

Intelligent gloves

Industry 4.0 refers to connected manufacturing. But the term also stands for ingenious ideas and innovative developments, many of which stem from forward-looking start-ups. Some of these entrepreneurial ventures specialize in finding new ways to make production more efficient, faster and more automated. One way to achieve that in the manufacturing and logistics sectors is with wearables, which are accessories and items of clothing that are packed with technology. ProGlove is one start-up company that specializes in making wearable devices.

Right now, the most popular wearables in industrial settings are smart watches and smart glasses – but ProGlove is in the business of smart gloves. Its latest model of intelligent glove, Katharina, shows the wearer whether they are correctly performing the steps in a process. The company's initial model, Mark, features a built-in barcode scanner that reduces error rates in tasks such as order picking. ProGlove was founded in 2014 by Thomas Kirchner, Alexander Grots, Jonas Girardet and Paul Günther. Since then, they have made a name for themselves with their Mark glove in entrepreneurship competitions and among investors, raising plenty of seed money in the process. But how did these four innovators come up with the idea of an intelligent glove four years ago?

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>
> Paul Günther, co-founder of ProGlove

Paul Günther used to host regular tours of a major automaker's factory, showing groups of visitors how the plant operated. That gave him some key insights into how the processes worked, and two things really stood out. First, the importance of getting the sequence of process steps exactly right and, second, the benefits of speeding up processes even just a bit. "Even if you optimize a tiny part of the process, the leverage is enormous. After all, factory workers don't perform an action just once, but maybe 500 or even 1,000 times a day," says Günther. And that's where smart gloves can really make a difference.

By pressing together the tips of their thumb and index finger, the wearer can activate the scanner built into the Mark glove. They no longer have to reach for a scanner every time they need it – and that saves an estimated three seconds per scan. In total, that can save up to 50 minutes over the course of an average workday. Right now, the companies testing the Mark

glove are mostly large automakers, but there are plenty of other potential applications.



ProGlove is in the business of smart gloves. Its latest intelligent glove, Katharina, shows the wearer whether they are correctly performing the steps in a process. The model Mark features a built-in barcode scanner that reduces error rates in tasks such as order picking. Any industrial sector that involves logistical tasks could benefit from intelligent gloves. (Picture: ProGlove)

In fact, any industrial sector that involves logistical tasks could benefit from intelligent gloves. The company is already busy planning its second model, Katharina. Unlike Mark, Katharina features a built-in display that shows the upcoming steps in a process and the tools the wearer will need. The glove uses sensors to detect whether the wearer has picked up the right tool, and gives feedback by vibrating. Katharina benefits new workers in particular, making it easier for them to find their feet on the factory floor and helping them avoid elementary mistakes.

TRUMPF also strives to make production processes more efficient. Customers in the United States have the option of using smart glasses to speed up repairs when they have a technical problem. Once activated, the glasses automatically film exactly what the customer is looking at and stream the video feed in real time to an experienced service engineer. Drawing on virtual information, drawings and videos, they can then solve the problem together. This saves time and money, as the engineer doesn't need to travel to the site and back.



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Technical advances are making wearables an increasingly attractive option for manufacturing companies. This is largely so because sensors, wireless technologies and systems are becoming cheaper and more accessible, which makes it easy to incorporate them into manufacturing processes. Perhaps the most important fact of all is that nobody loses their job – this new development provides people with crucial support, but it doesn't replace them.

Experts agree that the human-machine interface is a key aspect of Industry 4.0. By focusing on that facet of the production process, smart wearables offer real potential to enhance collaboration between humans and machines.