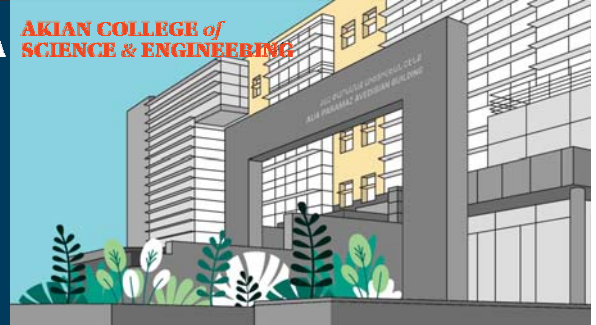


# Table for The Laser Scanner

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Software: Solidworks Year: 2018



## The Prehistory

In 2016 AUA acquired a FARO Edge laser scanner for the Prototyping lab. The scanner is a valuable, high precision instrument with an accuracy of measurements of around 30 μm. This requires a firm mounting of the scanner on a rigid table. The vendor of the scanner offers a special table with a granite tabletop, but we did not include it in the order, thinking that the custom-built strong table could satisfy the strict requirements made by the scanner. As a consequence, it was impossible to calibrate the scanner for precision scanning and we could use it only for demonstration purposes as shown on the photo on the right.

We started to look for tables with appropriate specifications in local companies, but they were either too heavy and large or too expensive. Two possible solutions left were to order the table from Faro or to prepare it ourselves in the lab. We decided to proceed with the latter solution.

Important note for the explanations below: Except for a few machining operations and painting that we could not do in the lab, everything else - design, machining, welding, mold form preparation, and assembling, is done by the manager of the lab, Arman Asatryan.



## The Process



STEP 1



From digital to physical...



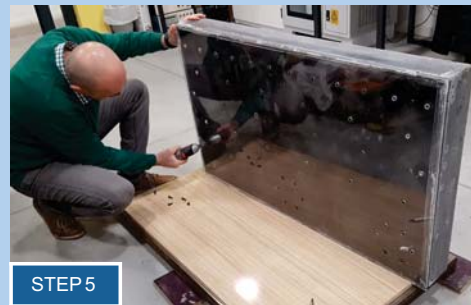
STEP 2



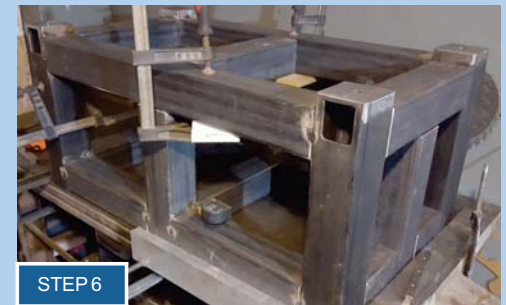
STEP 3



STEP 4



STEP 5



STEP 6



STEP 7



...and back to digital.



Scan to see how the real scanning is done!

**Step 1:** The process of making the table started with the design of the table. Arman did it with Solidworks. The two main components of the table are the tabletop and the leg frame. These two components should have provided the strength and rigidity to the scanner mounting and accuracy to the scanning process we lacked when using the previous table.

**Step 2:** We made a mold for the tabletop. To provide the required flatness of the upper surface, we ordered a grinded cast iron plate and put a laminate sheet on it. We installed steel inserts that remained within the concrete tabletop to serve as mounting accessories for the scanner and parts to be scanned.

**Step 3:** To provide strength to the table, we prepared a grid from reinforcement bars.

**Step 4:** Polymer concrete mixture was used to fill the mold.

**Step 5:** Three weeks later. Removing the tabletop from the mold.

**Step 6:** Meanwhile, Arman assembles the leg frame.

**Step 7:** Leveled table and calibrated scanner, ready to be used.