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# **Kavian Afzar Co.**

**Vision-Guided Robotic Inspections**

## **Products & Services Catalog 2016-2017**





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# **Products & Services**

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Automated QC Workstations

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Vision-Guided Robotic Inspections



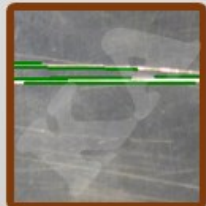
## KA 1038 Machine Vision Solutions

"Machine Vision Inspection System, KA 1038" measures visible features of fixed or moving objects in an industrial production line. System is customized and configured to inspect the geometrical, colored and textural features of objects and find their defects according to the extracted information of training procedure. From simple statistical techniques to complicated unsupervised classification procedures, KA 1038 uses various data analysis procedures based on machine learning techniques.



### Unique Image Processing Library

According to industrial requirements of visual non destructive tests, KA 1038 has been equipped with special processing methods.



### Camera Ready Interface

System is completely ready to connect to a large range of industrial camera models such as DALSA, AV, SONY, BASLER, POINT GREY, etc.



### Samples DB Management System

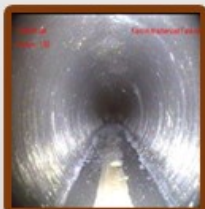
Based on a multi-layered and service-oriented architecture, KA 1038 uses a reliable link to MS SQL Server database and manages all relevant activities.

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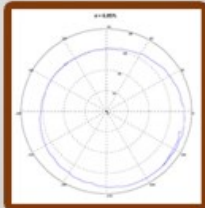
## KA 1881 Robotic Videometry Inspections

The acquisition and monitoring of inspected signals from robot and vehicle is managed by the KA 1881 software system. Multi-functional and procedural agents in each section do their tasks in parallel. Some of these agents are intelligent in processing core of system. The "Photogrammetry Console" of program can measure the dimensional features of defect images. It uses a calibrated drawing reference to measure the dimensional values on the image.



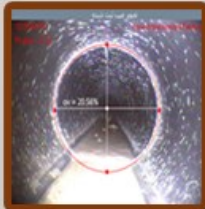
### Intelligent Monitoring System

The KA 1881 system inputs are included video camera signal, internal sensors' data of robot, sensors' output of inspection vehicle and the measured values of laser distance sensor.



### Standard Inspection Reports

System reports have a graphical data visualization structure. So instead of using a third-party report generator, a dedicated report agent has been designed and developed for an optimized performance.



### GIS-based Survey

Inspection results and other multimedia files of videometry are mapped on GIS shapefiles.

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## KA 2001 Robot Vision Solution

KA2001 provides a stereoscopic view for robot's path assigning. Actually it is a geometric vision system that provides feedback for the motion and position control of robot. A visual perception kernel in KA2001 is used to manage robot for more accurate, complicated and efficient translations and rotations. It means that the pick and place applications can be developed for more various machine trajectories.



### Flexible Path Planning

Constructing a motion model, point to point and trajectory tracking movements are done more efficiently.

### Android Remote Controller

Using API15: Android 4.0.3 (IceCreamSandwich) , jogging and training modes are supported by KA 2001.



### Robot Control Modes

KA 2001 runs some optional modern control methods to overcome dynamic and kinematic of arm joints. Sliding Mode Control class, LQG and Optimal Control classes compensate differential position and torque errors of motor actuators.



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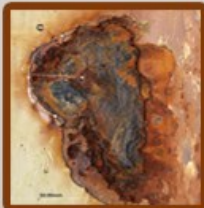
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## Immubot Plant Intelligent Guard

It's a quad copter robotic platform to detect the unsafe zones in industrial plants. It traces pre-learned or controlled paths and on gas leakage, high limit temperatures and some other parameters, generates real-time reports and alarms. It uses a standard and robust wireless protocol for robot control and video/data communications.

**PSM**  
**OHSAS**  
**HSE**



### Gas Detection and Monitoring

The guard is intelligent to sense and monitor the hazardous gases types including explosive or leakage from malfunction of the industrial processes.

The first four alkane gasses, fuel gases and smoke are sensed by robot eNose.

### Equipment Visual Inspection

Immubot flies to specific places & inspect the surface of equipment. The Operator moves the robot head in z-axis to give 6-DOF vision angles. There is a photogrammetry console in system's software to measure the actual values of defects for further maintenance operations. Mobile Visual Inspection is a key factor to use Immubot in your future plant safety programs.

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## Optoelectronic T & M Automated QC Workstations

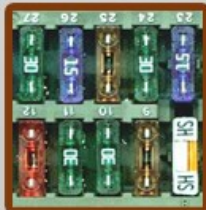
We design and develop optoelectronic based automatic test and measurement stations with the global most valuable instruments in the field layer, PLC Automation Ladders in control layer and ASHALogic Supervisory System in management layer. ControlNetVision is a label for all of our efforts to introduce Optoelectronic products and services in an integrated plant-wide control system. It is completely developed on Control Systems Technology, Machine Vision, Expert Systems and Industrial Networking.

### Field Instruments

We supply fiber optic & laser sensors, real-time photonic analyzers, color sensors, illumination sources and industrial displays for automated T & M workstations.

### Project Discipline

In all projects, measurement traceability and uncertainty are obtained clearly by mathematical evaluating of test procedure. By the way, precision measurement and measurement standards are controlled with calibration routines regularly.



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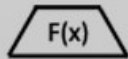


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