



SHINY SURFACES THANKS TO SIMPLE AND INTUITIVE ROBOT PROGRAMMING

Leading system provider for grinding and polishing processes develops new robot application for force-controlled surface processing with the help of the programming software ArtiMinds RPS.

The core competence of Visomax Coating GmbH, based in Waldbüttelbrunn near Würzburg, Germany, is the post-processing, i.e. grinding and polishing, of painted surfaces. For this, the company offers high-end process solutions.

The international customer base of the leading system provider ranges from automobile manufacturers, suppliers, industrial and vehicle paint shops to furniture manufacturers for high-gloss kitchens or manufacturers of musical instruments.

It is particularly important to the young, dynamic company to develop individual, uncomplicated, but above all efficient solutions and products for its customers. It is therefore no wonder that Visomax regularly evaluates innovative and new technologies in order to simplify and optimize the process of surface treatment.

When conventional robot programming reaches its limits

In 2016, Ludwig Kemmer, responsible for robot programming, was looking for a way to automate the polishing of defective spots on components in order to make it more efficient. The complexity of the application put Kemmer in front of a difficult task: "Our greatest challenge is to remove defects that are located at different points on each component. This could not be solved with classic robot programming".

During his research, he came across the software ArtiMinds Robot Programming Suite (RPS) from the analogously named manufacturer. Its simple and flexible usability as well as its wide range of applications quickly convinced him: "With ArtiMinds, new robots can be integrated in all kinds of applications with ease. Simply select robots and additionally connected components

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Ludwig Kemmer, responsible for robot programming at Visomax Coating GmbH

in the RPS and you are ready to go. The integrated CAD2Path function makes it possible to create complex motion paths, e.g. for polishing a fender, quickly and precisely“. To avoid having to teach-in points manually, a CAD file of an object can be imported and the trajectory can be created using the edges of the CAD model.

Andreas Götz, Managing Director of Visomax Coating GmbH, adds: “The solution offered by ArtiMinds was a perfect fit for the applications in our field. This is why we quickly decided to work together“.



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Force controlled polishing of defects

The difficulty of the application, however, was not only the handling of components with different defects, but also the integration of necessary sensor components such as a force-torque sensor and a camera system. This was because the defects were first to be localized by camera and then to be polished in a force-controlled manner. Such sensor-adaptive robot movements quickly confront the user with a very complex programming task and an arbitrary amount of effort. “To ensure that the polishing movement always has the perfect contact pressure, we work with the force module of the RPS,” explains Kemmer.

With the RPS’s predefined templates and building blocks for specific motion sequences, the programming effort can be reduced considerably in contrast to conventional programming.

The camera system first passes the coordinates of the defects to the robot. The robot, including force-torque sensor and polishing head, then takes over the actual task by precisely and independently approaching the defects.

In a second application, the entire surfaces of painted components are polished. The robot first moves to a reference point in a force-controlled manner so that it can always polish with the same contact pressure- even when the polishing brushes are worn. The actual polishing movement was recorded with a path module especially adapted for Visomax, which considerably reduced the programming effort compared to conventional programming, summarizes Kemmer. “In addition to the templates



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already available as standard, this option enabled us to take a much more intuitive approach”.

Also Managing Director Andreas Götz is convinced: “The great advantage of the software is its ease of use. In addition, the support from ArtiMinds is more than comprehensive. If necessary, you always have the right contact person at the right time”.

Offline programming and simulation

But Visomax also uses ArtiMinds RPS beyond the actual polishing process, says Kemmer. “The software not only simplifies teaching and programming to the maximum. The offline programming and simulation of the robot application in three-dimensional space is another major advantage”. This makes ArtiMinds RPS a valuable tool for Visomax, enabling the company in the planning phase to determine whether a customer project is feasible in general given all relevant factors.

Ludwig Kemmer confirms with satisfaction: “In recent years, the software has saved us a lot of programming effort. This has enabled us to focus on the actual processes and their optimization, so that we can take a new look at the processing of painted surfaces and break new ground”.

www.artiminds.com

WATCH THE CASE STORY VIDEO:
www.artiminds.com/visomax/



About ArtiMinds

ArtiMinds Robotics develops software solutions to standardize the workflow for automating with robots. Our goal is to simplify the programming and operation of industrial robots and to enable cost-efficient integration and maintenance as well as flexible automation.

As a pioneer for sensor-based robot applications, we are familiar with the challenges of our customers and encourage them in implementing their applications independently and building up know-how within the company and securing it in the long term.

With a team of over 40 employees and around 20 international distribution partners, ArtiMinds Robotics serves customers from a wide range of industries worldwide.

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