

Basler AI Vision Solution Kit with Cloud Connectivity

YOUR STARTING POINT FOR THE NEXT GENERATION OF SMART VISION-BASED IOT EDGE DEVICES

**Vision based. Smart. Connected.
Powerful. Ready to use.**

AI Vision Solution Kit by Basler

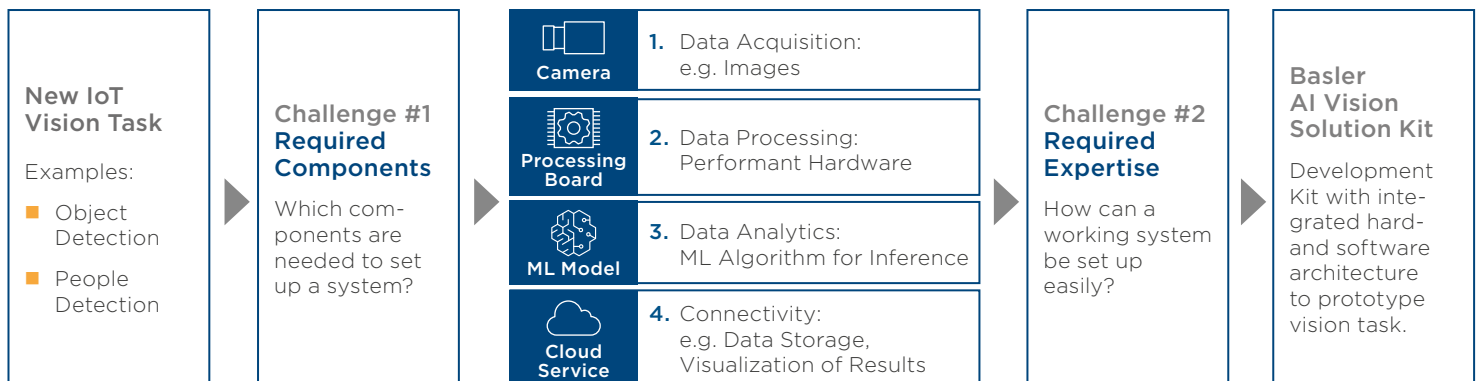
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The Internet of Things (IoT) and the many options for product enhancement that it provides are no longer a new phenomenon. Yet, developers still face significant challenges when being confronted with the development of new, vision based IoT tasks such as object or people detection, and others. First, they need to define all components needed to set up a system:

1. Data acquisition: A data stream of images, generated by a camera;
2. Data processing: Powerful hardware to process image data;
3. Data analytics: A Machine Learning algorithm needed to perform the inference and
4. Connectivity: Ability to use cloud services and send meta data to the cloud (data storage, analytics).

Secondly, all these parts have to fit together and operate seamlessly. Again, this requires extensive expert knowledge. Out of one hand, Basler offers the complete expertise needed to start developing an IoT vision system: With its AI Vision Solution Kit all necessary hard- and software components are integrated into a ready-to-use prototyping kit.



The AI Vision Solution Kit is Basler's answer to solve heterogeneous hard- and software landscapes when dealing with the prototyping of new IoT vision tasks.

TECHNICAL DETAILS

How It Works: The Functionality of the AI Vision Solution Kit with Cloud Connectivity

Targeted towards Data Scientists and Field Application Engineers, the AI Vision Solution Kit is an embedded vision system for easy prototyping of IoT vision solutions. Its integrated hard- and software design comprises Basler's newly developed IoT software architecture: Basler Container Management and Cloud Connector. They allow the easy deployment of optimized ML learning models and access to cloud services.

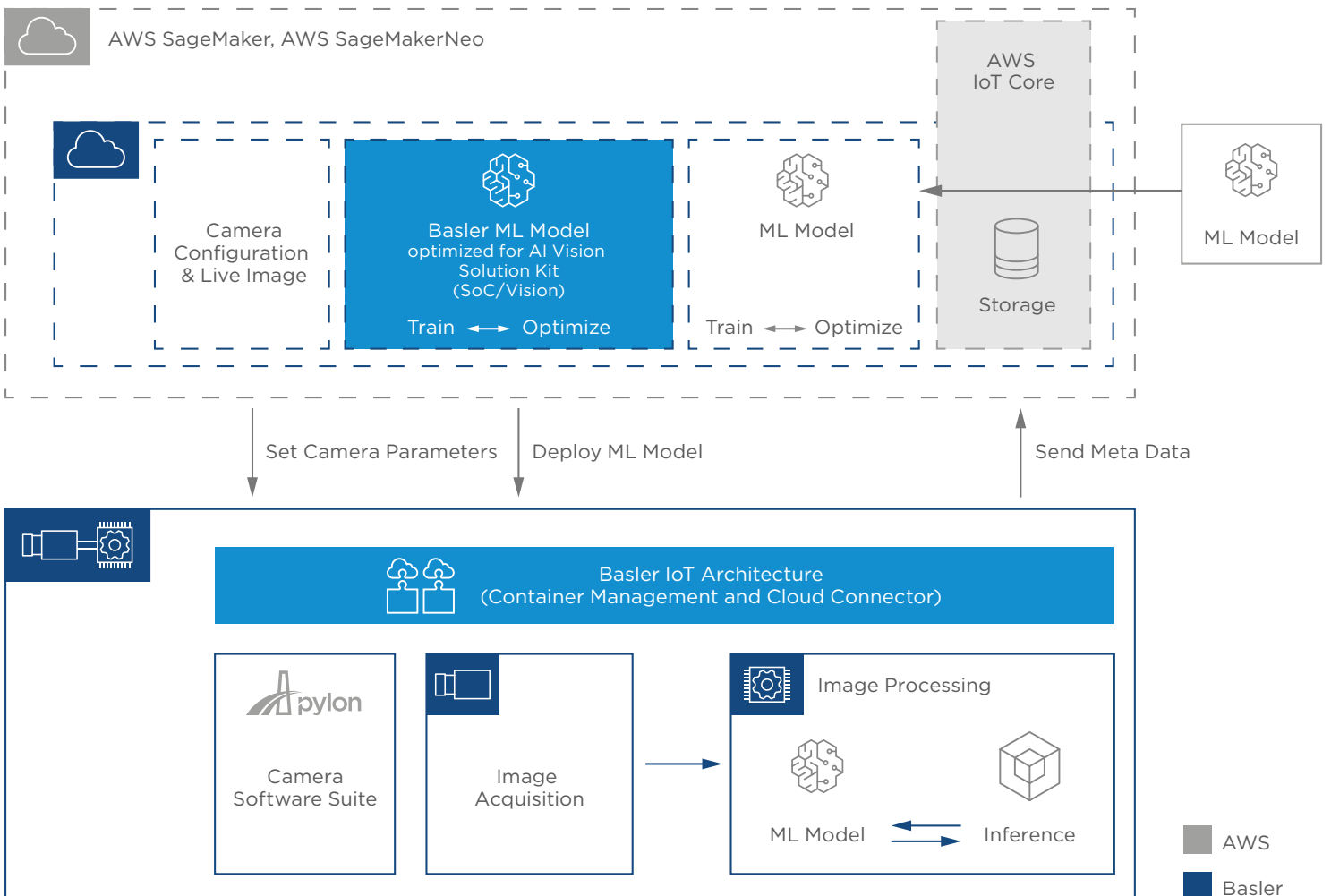
There are two options for machine learning models used on the system: Either Basler's ML models can be chosen or own ML models can be uploaded.

1. Basler's ML models are pre-trained ML models for object detection and people detection. These Basler ML models are optimized for the SoC and the generated image data: they seamlessly work together.
2. If developers use their own ML models, they are able to use the functionalities of AWS SageMaker and AWS SageMaker Neo to train, optimize and deploy them.

In the next step, the compiled ML model available in the Basler cloud is deployed on the kit using container management and AWS SageMaker.

Moreover, camera parameters can be adjusted using the camera configuration tool. pylon operates and configures the camera, a 13 MP Basler dart with BCON for MIPI interface. In this way, image quality can be adjusted and assured. This is important as the quality of the ML inference on the kit depends not only on the training of the model, but also on the quality of the acquired data from the camera and on the power of the processing unit. After the inference is done on the kit, resulting meta data is sent to the AWS cloud and stored using AWS IoT Core.

With the AI Vision Solution Kit, prototyping of IoT vision solutions based on embedded technology is taken to the next level. Basler also supports its customers beyond the prototyping stage and develops customized solutions based on its flexible toolbox approach of hard- and software components.



TECHNICAL DETAILS

Embedded Vision Solution Kit

The Basler AI Vision Solution Kit is a ready to-use development kit with pre-installed cloud connectivity. It provides an integrated IoT software architecture for the deployment of machine learning models from the cloud to the edge device.

Cloud Connectivity

- IoT architecture: Basler Container Management and Cloud Connector
- AWS (Amazon Web Services): SageMaker, SageMakerNeo, IoT Core

Application Software

- Basler optimized ML Model for AI Vision Solution Kit (SoC/vision): Object detection, people detection
- Deployment of other ML models possible



KIT	PROCESSOR	BOARD	ADAPTER BOARD
daA4200-30mci-JNANO-NVDK-AIA	NVIDIA® Jetson™ Nano	Jetson Nano Developer Board	Basler BCON for MIPI to Jetson Nano Developer Board

CAMERA MODEL	SENSOR	RESOLUTION [H×V PIXELS]	RESOLUTION [MP]	SENSOR TYPE	SHUTTER	FRAME RATE [FPS]	PIXEL SIZE [μm²]	OPTICAL SIZE
Basler dart BCON for MIPI								
★ daA4200-30mci ¹	AR1335	4208×3120	13.0	CMOS	Rolling	30	1.1×1.1	1/3"

¹ On-camera ISP.

★ New

About Basler

Basler is a leading international manufacturer of high-quality imaging components for computer vision applications. In addition to classic area scan and line scan cameras, lenses, frame grabbers, light modules, and software, the company offers embedded vision modules and solutions, 3D products, as well as customized products and consulting services. Basler's products are used in a variety of markets and applications, including factory automation, medical, logistics, retail, and robotics. They are characterized by high reliability, an excellent price/performance ratio, and long-term availability. Founded in 1988, the Basler Group employs around 800 people at its headquarters in Ahrensburg and other locations in Europe, Asia and North America. Thanks to its worldwide sales and service organization and cooperation with renowned partners, it offers solutions that fit for customers from a wide range of sectors.



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