

SITUATION

The vast amount of supplies being sent into Iraq has been key to the U.S. Military's efforts in the region. Convoys of trucks loaded with supplies have been entering Iraq from Kuwait for the past several years; however, the lightly armored trucks offer very little protection for the drivers against projectiles and explosives. DRS Radian was contracted to develop armor kits for several models of trucks in order to ensure the safety of the drivers. However, CAD data was not available to aid in the design process.

The conventional method of capturing the shape of the trucks is templating, a process that lacks the efficiency and accuracy of 3D scanning. DRS Radian needed a solution that could accurately capture their as-built trucks.



SOLUTION



SCAN DATA

DRS Radian contracted 3DScanCo to scan and compare the shape of several models of Mercedes and Volvo trucks. 3DScanCo used the Konica Minolta VIVID 9i in conjunction with photogrammetry to generate scan data of the truck cabs. 3DScanCo reverse engineered this scan data to create CAD data of the entire cab, which included the critical locations of the door sills, frames, and bolt-holes. These locations were necessary to ensure the precise fitting of the armor kits to the trucks.

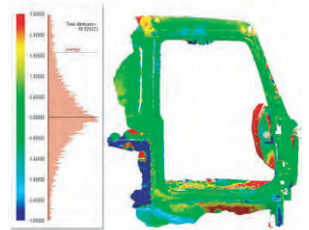


SCAN COMPILATION

The scan data was then overlaid and the deviations were recorded and compiled into a colormap comparison. DRS Radian used these colormaps to determine which make and model truck would be used for up-armor, as well as ensuring the similarities between the different truck models.



3D SCANNING



COLORMAP COMPARISON

RESULTS

3DScanCo's scanning services significantly shortened the prototyping process from three weeks to three days. Saving this much time allowed DRS Radian to quickly and accurately start production on armor kits, which have resulted in a massive decrease of driver injuries since their installation.




3DScanCo far exceeded our expectations for a 3D scanning and engineering company. Thanks to the engineers at 3DScanCo, our new armor kits fit the trucks perfectly on the first try! We benefited from a significant cost savings using 3D scanning, which reduced our prototyping time significantly.






Dubravko "Doc" Rak
Chief Designer
DRS Radian

1,100 ARMOR KITS WERE INITIALLY INSTALLED, WITH A SECOND PRODUCTION LINE ALREADY ORDERED

TECHNOLOGY

-  Konica Minolta VIVID 9i
-  Photogrammetry
-  Rapidform

TECHNIQUES

-  3D Scanning
-  Reverse Engineering
-  Quality Inspection

APPLICATIONS

- Automotive Engineering
- Bolt-Hole Locations
- On-Site Scanning