



Robotics Projects: Software as Key to Success

Since the market for special machine construction cannot implement the flexible automation solution that Primus Präzisionstechnik needs, the team decided without further ado to implement the robotics project itself.

Artiminds. Since its foundation in 1978, Primus Präzisionstechnik in Bückeberg, Lower Saxony, has built up a good reputation as an independent system supplier for efficient drive solutions. The family-managed company employs 110 people who develop and manufacture special gear units with power ratings of up to 100 watts for customers in the automotive sector, building automation and medical technology.

"We are a solution provider," says Managing Director Thorsten Völz. "An idea service provider, in a manner of speaking, with an affiliated production facility with a high production depth. The in-house options comprise of turning, milling, assembly and all associated sub-processes." The company has been

practicing the much-vaunted Industry 4.0 for many years now, automating and digitizing as many processes as possible with the aim of maintaining a high level of repeatability and process stability, even for large volumes. This is the case with a force-controlled pick-and-place and joining process in which small gearboxes are produced from several individual parts for a customer in the automotive industry: The task here is to fit three shafts and five gears into a gearbox housing. Before placement, the individual parts are also greased. Approximately 250,000 of these gearboxes are manufactured by Primus each year - until now manually. "This is a complex application with many process steps and different components that need to be

assembled into a gear motor, which is later sealed airtight," Völz tells us. "It is therefore vital that all components are assembled completely and correctly. And this is where, unfortunately, people are sometimes the weakest link." To improve product quality and process stability and reduce costs through better dosing of the grease, Primus decided to automate this production step robotically. "We ultimately failed to have a suitable specialized machine built for this purpose," the Managing Director elaborates. The fault lies in the high number of variants and the fact that the intelligence required for the application was not available for the planned budget. "For a standard application, the perfect machine would have been available to us, producing 100,000 parts in a cycle-optimized manner," Völz recounts. "But then, we wouldn't have had any influence on changes, modifications and the different variants." That was not what Primus wanted. "We had to decide on how to proceed," explains Sascha Schwier, Technical Manager at Primus Präzisionstechnik. "Either we design the system completely for accuracy, or we equip it with intelligence so that we can also use it to manufacture other products and reproduce different process steps." A decision was made in favor of the second option. "Our concern with automation was not about optimizing cycle times, but about increasing process accuracy and achieving stable repeatability. Since we wanted to remain flexible in terms of implementation and hardware selection, we decided to start on a greenfield site and tackle our first robotic cell in-house, although we still lacked previous experience in robotics," the Managing Director sums up.



With the help of ArtiMinds LAR Primus is able to take a targeted approach to process optimization and troubleshooting.



