3DGence
CASE STUDY

BALLUFF

production tools

INDUSTRIAL AUTOMATION

3D printout of an assembly element

Company

Balluff is a global supplier of solutions for all areas of automation, including products or industrial image processing, such as vision sensors or cameras with integrated software.

Project

Creation of an assembly element for CCTV cameras for a test bench with the use of 3D printing.

Challenge

Balluff company offers its customers to carry out tests of their vision systems in strictly determined environment conditions created in the in-house laboratory. One of the key element of such tests is the proper installation of CCTV cameras. They are the main element of the vision system under test and their proper setting is crucial for the whole process. The company offers a series of such cameras, which differ with technical parameters, electronics and geometry. This process requires the use of assembly element individually adapted to the size of the camera and application.

Data project

	External providers	3D printing at the company
Costs	940 EUR	12 EUR
Time	21 days	30 minutes
Material	aluminium	ABS

Assembly elements were made with the use of 3D printing technology.

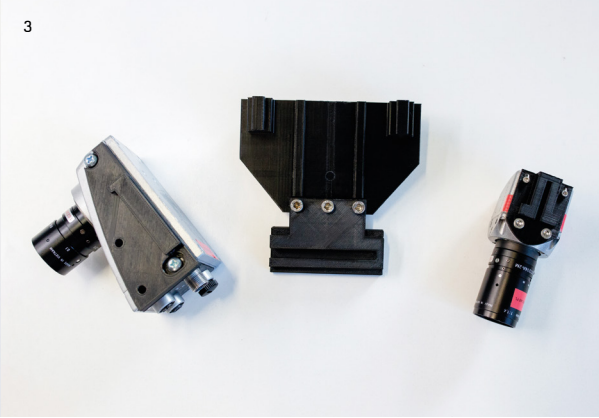
Goals:

1 Acceleration of the process of vision tests

Before the introduction of 3D printing at the company, Balluff had been using universal articulated arms with six degrees of freedom. The drawback of such solution was a time consuming installation of cameras or lights. It used to take even 4 hours and required may settings and angle rotations from the operator. **With a 3D printer Balluff managed to shorten the test bench assembly time to several minutes, thanks to using dedicated brackets.**

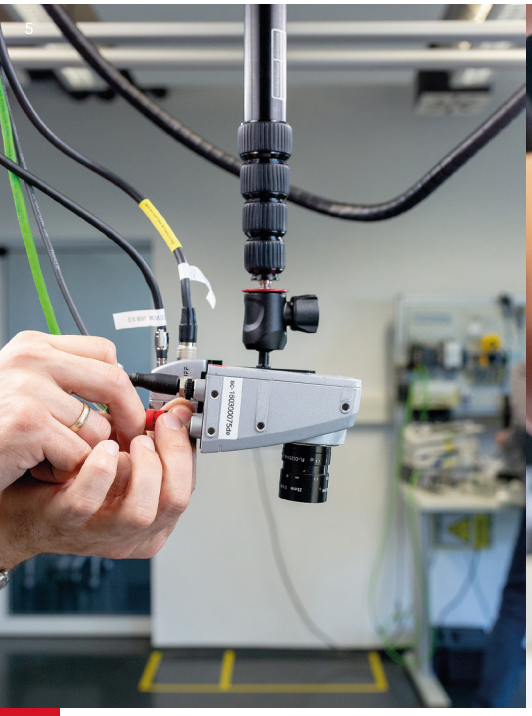
2 Professional report on a vision solution

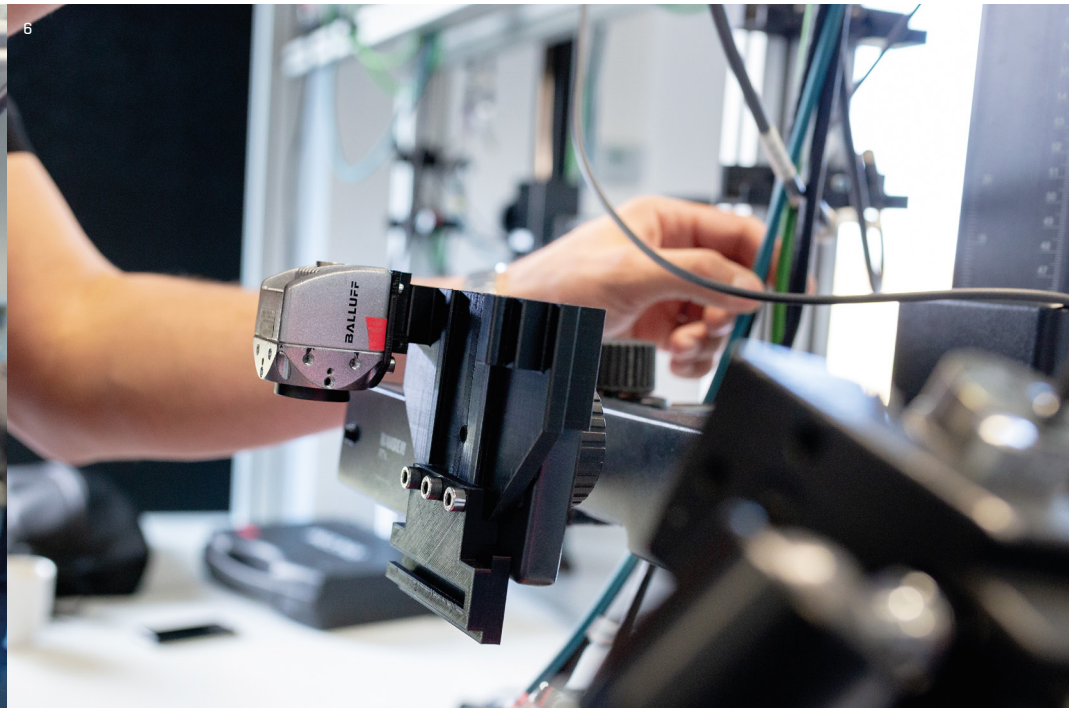
There is not much space for additional elements at the test bench, and the ready-made arms are quite large, which looks hardly aesthetic. The deliverable of each vision test is a report prepared for the customer, comprising photos of the application in test conditions. **3D printers enable the company to print dedicated assembly elements which look professionally, and this translates into a positive reception of the report by the customer.**



1-4. 3D printed assembly elements.

5-6. Thanks to 3D printing Balluff adjust all of the assembly elements to its solutions.





Why 3D printing?

Implementation of 3D printing at the company is related to a series of advantages. With 3D printing technology Balluff engineers may design completely new models which extend opportunities for ready solutions. In that way, completely new assembly elements are created for test benches where vision application tests are carried out. The cost of manufacturing such elements with a conventional method is too high, therefore, the company has never decided to produce dedicated assembly elements. Due to the lack of assumed geometry, any additional improvements (e.g. on account of bad fitting) in the models would result in additional costs and extension of the time of performance.

The use of 3D printing inside the company shortened the time and reduced the cost of testing vision systems. The low cost and easy operation of the 3DGence devices allowed Balluff to quickly implement the new technology.

How was it done earlier?

Before the introduction of 3D printing at the company, they had been using universal articulated arms with six degrees of freedom. The drawback of that solution was mainly its time-consuming installation, which required many settings to be done by the operator. What is more, there is not much space for additional elements at the test bench, and the so called magic arms are quite large, that caused the test stand to look unprofessional.

The advantage of use 3D printing technology

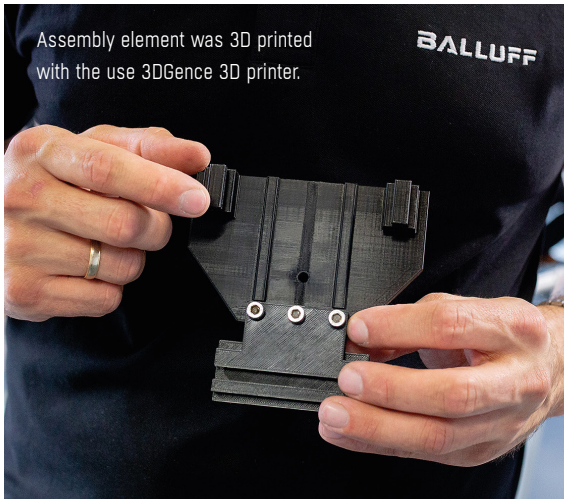
- Getting light and rigid 3D prints
- Easy to process assembly elements
- Low production costs for new parts
- Extension of a ready company solution
- Short production time for new components

We have been investing in new technologies all the time and we are not afraid of using them in our daily work. 3D printing at the company enables the delivery of highly professional solutions to our customers, which are tailored to their needs. Particularly in vision applications the stability and repeatability of the vision are important.

Since we have a 3D printer at the company, we may adjust all of the assembly elements to our solutions.

What is more, if we need to get a part really fast, it is a great advantage not to be forced to use the support of third parties. The very process of preparing a cost estimate, submitting a quotation, its acceptance and ordering a 3D print is very long, and for us the lead time is highly important in the performance of projects. Additionally, we may control the geometry of the printed elements at any moment. When outsourcing the project, we would lose at least a fortnight on fitting adjustments and we would incur additional costs. In house, we may print a new model in only a dozen of minutes.

Rafał Siwek, Technical Application Engineer



Assembly element was 3D printed with the use 3DGence 3D printer.

The installation of CCTV cameras on test benches is much easier and faster thanks to the 3D printed elements.

As a company dealing with automation of various production processes, we focus mainly on Industry 4.0. All of our solutions, including vision applications, are created in-house. Since we have the 3D printer, the culture of work at the laboratory has improved, in the first place. Now, we may make an assembly element very fast to adjust it to the specific cameras and the respective test bench. We cared to accelerate the very process of carrying out the vision test.

We have managed by way of implementing the 3D printing technology at the company.

Szymon Gumółka, Marketing Manager

Watch the video

3DGence is a Polish manufacturer of 3D printers specializing in the development of new technological solutions and the implementation of 3D printing in industrial enterprises.

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