

CASE STUDY: FROM SCAN TO REVERSE ENGINEERING

# AADS

## 3D SCANNER GUARANTEES SEAMLESS PROCESS FOR THE DESIGN AND MANUFACTURING OF SPECIALIZED GOVERNMENT JEEPS

AADS is part of an international automotive group of companies which has been trading in Gibraltar since 1904. AADS specializes in the design, manufacturing, and supply of specialized Jeep vehicles for governmental organizations worldwide. The company is a fully integrated business with research and development, design, prototyping, testing and production expertise. They care passionately about service and support—especially spare parts, training and general lifecycle support.



Since 2021, AADS has been using a Creaform **Go!SCAN Spark** 3D scanner. Prior to that, the company was struggling to efficiently reverse engineer prototype components made by their workshop, to be sent to manufacturing. They relied on several fabricated parts made from OEM and Tier 1 supplier components. The prototype components were measured manually before their modeling, so they were forced to go through multiple iterations of prototyping to achieve the correct design. The decision to remove the manual measurement process and prototype iterations was the turning point to invest in a 3D scanner.

The scanning solutions should fulfill several requirements, with the main one being that the solution should allow users to recreate a component quickly and accurately in a 3D model. At a wider group level AADS was interested in a product that could measure and inspect components in their quality control department, and capture color and texture for their marketing department. For instance, one of their ideas was to create low-polycount .stl vehicle models that could be used by potential customers in augmented reality (AR) on mobile devices to visualize the result. Also, AADS wanted to be able to create accurate visualizations of converted customer vehicles.

The ability to quickly achieve accurate dimensioning of components of any shape and size with a 3D scanner was a key factor in the decision to go with a Creaform scanner. The mobility of the **Go!SCAN Spark** also weighed in as they can now measure components in their workshops, offices and on site. Also, the possibility to quality-check components that come in from external suppliers with the nominal CAD data was something that they were never able to achieve before (Learn more with our article 3D Scanning for CAD).



## SEAMLESS IMPLEMENTATION OF THE NEW SCANNING TECHNOLOGY

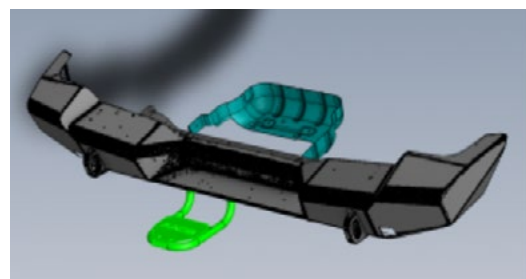
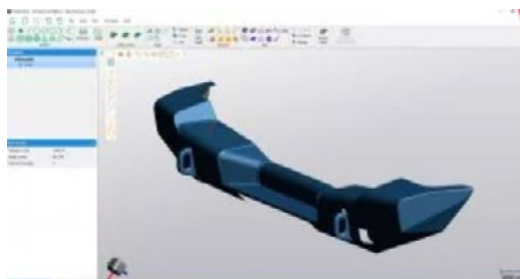
Two development engineers from AADS took the training courses to familiarize themselves with the scanner. Then they defined an implementation program to spread the knowledge to the relevant people in the company. This implementation was easy and now the scanner is being used across multiple processes.

### SCAN OF AN AFTERMARKET BUMPER

AADS was asked to scan an aftermarket bumper to design a rear step that would fold around the bumper and not collide with it. The scanner allowed them to scan the bumper directly on the vehicle and align it in their design software to model the folding step accurately. This was only possible thanks to the mobility of the scanner.



With the scanner, AADS was able to import the bumper into the CAD software and accurately design the surrounding parts to avoid collisions, and increase productivity and efficiency. The project could have been carried out without Creaform's technologies. However, it would not have been effective, nor would it have been time efficient. For this specific project the usage of the 3D scanner saved AADS half a day just for the measurement of the bumper and the CAD model creation. The modeling of the whole bumper from scratch alone could have taken up to half a week using a different device. Besides, the ability to transfer the entities from **VXmodel** directly to **SOLIDWORKS** was the most significant feature for AADS as it made the whole process from scanning to reverse engineering seamless.



*3D Scan in VXElements and CAD displaying the surrounding parts*

Future projects include the scanning of bespoke bucket seats, and aftermarket front and rear bumpers to be able to create visuals of their vehicles with the proper parts. AADS also intends to scan the front and rear light clusters as well as the windshield and windows to be able to design light protectors and windshield protectors.