

The marking reveals the counterfeit

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Although we humans can rarely tell a fake component from a genuine one, there are always small deviations in the marking and in the plastic which is different. Israeli Cybord has developed an AI solution that, based on the images from the assembly machines in the production line, distinguishes fake from real.

- The assembly machines always take pictures of the components, which they throw away after a few milliseconds. Do not do it! Let's use them to determine whether components are real or fakes, says Cybord's Zeev Efrat when I meet him at Electronica.

The company is barely three years old but already has paying customers for its innovative method of finding fake components.

The principle is simple, train the algorithms with images of components that you know are genuine. Then it is just a matter of comparing these with pictures that the assembly machines take. There is thus no need for a new machine in the production line, just that the images are uploaded to Cybord's cloud solution where the comparison is made and where the results are saved.

The learning of the algorithms is based on what is printed on the components, as well as the structure of the plastic and other things characteristic of the enclosure. If it is not a genuine component, there are always small differences compared to the original, which are not always possible for a human to detect. To get access to the machine-taken images, the company cooperates with most of the major machine suppliers.

- There are ASM, Fuji, Yamaha, Universal, Panasonic, the newer ones from Mycronic that don't use lasers and the new ones from Juki.

The comparison is almost in real time, it does not take more than a few hundred milliseconds per component. It can be added that in addition to finding fake components, you can also see cracks, bent legs and other defects on the components.

In principle, it would be possible to tell the machine to discard the component instead of mounting it, but currently they cannot receive that kind of information.

- We are working on it with ASM. In addition, it is possible to go back and retrieve all data if, for example, a complaint should arise.

Cybord does not try to sell the solution to the machine suppliers nor to the contract manufacturers. The target group is large OEM companies such as Nvidia, Intel, Microsoft and Siemens.

The logic is simple. For machine manufacturers and EMS companies, it would mean another cost in an industry with small margins.

- It is the OEM companies that receive complaints from customers when there are problems, and they have better margins.

Both OEMs and contract manufacturers get access to the results. The latter see the benefits and become ambassadors for the technology.

Cybord has also developed a solution for customers who want to find fake components before they are loaded into the assembly machine. It's a machine with a camera that peels off the tape, inspects the components, and then applies new tape. The machine itself comes from a third-party vendor that has integrated Cybord's software.

The company has 30 employees and expects to turn over two million dollars this year. The customers are almost exclusively in the USA.

- In the beginning, we scanned a million components per week, we thought that was fantastic. Now there are 250 million per month that we scan, and that is just the beginning, says Zeev Efrat.