



**AUTOMATED VISUAL
QUALITY INSPECTION**

WITH ARTIFICIAL
INTELLIGENCE (AI)

FIND OUT MORE:
WWW.PREML.IO

WELCOME!

We are an AI Startup from the Black Forest and develop automatic visual quality inspection systems with artificial intelligence (AI).

With our strong computer science background, we have created a software environment from which we can quickly design customized inspection solutions. We focus on the construction industry but also have customers from a wide range of industries. We are problem solvers and long-term partners with our customers, which is why they are happy to serve as references for us in the following pages.

Convince yourself! Learn more about us, our software, and the current use cases in the brochure. Feel free to request a free technical feasibility check for your use case at any time!

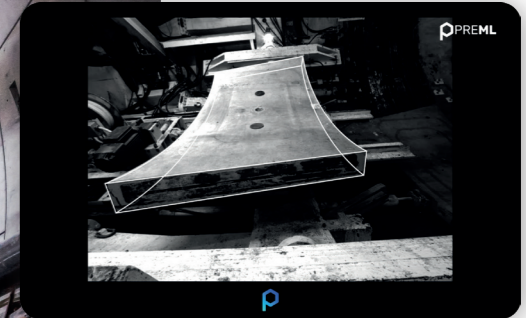
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QUALITY INSPECTION UNDERGROUND

Our customer is the world market leader in tunnel boring machines, and this application is used underground. In modern traffic tunnel construction, individual concrete segments are assembled into rings. Our customer wants to check for defects in the elements directly before the segments are installed. In close cooperation with the customer, preML developed a software solution that reliably meets these requirements.

Industry	Construction Industry (Tunneling)
Materials	Concrete with built-in parts
Dimensions	2 x 3 meter
Assignment	Inspection of surface (cracks, spalling), installed parts, identification
Highlight	AI algorithm for crack detection in concrete with 2D cameras
User objectives	Reliable control & documentation, employee safety, autonomous production
Customer	VMT GmbH



VIDEO OF THE APPLICATION:
WWW.PREML.IO/SC-DEMO

CVC INSPECT – THE HEART OF AUTOMATED INSPECTION

Each of our systems for automatic visual quality inspection is customized to our clients. We believe this is necessary due to the differences in situations, requirements, and objectives. CVC Inspect is the software environment that allows us to do so.

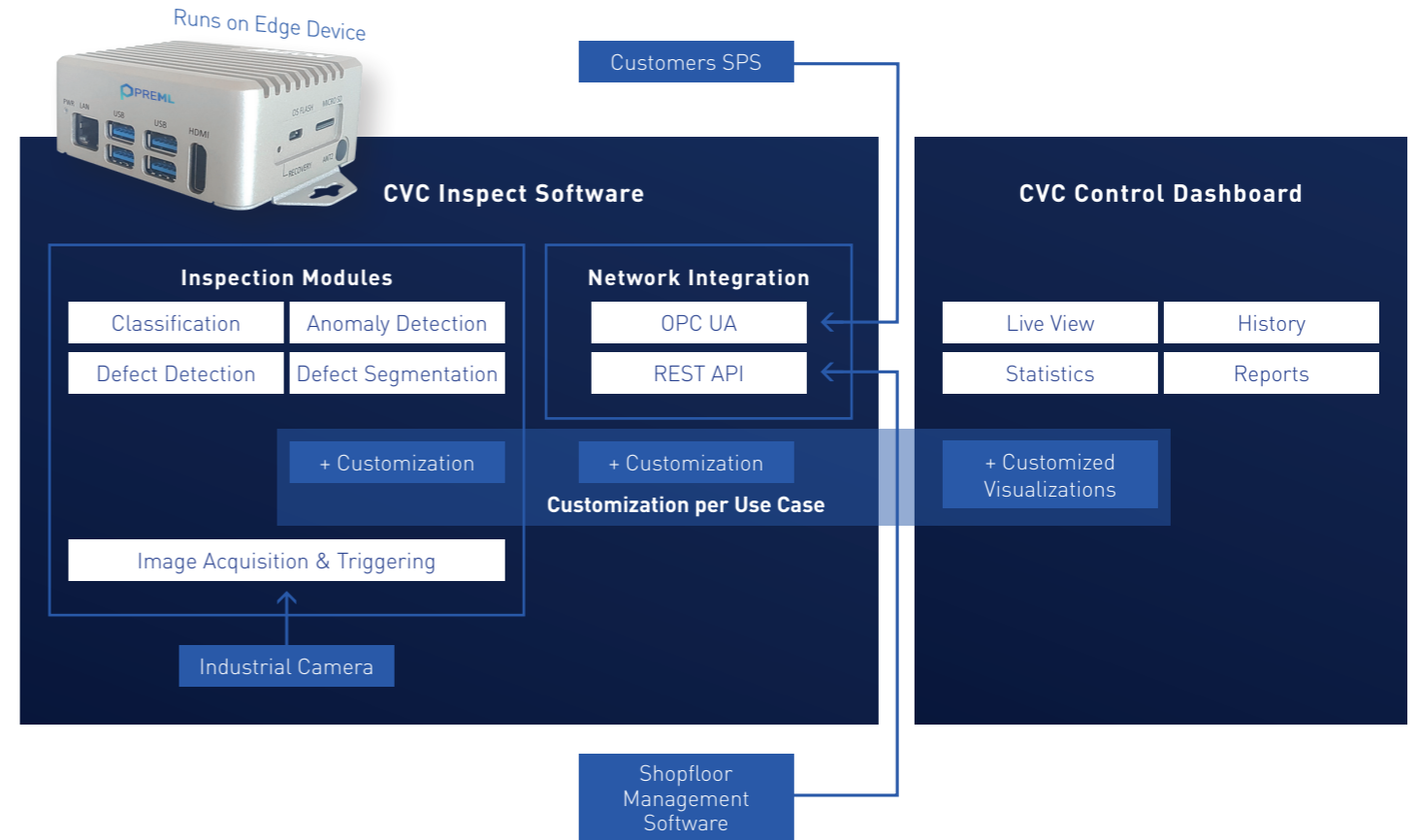


The CVC Inspect consists of:

- Pre-built modules for defect and anomaly detection
- Infrastructure for training AI networks
- Components for reading image sensors and production data

Advantages of AI-based quality systems:

- Faster setup of the system
- Adapts to individual quality needs
- Detection of any type of anomalies
- Well usable with a high number of variants
- Minimization of pseudo scrap



CVC CONTROL – VISUALIZE, INTERACT AND ANALYSE

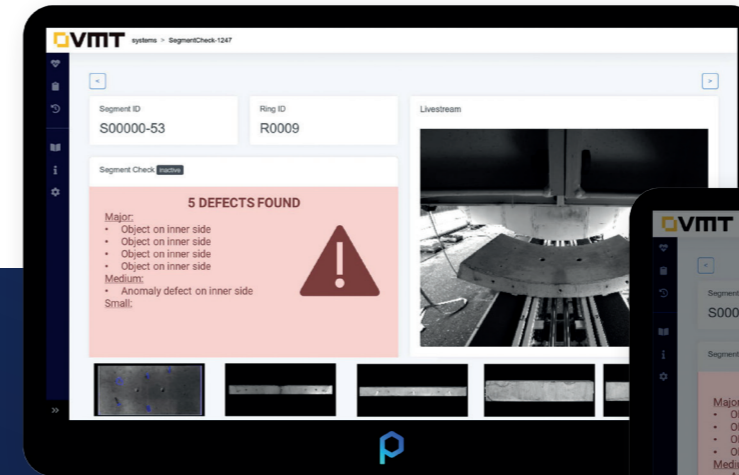
Dashboard usability is our top priority. We want to give our users in the factory and the quality department complete control over their system. In developing CVC Control, it was important to make it user-friendly and its intelligence easy to use. Therefore, all data generated during inspection and operation is accessible. By doing this, we enable our customers to unlock cross-production potential. Like CVC Inspect, the dashboard can be easily customized according to individual needs.

Functionality:

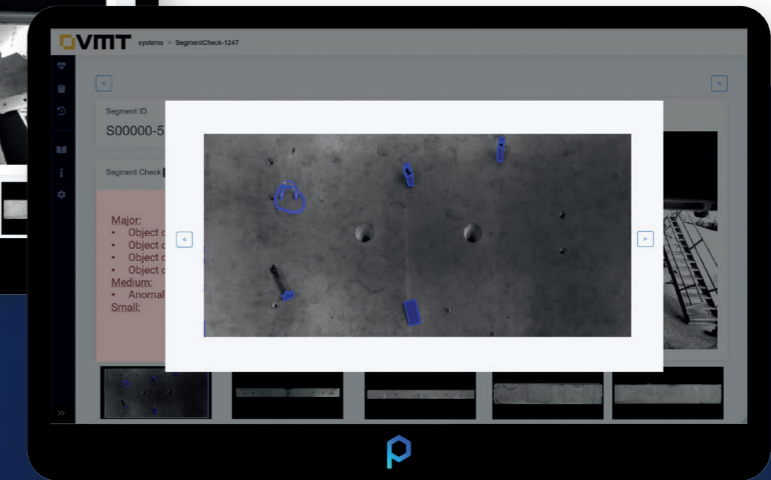
- Settings of the inspection system
- Real-time visualization
- Evaluations & Statistics
- Documentation & Reports



Standard View – Defect Found



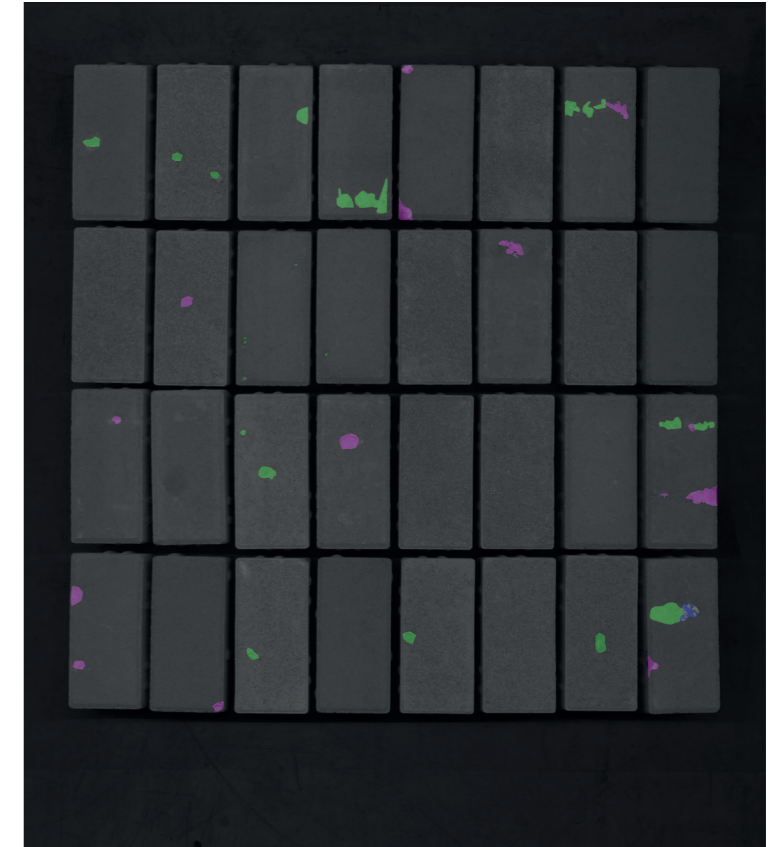
Detail View – Defect Visualized



END-OF-LINE SURFACE INSPECTION FOR BLOCKS

Our customer provides quality control systems for manufacturers of concrete blocks. So far, only altitude information was used for this purpose. With preML's help, the development of a 3D inspection system could be implemented, which additionally recognizes anomalies, such as lifts, chipping, holes, cracks, etc. In the most advanced version, the system combines image data from a 3D sensor and a 2D sensor to maximize quality control. In the project, preML delivered the core AI and classical algorithms to detect the defects in the 2D and 3D images.

Industry	Construction Industry (Smaller concrete products)
Materials	Concrete blocks on a production plate
Dimensions	1 m ² production plate with multiple blocks
Assignment	Inspection of surface anomalies (lifts, chipping, holes, cracks, etc.) and size anomalies
Highlight	1 m/s production speed & high product variety
User objectives	Early defect detection (wet side), direct feedback to optimise production, reduction of scrap
Customer	R&W Industrieautomation GmbH



PROJECT FLOW AT PREML



Feasibility check

Together we discuss and review your use case. A positive result consists of technical feasibility, economic efficiency and achievement of your specific quality requirements. We offer this service free of charge.

FREE OF CHARGE



Proof of Concept (PoC)

Sometimes we can not determine feasibility with certainty without a Proof of Concept (PoC). In this cases we do some tests in our lab or directly at the production facility. As a result, you receive PoC results as well as specifications and a offer.



Implementation

We install the hardware in your production environment. This allows us to collect real data, train our models and improve our initial model until we reach the maximum optimization. This phase ends with an acceptance test.



Roll-Out

Whether you purchased our system to reduce costs or to generate new business, as of now, you are ready. Even after application implementation, you are in good hands with us. Choose between different subscriptions and benefit from our support and regular updates.

Our onboarding process minimizes your risk and is field-proven.

PROBLEM SOLVING FIRST – WHO WE ARE

We are problem-solvers, AI specialists, and customer service enthusiasts. We believe in our holistic approach to providing our customers with a turn-key visual quality inspection solution. We established this company in 2020 to become a long-time partner with our customers. We want to develop, grow, and stay with them for the next 25 years.

Our Network & Partners:





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SCAN TO SCHEDULE A LIVE DEMO:
WWW.PREML.IO/SCHEDULE-DEMO