available

- Compact UHF RFID read/write device in accordance with ISO/IEC 18000-63
- Positioning and angle detection by RFID transponders
- Integrated algorithms deduce the direction of entry and movement based on numerous measured values
- Supports data and fieldbus interfaces that are typically used in the industry

➜ www.sick.com/RFU63x

➜ www.sick.com/RFU65x

SIM4x00

Flexible. Intelligent. Communicative.

Technical data overview	
Application development kit	SICK AppStudio
Application management	SICK AppManager
Operator interfaces	Webserver / SOPASair
Ethernet	✔
PROFINET	✔
EtherNet/IP™	✔
EtherCAT®	✔
IO-Link	✔
Serial	✔
CAN	✔
USB	✔
Inputs/outputs I/O S1-S4 S5-S8	 4 opto-decoupled inputs, 7 inputs/outputs (configurable) In each case 1 input, in each case 1 input/output (configurable) In each case 1 input, in each case 2 inputs/outputs (configurable)
Supported products	2D and 3D vision sensors Incremental and absolute encoders GigE Vision cameras Image-based code readers Bar code scanners RFID read/write device 2D and 3D LiDAR sensors Displacement measurement sensors Photoelectric sensors
Weight	5.12 kg
Dimensions	147 mm x 164.5 mm x 72 mm

At a glance

- Wide range of connections with 25 interfaces for Ethernet-based fieldbuses, cameras, illumination, sensors, encoders, and more besides
- 8-gigabit Ethernet interfaces for rapid image transmission
- Fieldbus and Ethernet interfaces with communication protocols such as OPC-UA and MQTT provide preprocessed data (edge computing) for the control and for cloud computing in parallel "dual talk", thereby allowing networking for digital factories.
- Precise synchronization of input and output signals
- Illumination control and supply
- IO-Link master connections
- Enclosure rating IP 65

Detailed information	➜ www.sick.com/SIM4x00

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,800 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations ➜ **www.sick.com**

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