

3D Scanning Car Mats to Aid in Product Development

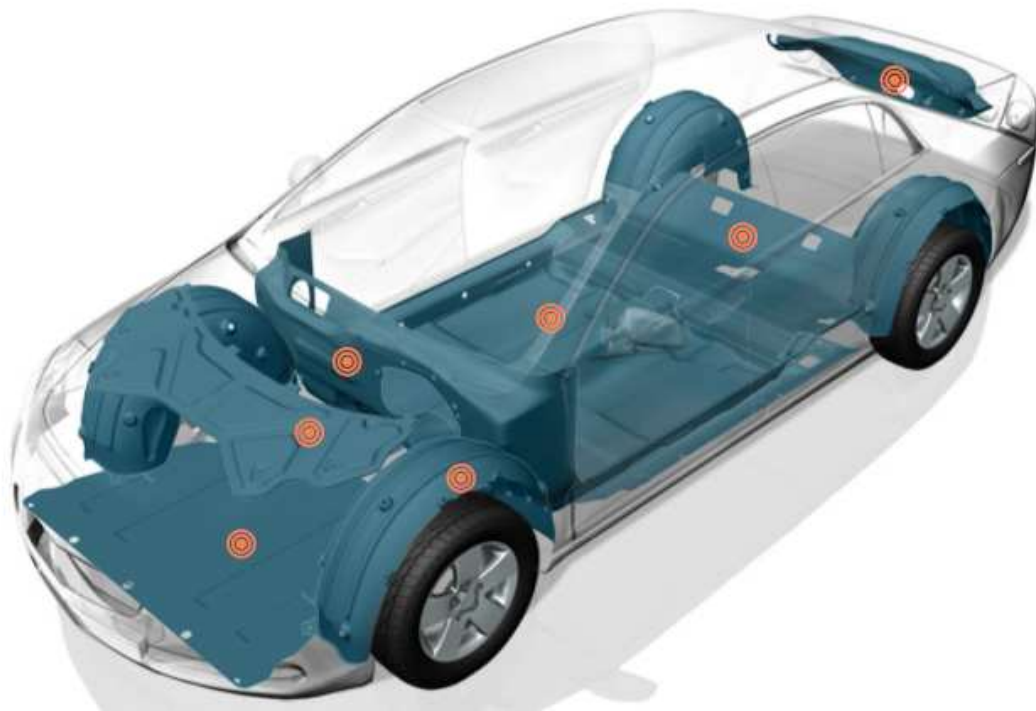
Automobile manufacturers, like other manufacturing sectors, face constant pressure to reduce costs and increase efficiency while maintaining high-quality standards.

Automotive manufacturers have adopted extensive digital technologies in both design and production over the last decade, which yields enormous benefits in terms of cost and quality. It is essential to leverage digital technology for [product development](#) without incurring expensive time penalties.

In this case, we will show you how 3D scanning can aid in product development of automotive parts and explore its benefits.

Case Background of Automotive Product Development

The customer in this case is a company specializes in the [design and production of automotive accessories](#) include mats and acoustic components. The goal of the project was to 3D scan car mats to aid in their product development.



The customer aimed to inspect the mat to see whether they meet the requirement as well as conduct contour analysis. They were looking for an option to increase inspection efficiency and generate digitized inspection reports for OEMs. The common way they used for determining deviation is measuring mats with manual inspection tools. If the measurement results fail to meet certain criteria, they would take corresponding corrective actions to improve the product.



3D Measurement Challenges of the Project

The part was 1600 mm long, 1200 mm wide, and 300 mm high. The main challenge was its black and flat surfaces without much particular geometry. To protect the surfaces of the mat, non-destructive inspections were required. 3D scanning, one of the non-contact measurement methods, is a good way to overcome the challenges. What's more, engineers cannot stick targets for referencing. However, sticking targets is commonly used in 3D scanning for mainstream 3D scanners in the market.

Drawbacks of Traditional Inspection Methods

It is time-consuming to use traditional measurement tools, which require technicians to measure the mat inch by inch. Inspection technicians need to be experienced, patient and responsible in conducting measurements. It is likely to result in error or missing values.

The measurement results of the traditional way are not intuitive, which is not convenient for OEMs to audit the product quality. What makes the inspection more difficult is that engineers have to prove that the measurement tool is qualified.

Scantech's Optical Tracking and Handheld 3D Scanner

To shorten its cycle time, the company reached Scantech to seek help for efficient and non-destructive inspections.

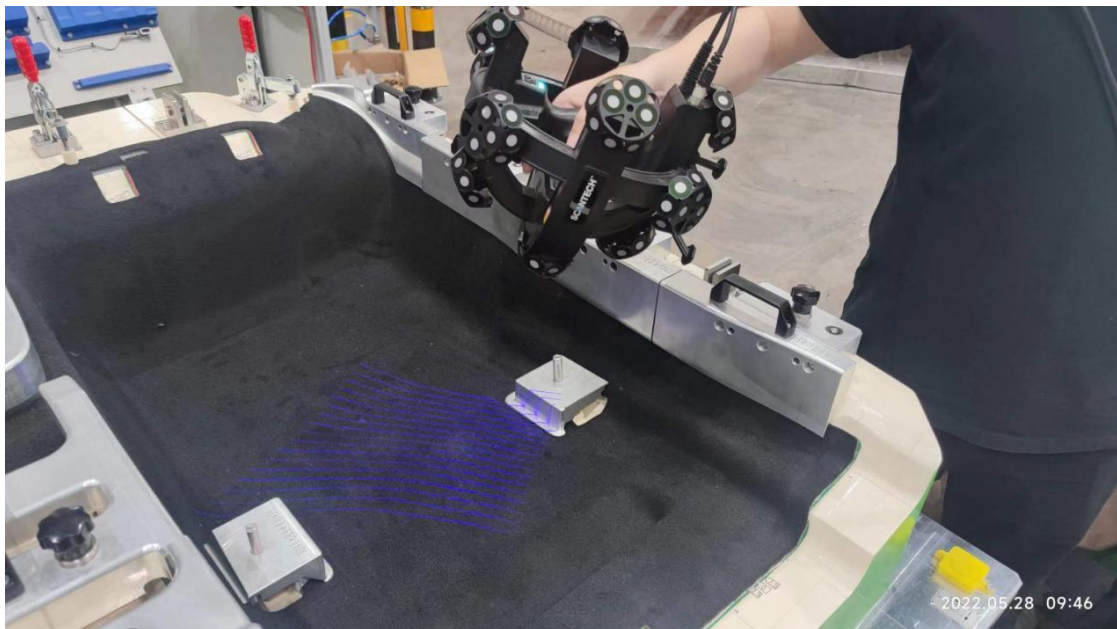
The handheld 3D scanner they used is [optical tracking 3D scanner TrackScan-P42](#). It is an optical tracking measurement system with high-resolution cameras that enable the user to accurately measure parts without the need to stick targets. The portable optical 3D measurement system consists of a portable 3D scanner and an optical tracker which can be used in aerospace, manufacturing, rail transportation, and more.



Benefits of Non-contact Optical 3D Scanning

Fast Data Capturing

Without powders sprayed onto the mat, TrackScan-P 42 captured the data of black surfaces, significantly reducing time for preparation. Thanks to its measurement rate of up to 2,600,000 measurements/s, it captured and processed data efficiently. The full-filed data captured were archived for further use.



Unrivaled Details

By freely switching between multiple working modes, the TrackScan fit different scanning situations with an accuracy of up to 0.025 mm. Its 7 parallel blue laser lines performed well for capturing details. Its single blue laser line collected 3D data of details efficiently.

Intuitive Inspection Reports

The 3D data captured were compared to original CAD models to inspect and analyze curvature surfaces. The report with color indicators showed the measurement results in an easy-to-read way, which served as important guidance for manufacturing.



Easy to Operate

TrackScan-P 3D system's highly portability allowed users to conduct on-site 3D scanning among different sites easily. Besides, it was easy and simple to operate, users got familiar to its operation within one-day training.

For more cases, please read:

<https://www.3d-scantech.com/inspection-of-automobile-aluminum-castings/>
<https://www.3d-scantech.com/how-can-3d-scan-help-in-automotive-customization/>
<https://www.3d-scantech.com/3d-automated-inspection-of-automotive-stamping-parts/>

/