VELUM NAUTICA

PRINTING REPORT

Omiš, Croatia
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Bože Radan
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1 BOWSPRIT

A bowsprit was printed and later used as a model for creation of a fiberglass mold from which more bowsprits will be created. Part was printed upside down and was reinforced with ribs from the outside. It was printed in 3 and half hours and it used 4.38 kg. Picture of a printed part can be seen below.

Figure 1.1. Printed bowsprit

After printing the model, it was used as a mold for first iteration of the finished part. Then this part was added to the vessel and adjusted to its geometry. This part was then used to create second mold from which a final model was created.

Figure 1.2. Printed part used as mold

Figure 1.3. Adaptation of first iteration

Figure 1.4. Second iteration mold

2 A MAST

For two identical vessels a masts have been designed and were decided to be printed in 4 separate parts each. Whole construction has a height of around 1 meter. After printing parts were connected together using epoxy filler and connections were sanded down. A cable leads were then inserted into the masts and the parts were then filled with foam to give the masts more structural rigidity. Everything was reinforced with fiberglass from the outside and then filler was added and sanded down. After that parts were prepared for painting and were painted into a glossy white paint.

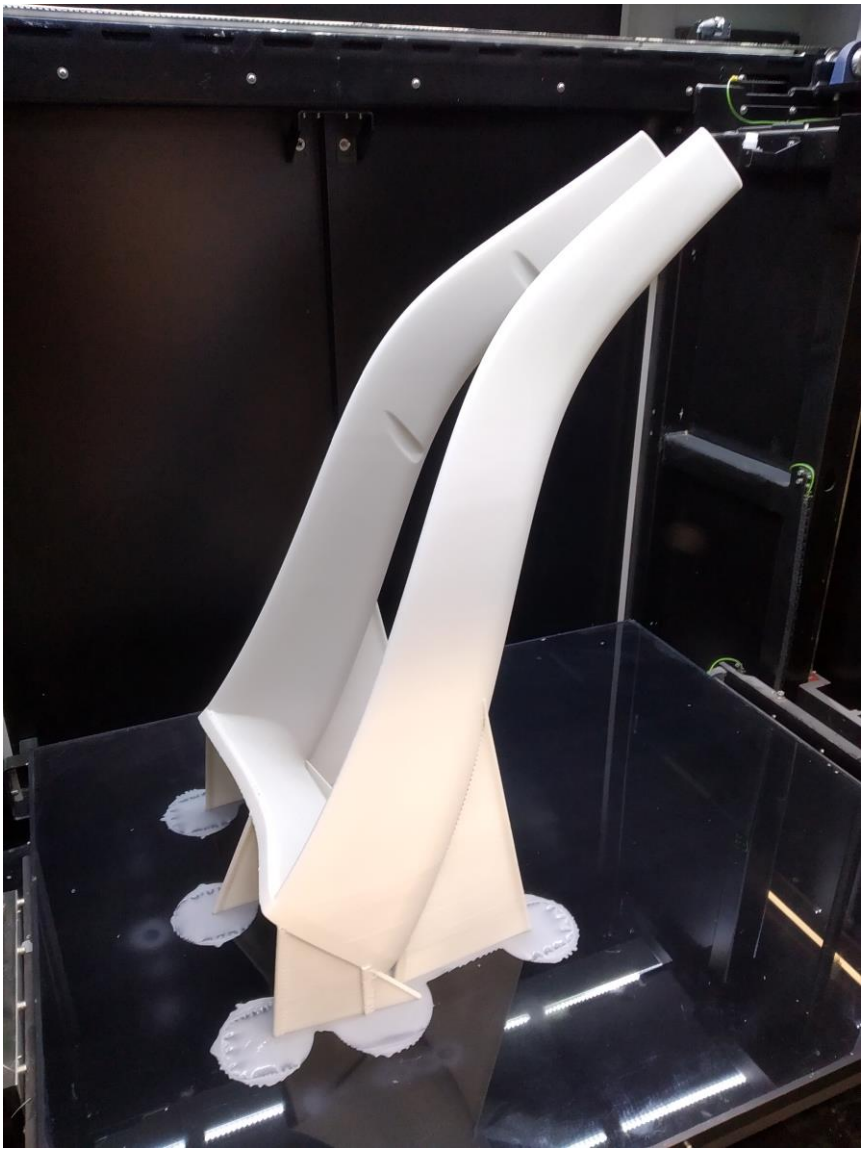

Figure 2.1. Main printed part of a mast

Figure 2.2. Positioned parts with cable leads inside

Figure 2.3. Connected mast and filled with foam

Figure 2.4. Fiberglass reinforced mast

Figure 2.5. Final painted part

3 MOTO3 SEAT

A model of a seat for a moto3 motorbike was printed in just 2 and half hours with height of 1 meter. After this part was printed, whole bed was leveled using 4 nuts on the bed. Several iterations of leveling on 4 points was done to ensure as much leveled bed as possible. Printed part was delivered to client who gave information that further process will probably involve reinforcing the whole part with carbon fiber and Kevlar.

Figure 3.1. Moto3 seat

4 COLLECTING TANK

A mold for collecting tank was printed into 2 pieces and later connected. A part from them mold was created using fiberglass and epoxy resin. Mold was printed in normal double thickness in order to test how much force can a mold withstand before braking. Test was successful as the part came out of the mold as intended.

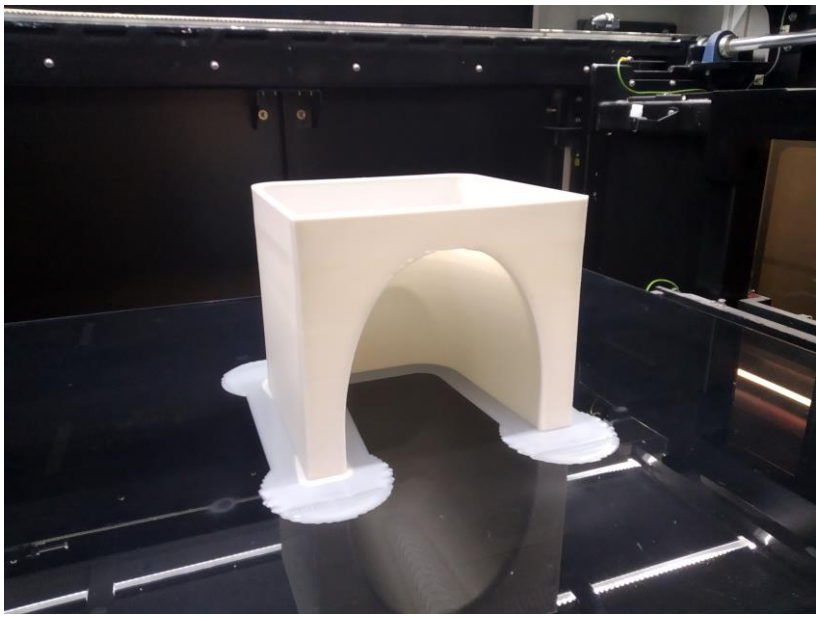

Figure 4.1. Half of the model printed

Figure 4.2. Printed parts connected together and used as mold

5 STERN COVER

Stern of a vessel was scanned using photogrammetry and based on the scan a model for the cover was designed and printed. After printing parts were used as a mold for the final part which was created out of fiberglass and epoxy and post processed before applying the final glossy white paint. Whole part is around 1 meter in length.

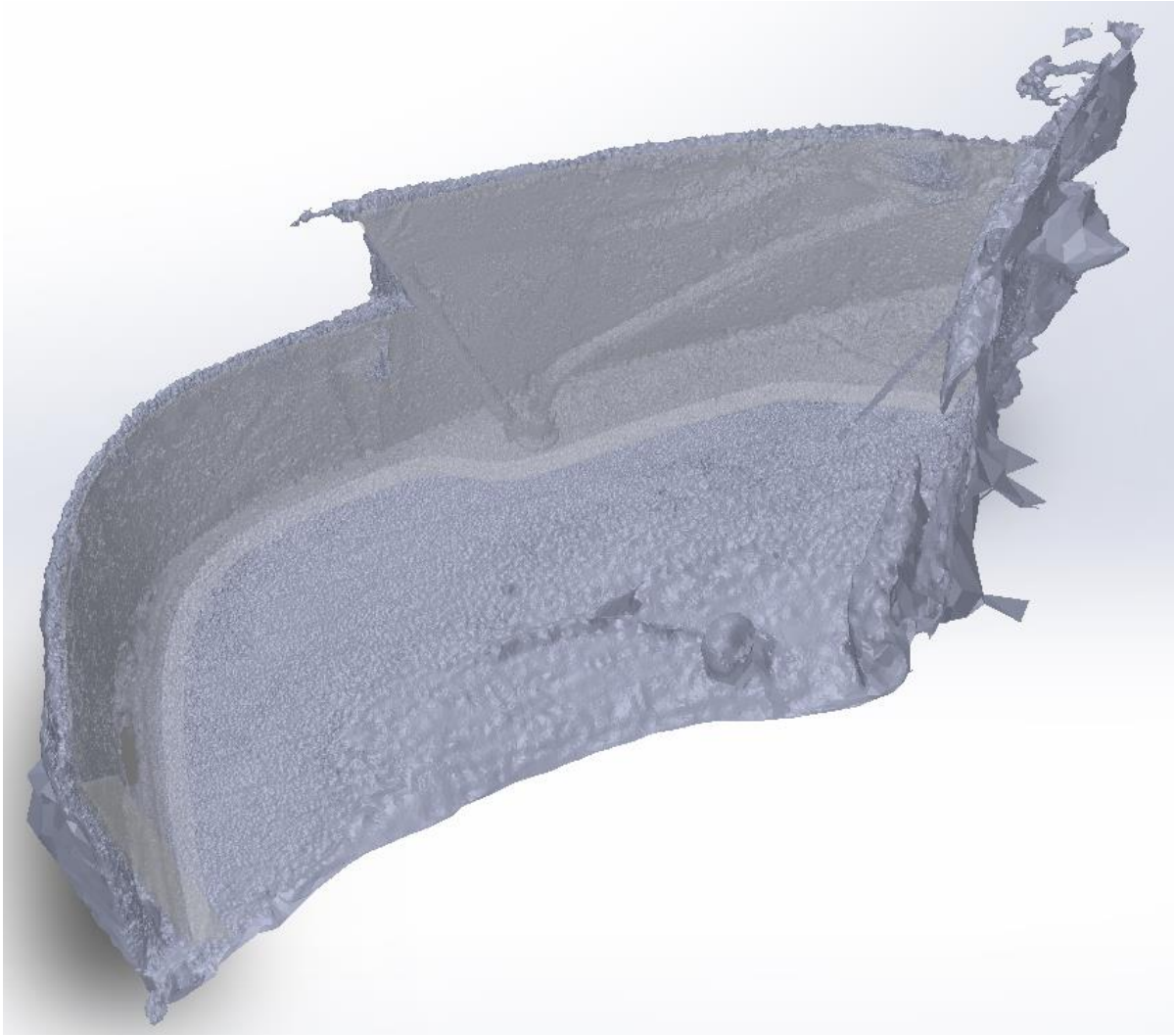

Figure 5.1. Designed cover over the scanned model

Figure 5.2. Test of a printed part

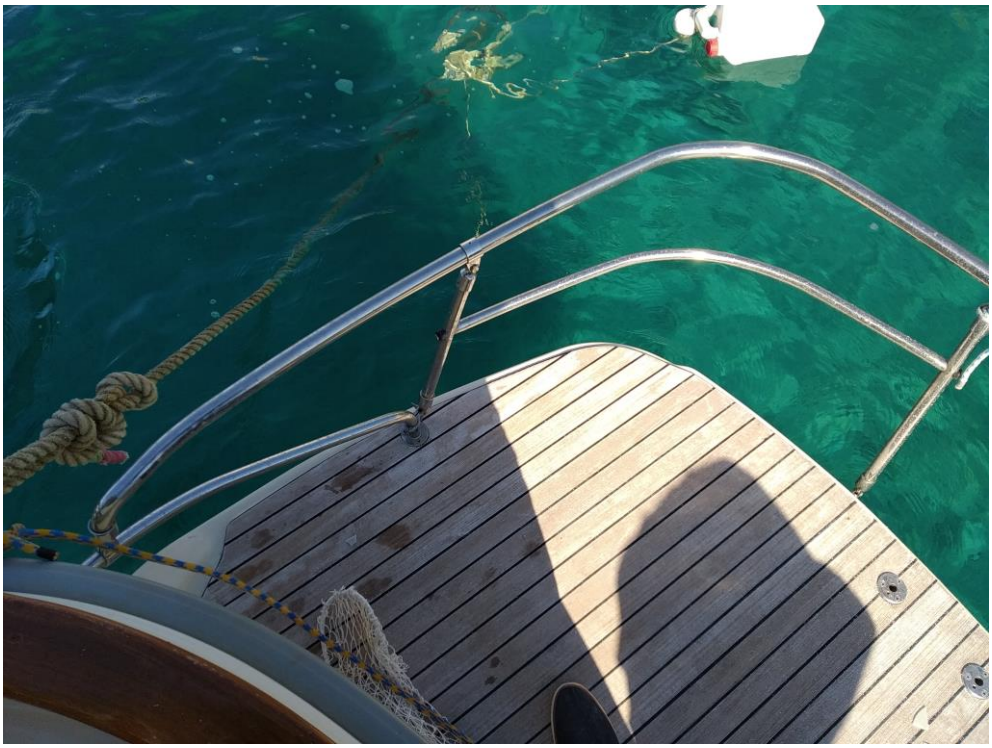

Figure 5.3. Original stern of the vessel

Figure 5.4. Fiberglass model

Figure 5.5. Preparation for painting

Figure 5.6. Final both painted sides of the stern cover