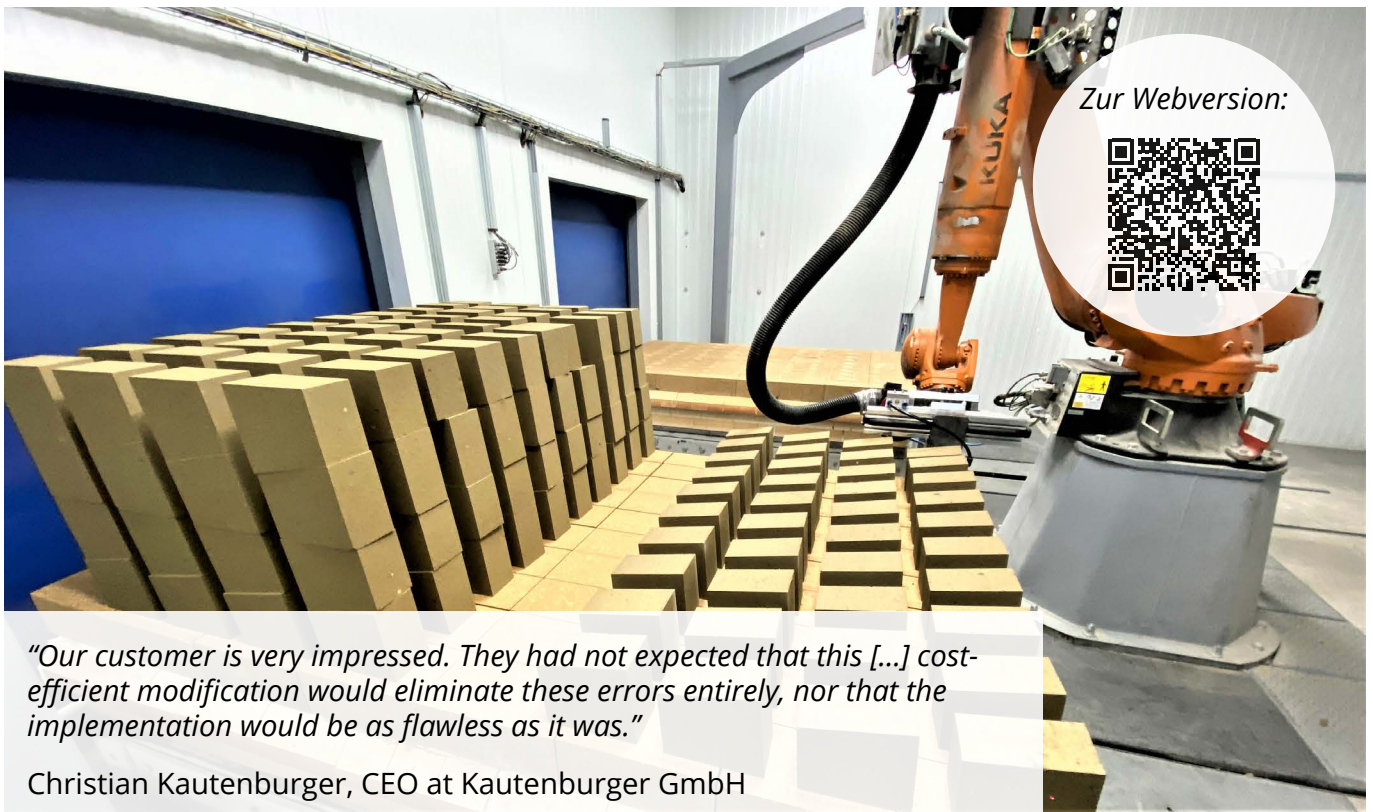


## Robot Vision System Improves Industrial Automation

How Adding a Robot Vision System Led to an Increased Robustness and 50% Reduced Cycle Time in Refractory Bricks Production Processes



*"Our customer is very impressed. They had not expected that this [...] cost-efficient modification would eliminate these errors entirely, nor that the implementation would be as flawless as it was."*

Christian Kautenburger, CEO at Kautenburger GmbH

Some industrial automation processes look straightforward at first glance, and sometimes the challenges materialize only over time: In this case, the addition of a robot vision system into the automated handling process of oven bricks solved issues caused by ever-so-slightly shifting positions and changing shapes of these bricks during their processing.

Since 1990, Kautenburger GmbH (Germany) is setting standards in the development of innovative products and systems in industrial automation. Among their customers is Refractarios Kelsen S.A. (Spain). The company produces refractory components and solutions that include fire clay bricks, fireproof bricks used for lining furnaces.

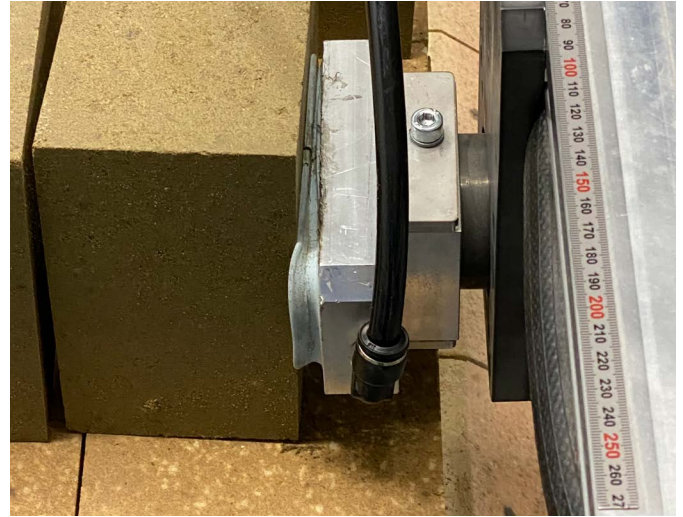
In the production process, these bricks are stacked onto wagons, which transport them into an oven for hardening. Such bricks can come in well over 100 different shapes and sizes. In addition, in or-

der to optimize the hardening process, they are stacked in very specific patterns.

### **The Devil is in the Detail: A Seemingly Easy Automation Process Proves Tricky**

"Stacking the bricks onto the wagons robotically is not a great challenge in terms of automation," says Christian Kautenburger, Managing Director of Kautenburger GmbH. "However, during the processing and transport the bricks will – even if only slightly – change their shape, and their positions may shift as well.

Hence, simply reversing the palletizing procedure in order to de-palletize them, has led to issues: The lack of millimetric precision means the robot may be unable to grasp stones, as it cannot achieve a vacuum. On occasion, it can even cause the delicate stacks to tumble over. This leads to downtimes, waste and requires human intervention, making the automated handling somewhat inefficient."



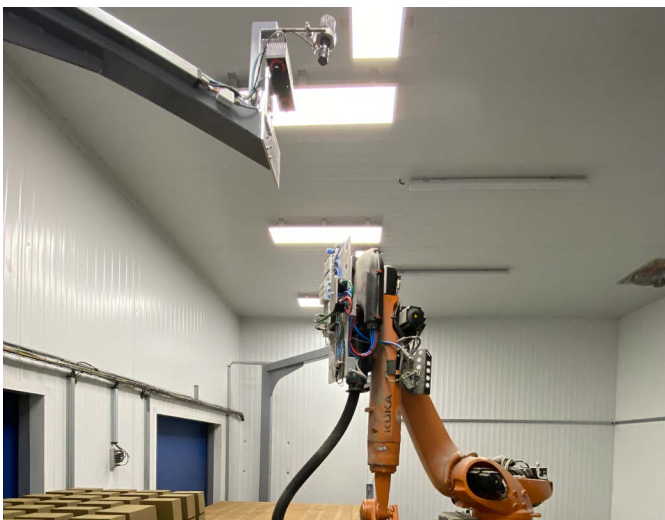
### **'Eyes and Brains' do the Trick: Off-the-Shelf Robot Vision System Eradicated Errors and Reduced Cycle Times by 50%**

Using Roboception's rc\_visard 160m together with an rc\_randomdot pattern projector and the rc\_reason BoxPick module, Kautenburger has implemented a solution that eradicated these problems:

Thanks to these 'eyes and brains', the robot vision system detects the bricks simply by identifying their rectangular shape. It provides the robot with precise grasp points – fully independent of the brick's type, position, angle, or orientation.

With the cycle time for a pick-and-place reduced from 18 to nine seconds and literally no downtime, Refractorios Kelsen now benefits from a significantly quicker, fully automated handling process.

Another aspect in favor of Roboception's sensor: The comparatively large baseline of 160 mm allows the coverage of the entire width of the wagon (1.600 mm) in one take. Its mounting above the Area of Interest rather than on the robot arm enables the detection of the next grasp point to take place while the robot is still executing the previous 'place' process.



### **Roboception GmbH**

'Eyes and Brains for Your Robot': Roboception is a leading provider of intelligent robot vision platforms and systems. The Munich-based company enables robots to see and think, thus providing key elements for flexible automation solutions in Industry 4.0.

Roboception supports integrators and end users in creating innovative automation solutions for the future-oriented use of robots in production and logistics.

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