



QualiLack

Automation of manual painting processes taking into account particularly high quality requirements

Motivation Automation solutions available on the market for painting of natural materials neither meet the high quality standards characteristic of handcrafted items nor the necessary flexibility requirements for manufacturing products in very small batches. Colouring of wood in particular poses special challenges for painting systems, since the surfaces exhibit significant variations in their ability to absorb paint from part to part as well as within the same workpiece, and as a consequence the colouring and appearance of the final product can vary.

Goal The development goal of QualiLack is an efficiently automated painting process including component handling with inline quality control for natural materials such as wood in the production of very small quantities. In order to be able to adequately reflect the many years of experience of master craftsmen in varnishing and quality assessment despite automation, machine learning methods are used for the real-time analysis of fused sensor data. The painting process is to be controlled on the basis of this analysis.

Intended outcomes 1) It should be possible to make predictions about the later appearance of the dried surface while it is still wet, so that relevant processing parameters can be adjusted in good time. For this purpose, a special painting effector with correspondingly integrated sensor technology is being developed. 2) Machine learning methods will be used to investigate how a real-time analysis of the combination of different sensor data can be used. The training of the system will be based on the know-how of experienced employees.

Expected impact QualiLack is intended to lay the foundations to make it easier for handicraft businesses to enter the Industry 4.0 era. By automating painting tasks for very small quantities, master craftspeople gain the time they need to devote to more creative tasks and thus create an even more market-effective distinction from industrial mass production.

Tags Industry 4.0, Sensorics, AI

Contact

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2 YEARS
DURATION



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4 PARTNERS



Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik (IWU) (project coordinator),
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FUNDING



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Total funding:

€ 1.5 million

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