



— CATHARINA DAUM

## 007 in sheet metal production: Indoor GPS locates parts with centimetre precision

**The French start-up BeSpoon aims to simplify production processes with innovative software solutions. One of these is the so-called "indoor GPS", which locates products with an accuracy of just a few centimeters.**

"For things to remain the same, things will have to change." Jean-Marie André's favorite quote from Giuseppe Tomasi di Lampedusa's novel "The Leopard" reveals a lot about BeSpoon's CEO. "Change is the key to staying ahead of the curve. As an engineer and innovator, I see progress as my closest ally." Headquartered in Le Bourget du Lac, the French start-up BeSpoon has set itself the task of simplifying production processes using innovative solutions. One of its most inventive solutions is a form of "indoor GPS". Using GPS in enclosed spaces has never been a realistic option because satellite signals struggle to pass through thick materials such as walls – but now BeSpoon has found a way around that problem. The company's locating devices, known as satellites, can locate products down to a few centimeters. That is a groundbreaking development, and it confirms BeSpoon's status as a pioneer in efforts to determine the location of objects inside buildings and production environments.

### — Positioning made easy

The French research lab CEA LETI had already been working on the concept of indoor GPS for ten years when the researchers decided to approach BeSpoon's founders to suggest embarking on a collaborative project in the year 2010. The basic idea was to make a novel use of radio waves to measure distances accurately in enclosed spaces. "We published our research results in a study, and when somebody at TRUMPF read it, we were suddenly on their radar," says André. In 2017, TRUMPF acquired a 60-percent stake in BeSpoon. Prior to that, Jean-Marie André hadn't even heard of the Ditzingen-based machine maker. He and his colleagues had been busy focusing on applications such as tracking athletes on court, for example during basketball games. Back then the French company had no idea that their indoor tracking system had the potential to eliminate



a major time-waster from many sheet metal fabricator's shop floors – the tricky task of locating parts.

— **No more hide-and-seek**

Low-volume jobs make up an increasing proportion of the sheet metal fabrication business. Many job shops are finding it harder than ever to keep track of which stage each job has currently reached and where the parts are stored between stages. Yet transparency is essential to keeping things running smoothly, especially when dealing with urgent orders that have tight deadlines. "Metal and radio waves are not a great mix. That's why indoor positioning in the sheet metal fabrication business has never really been an option. But our product changes that. By using high-precision yet robust ultra-wideband radio technology, or UWB, we can track objects even when they are surrounded by lots of metal."



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– Niels Schubert



Ever smaller chips: A crucial part of the process.

– Niels Schubert



Prototype: What the markers looked like during the test phase.

– Niels Schubert



Marker: Users can transfer the order number and other information digitally onto the e-ink display of the marker. They can then simply place them on or beside the parts of the order.



Satellite: Satellites installed in the production facility pick up the markers' location and transmit the information to an industrial PC.



This enables sheet-metal manufacturers to track orders, load carriers and means of transport and thus optimize processes.

— **Simple, yet groundbreaking**



