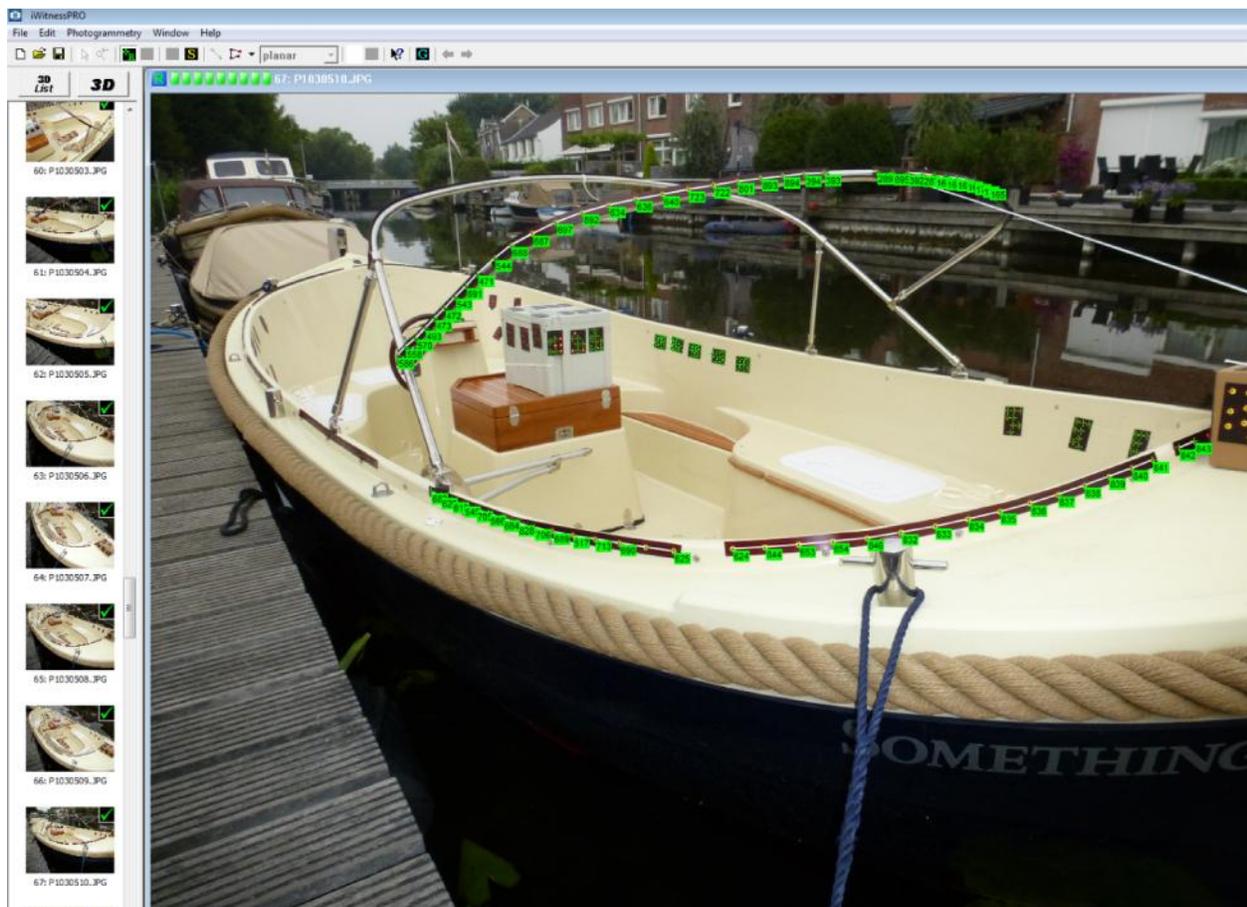


3D-modeling of Canvas Boat Covers using iWitnessPRO™

iWitnessPRO V3 was used for automatic & accurate 3D measurement, and then 3D-to-2D templating for the fabrication of a canvas boat cover.

A Netherlands-based boat cover manufacturer chose **iWitnessPRO V3** ('PRO) over other photogrammetric software that they had investigated, based on 'PRO's ease of use and intuitive workflow through the use of automatic measurement and red retro-reflective coded targets. This project was imaged with a Panasonic DMC-TZ25 digital camera. Strip Tape Targets (STTs) were placed at contact points of the cover in relationship to the hull and two canvas top frames. The frames were temporarily secured with ropes during imaging, to represent the canvas cover's shape. The boat was imaged at a dock, initially, with port side closest to the dock, and then reversed so the starboard side was then adjacent the dock for completion of photogrammetric imaging. The "dock time" is typically 20 minutes, up to an hour, to do the targeting, code placement and imaging field work.



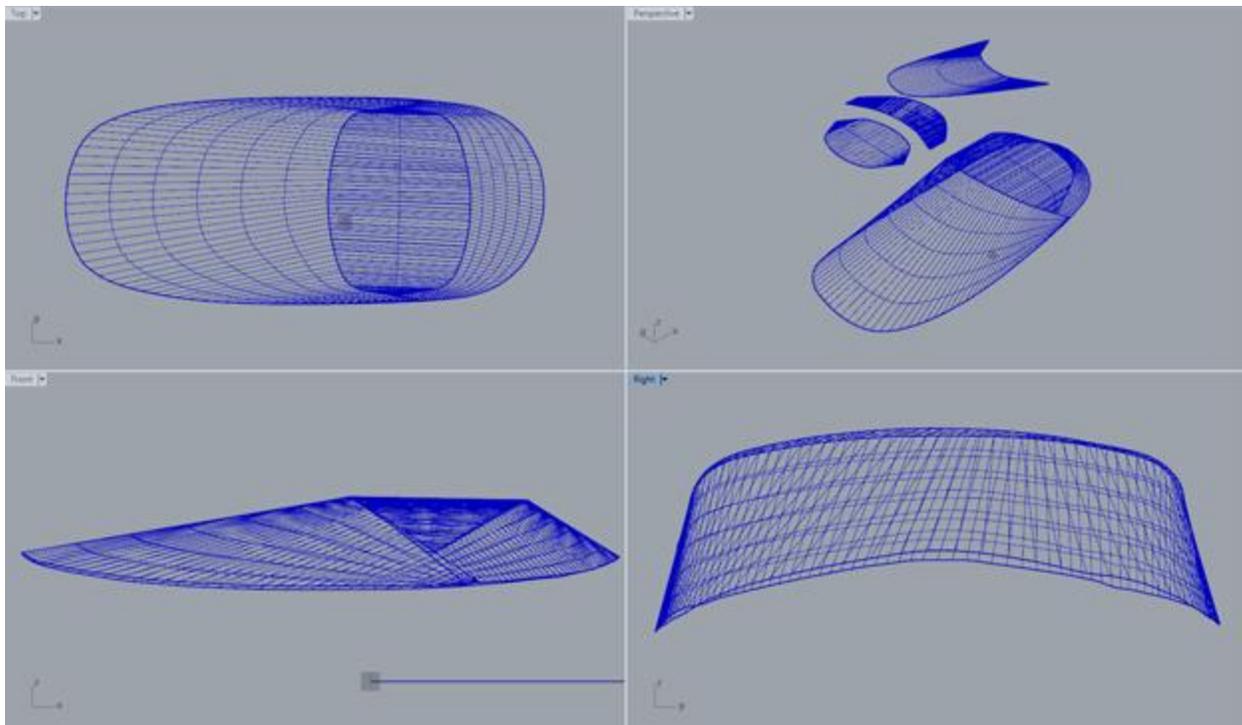
The 'PRO coded targets were used for automatic camera orientation, and the STTs for automatic 3D point determination. Noteworthy is the fact that coded targets in 'PRO V3 could have optionally supported the generation of 3D coordinates for feature points of measurement interest, utilizing 'PRO's "code offset functionality", a new feature for V3.

After automatic 3D model completion, white lines were added between STT points in the 'PRO 3D graphics view and the 3D model was scaled and rotated for DXF export to RHINO (CAD); for 3D to 2D flat pattern conversion. The following images are the 'PRO 3D view, iWitnessPRO's DXF in RHINO's 3D and 2D views. The project accuracy of the 'PRO 3D model was better than 1.5mm.

iWitnessPRO's 3D View

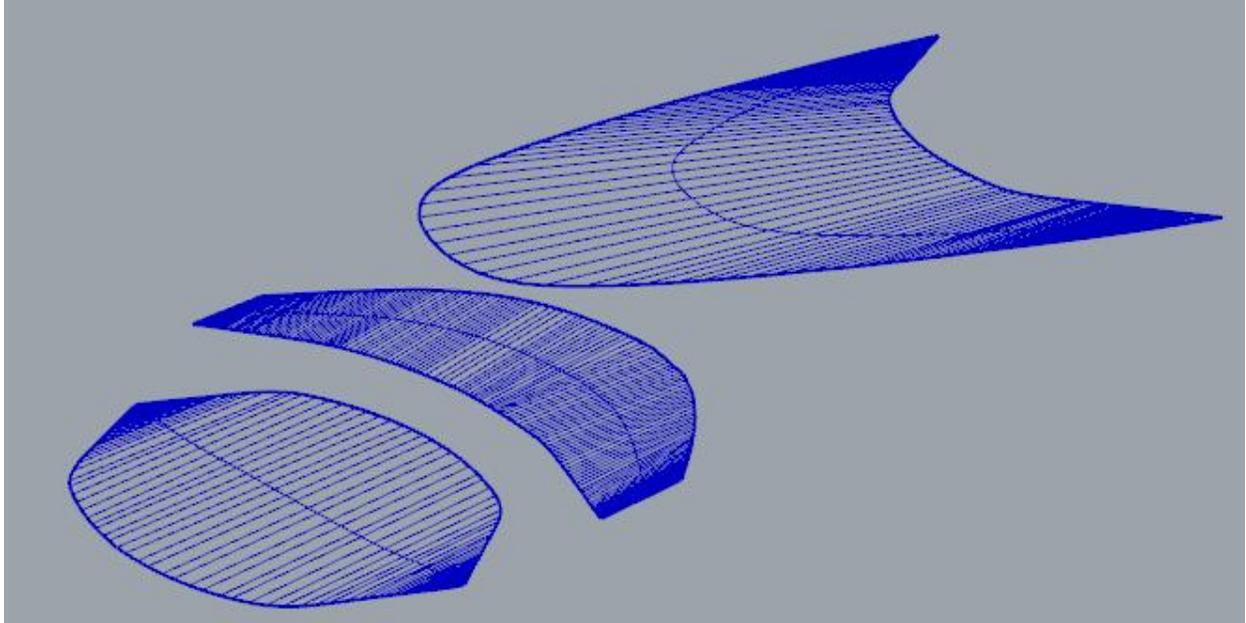


RHINO 3D AND FLATTEN 2D CAD VIEWS



The following image is an expanded view of the 3D to 2D “flattened” geometry, which is ready for fabrication templating and sewing of the new canvas boat cover pieces, based on the work completed in iWitnessPRO and RHINO.

RHINO flatten 2D canvas boat cover sections



Summary

iWitnessPRO is a low-cost image-based photogrammetric software system that has been proven in numerous industries, providing accurate 3D models and time savings in the field work, and ‘back at the shop’ for reverse engineering applications.

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