Project idea: AI-powered surface inspection solutions

Call area: Quality assurance through sensing, data acquisition, processing, and machine learning / Standardisation of measuring and testing methods

Contact

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Project Description

Surface Inspection

Automated inspection of haptic and optical surface properties of 3D free-form components.

Project Objectives

- Automated characterisation of haptic and visual surface properties.
- Enabling the use of new lightweight and environmentally friendly materials without compromising material properties regarding consumer demands and expectations.

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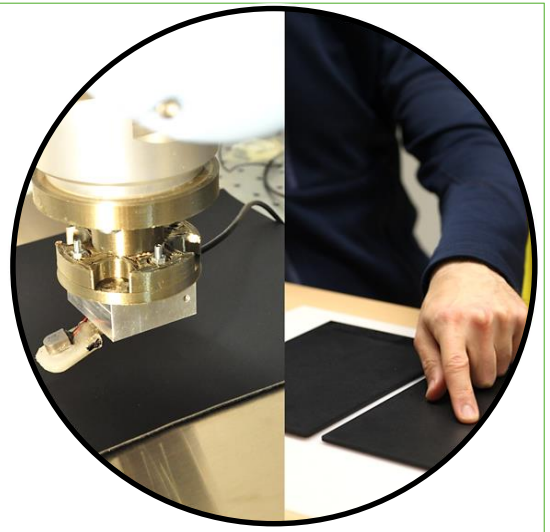
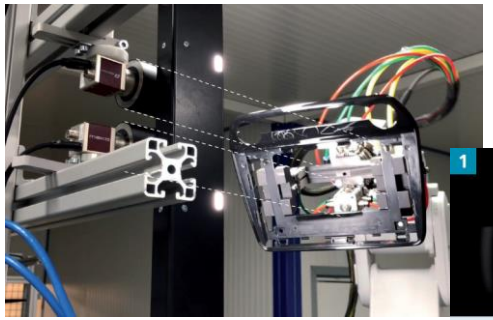
Problem, State of the Art, and Envisioned Solution

Until now, visual—and especially haptic—surface inspection has been carried out manually by humans.

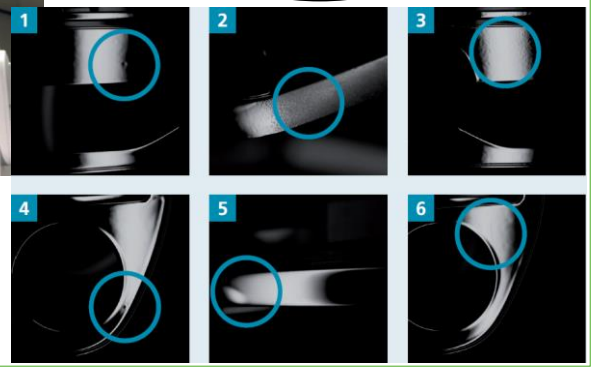
However, **manual inspection is prone to inconsistencies**, subjectivity, and a lack of repeatability.



To support the **development of lightweight and environmentally friendly materials** while **meeting consumer expectations** regarding haptic and visual quality, reliable and repeatable surface evaluation is essential.



To address this need, **PCCL is developing robot-assisted inspection systems** capable of consistently **evaluating the haptic and visual characteristics** of surfaces.



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Our Partners, Our Know-How…

- Customized, AI-powered **surface inspection solutions.**
- Automated measurement of **haptic surface properties**.
- Discover **tactile surface defects** like burrs, cuts or kinks.
- In-line **optical** surface inspection for **defect detection.**
- Detect and **classify optical surface deviations** with high precision.
- Closely **approximate human perception**—while allowing for fast, fully automated inspection of complex 3D parts.

We are looking for…

- …partners that require either haptic or optical surface characterization tools.
- …partners that develop innovative and environmentally friendly materials that must meet high standards in haptic or visual appearance.
- …partners developing new lightweight materials for example, for consumer goods, automotive interiors, or similar applications.