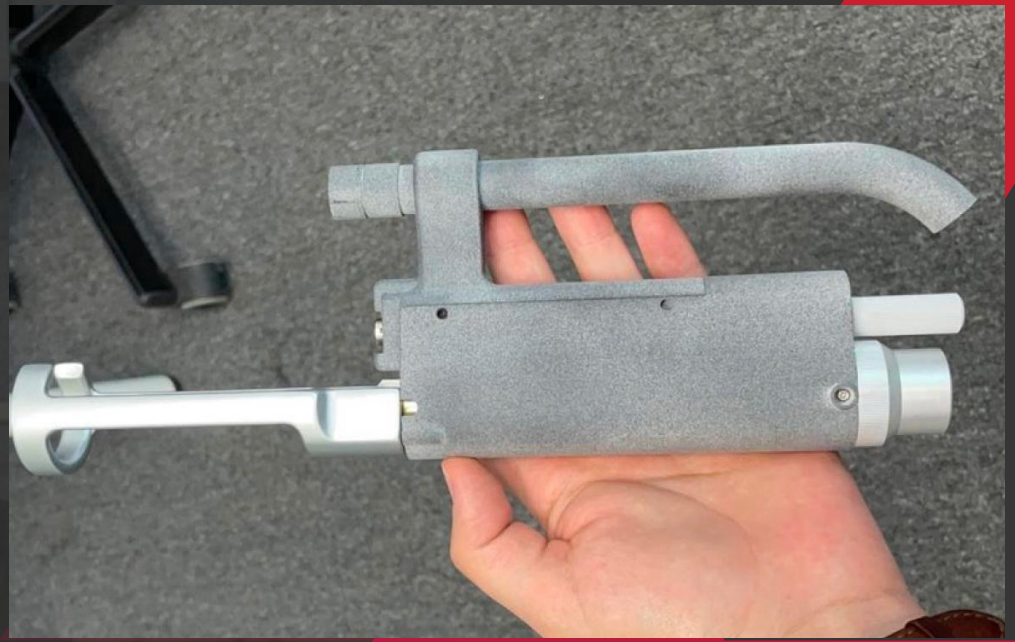
PROTO 21
TO THE FUTURE

PORTFOLIO - 2025

3D Scanning & Reverse Engineering



CONFIDENTIAL

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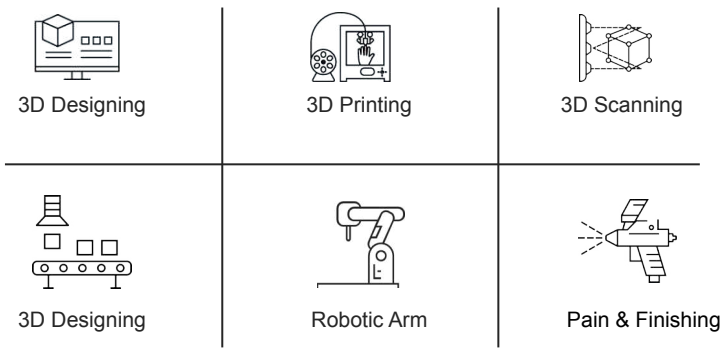
About Us

Most Reliable 3D Printing Services,
All the time.

The fastest growing 3D Printing Service provider in the UAE. Catering across a wide range of industries with affordable and accessible manufacturing & prototyping solutions. Committed to delivering top-notch & high-end quality manufacturing services.

Our Services



200+
3d Printers

50+
Employees

27+
Countries Served

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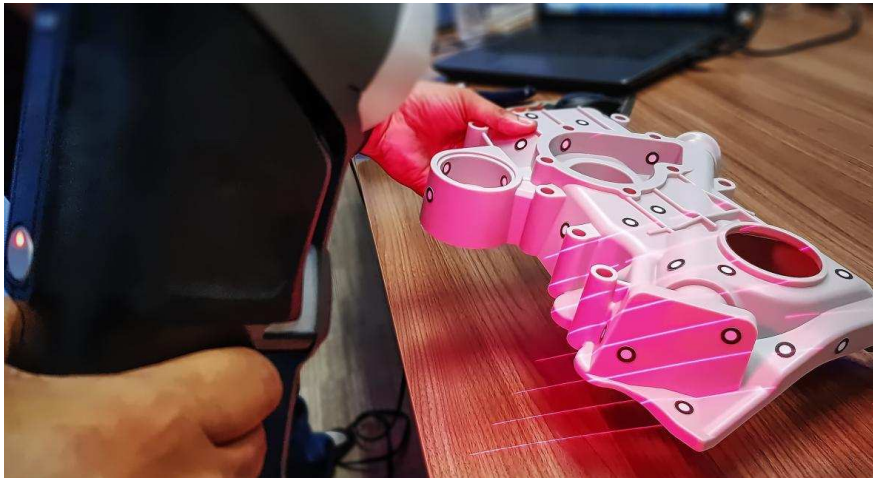
3D Scanning

Physical to Digital Model

Our 3D scanning workflow begins with a thorough assessment of the object to determine the best scanning approach. Using advanced 3D scanners, we capture detailed digital models of the object from multiple angles. The collected data is then processed and refined using specialized software to create an accurate and high-resolution 3D model. This digital model can be used for analysis, modification, or reproduction, providing a reliable foundation for further design and development processes.



3D Scanning

Our Process

Analyzing the Part

Evaluate the object's geometry, surface finish, and features to determine the best scanning approach and equipment settings.

Preparation for scanning

Arranging the scanning environment, stabilize the part, and ensure the scanner and table is clean, aligned, and ready for use.

Setting up the software on laptop

Configuring project settings, including resolution, alignment mode, and file management.

Applying scanning spray/markers

Applying scanning spray or markers to reduce surface reflections.

Hand Held Scanning and Monitoring

Beginning the scanning process while observing the live point cloud to ensure complete coverage and data accuracy.

Editing of Model

Cleaning and editing the mesh data by removing noise, filling gaps, and sealing the model to make it suitable for downstream use.

Transferring Files to Server

Saving the finalized 3D model and upload it to a shared server or database for further processing.

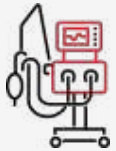
Reverse Engineering

Converting the scanned mesh into a parametric or feature based model, enabling design modification, analysis, or reproduction.

3D Scanning

Applications of 3D Scanning

3D scanning technology is revolutionizing industries by enabling precise digital capture of real-world objects. This slide explores diverse applications of 3D scanning across fields such as manufacturing, healthcare, architecture, entertainment, and cultural heritage preservation. From quality control and reverse engineering to custom prosthetics and virtual reality content creation, 3D scanning offers powerful solutions for innovation and efficiency.



Medical Industry

Digital Doubles for AR/VR

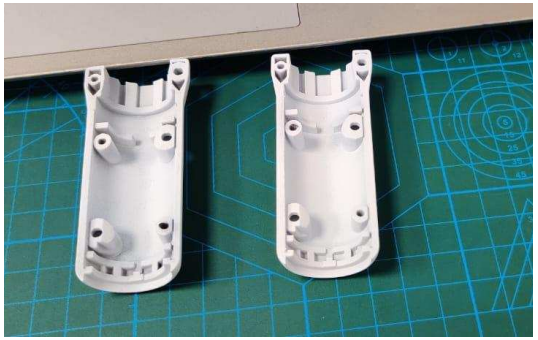
Re-construct Artefacts

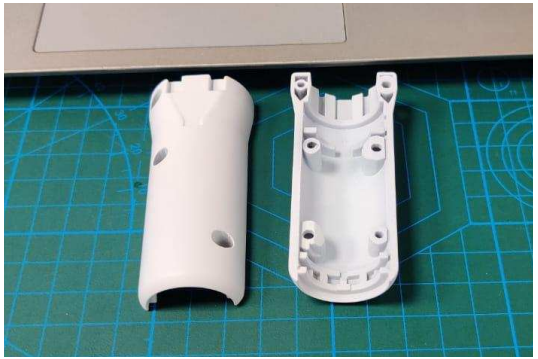
Digitize After Market Autoparts

Reverse Engineering

Material Testing Lab Equipment Components

3D scanned and designed the broken holder for the equipment in material testing lab of an oil and gas plant. The component was no longer supplied by the manufacturer and it was a big health and safety hazard to use the broken one.
Total quantities made:- 20 sets
Lead time:- 10 days
Technology:- HP MJF using PA12 and post processing in white PU paint



Reverse Engineering

Our Process

MoodBoards

Our mood board is a visual collage of colors, textures, and elements that conveys a specific theme or design concept

3D Design

Our 3D Design expertise combines design knowledge from multiple disciplines. Which paired with leading softwares allows us to create limitless

Material Samples

Prior to production our team prepares the material and color samples for approvals

Additive Manufacturing

Our state of the art labs turn your 3D Designs into reality with shortest lead times in the market

Assembly and Finishing

Process involves joining several components together to give a product a final shape before final paints and finishing

Paints and Coatings

Application of various treatments, coatings, or detailing to achieve a completed product with desired functionality and aesthetics.

Logistics

Our in-house logistics ensures safe delivery of your items in best suited transport vehicles

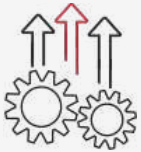
Installation

Energistically architect viral ROI via interactive alignments.

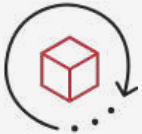
Applications of Reverse Engineering

Reverse engineering involves deconstructing a product or system to understand its design, functionality, and operation. This slide highlights key applications of reverse engineering across various industries, including product improvement, legacy part reproduction, competitive analysis, failure analysis, and cybersecurity. By leveraging reverse engineering, organizations can enhance innovation, reduce costs, and extend the life of aging systems or components.

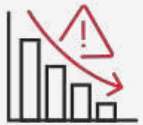
Reproduction of Parts



Improve Designs



Digitization of Inventory



Failure Analysis

Reverse Engineering

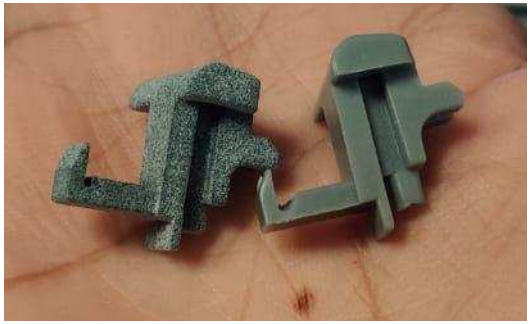
Locking Clip for Machine Enclosure

3D scanned and designed the broken clip for the equipment in a plant that make oil and gas subsidiary products. The component was no longer supplied by the manufacturer and it was a big health and safety hazard as the cover could not be closed. It was made better than the molded pc

Total quantities made:- 12 sets

Lead time:- 1 week

Technology:- HP MJF using PA12



Reverse Engineering

Low Volume Produced Conveyor Belt holder

3D scanned, reverse engineered and 3D printed with Industrial Grade SLA machines - Proto21 was able to achieve all the intricate details of the existing injection molded model and serving the purpose 100%.

Total quantities made:- 300 pcs

Technology:- SLA using ABS like material

Lead time:- 20 days including sample production, testing and final delivery of the full quantity

Reverse Engineering

Dividers for Balls in Ball Bearings- Marine

The dividers in ball bearing for the marine industry is not always a continuously replaced item. It goes on for 10 years but the time the supplier might have discontinued. Making a mold alone will make the price of the item unattainable and our client came for 3D printing

Quantity:- 250 pcs

Technology:- SLA ABS

Lead Time:- 2 months from the start of scanning to delivering the final quantity after stringent quality check

Reverse Engineering

Oil and Gas Equipment Component

3D scanned and reverse engineered the item for a reputable company in the regions as the item was taking long lead time of months to deliver.

Qty:- 75 pcs

Technology:- HP MJF using PA12

Lead time:- 1 week

Reverse Engineering

Vibration Absorbing Cable Arrestor

Designed a vibration absorbing cable arrestor for CNC machine unique to the mahine and not supplied by the manufacturer

Qty:- 6 pcs

Technology:- FDM TPU

Lead time:- 3 weeks from design to delivery

Reverse Engineering

Camera Enclosure

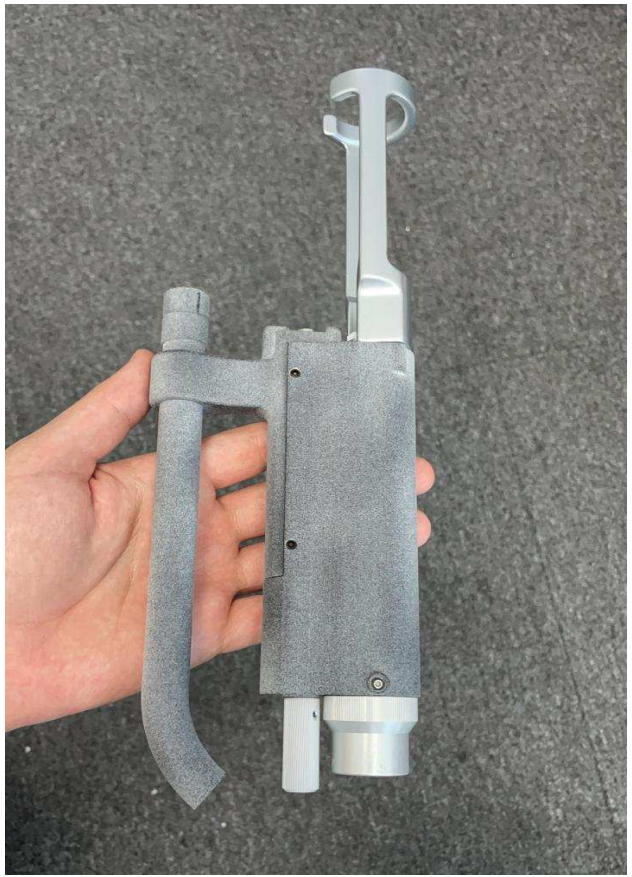
Designed a new enclosure for custom created LIDAR camera to document the in and out ledger for an oil and gas company for the smooth and fast operation during the shift changes. All the internal component were effectively placed to create clear and compact enclosure

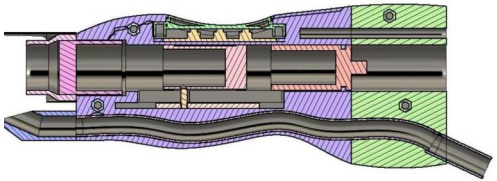
Qty:- 1 pcs

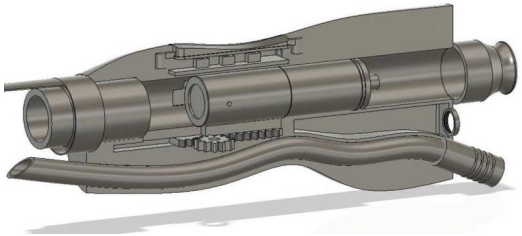
Technology:- FDM PETG

Lead time:- 1 week

Reverse Engineering and 3D Scanning Portfolio







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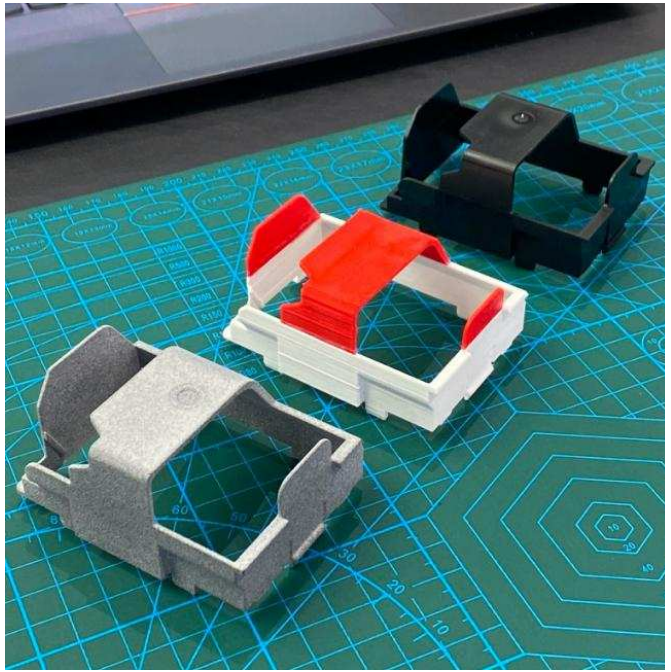

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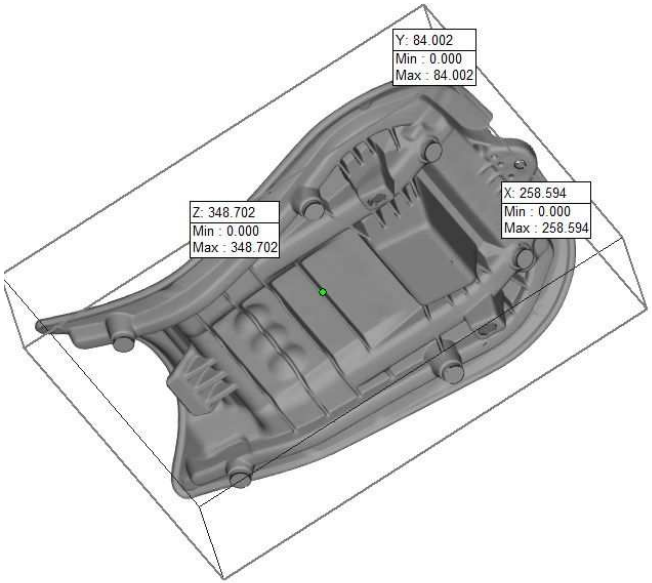

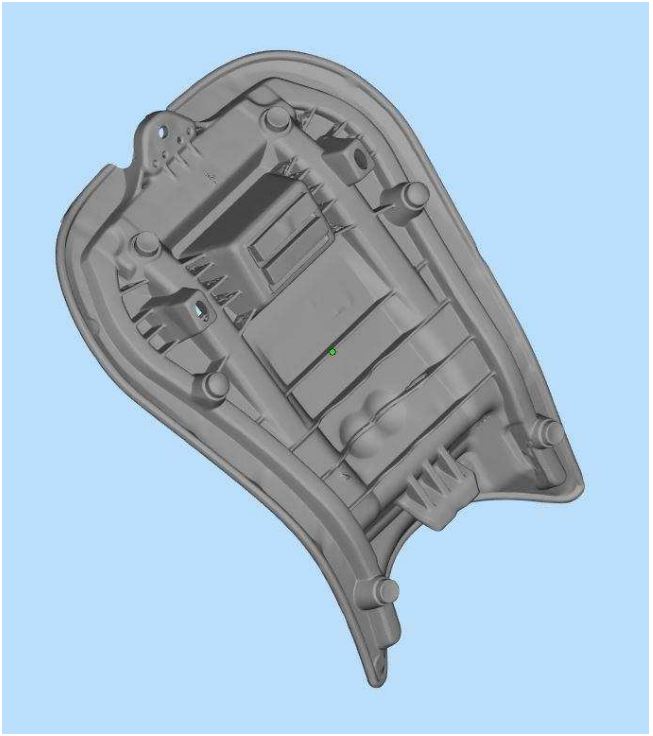

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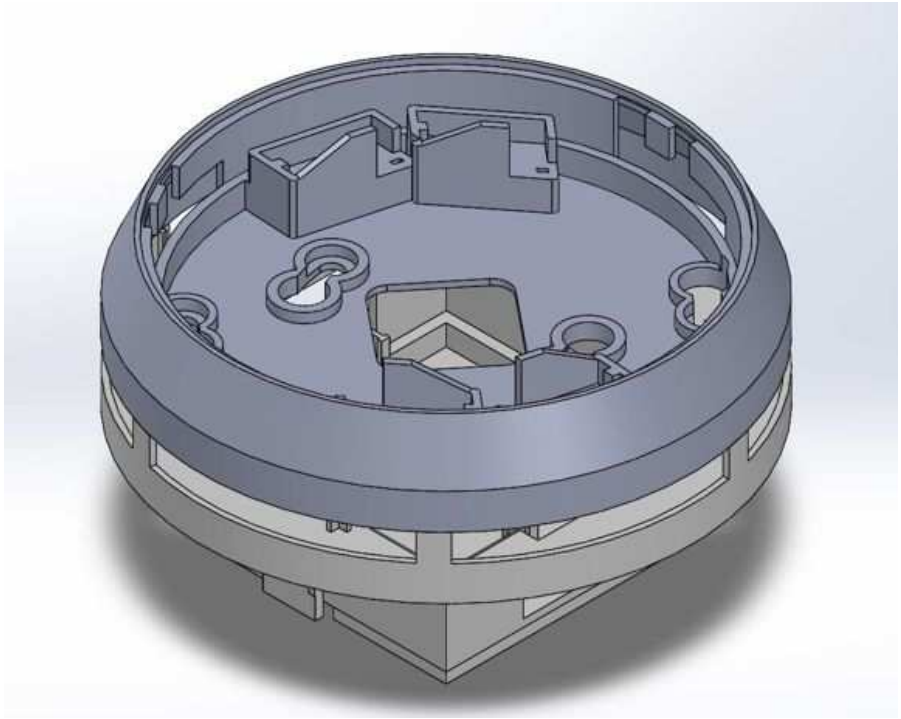

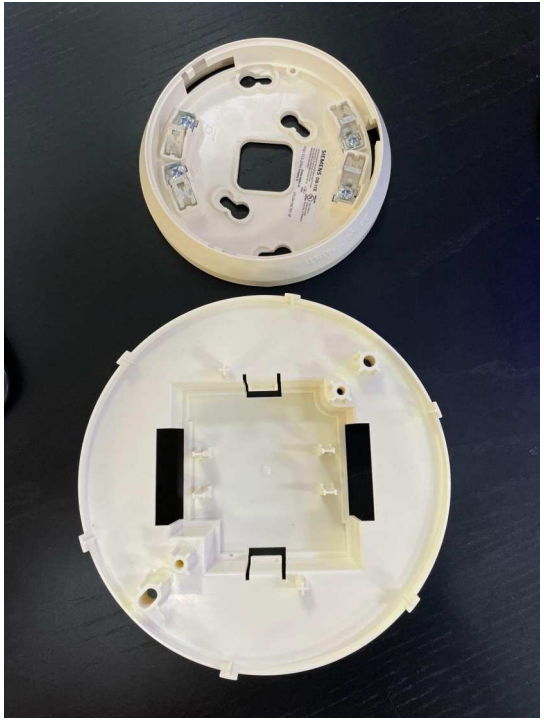

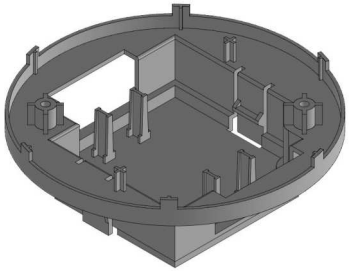

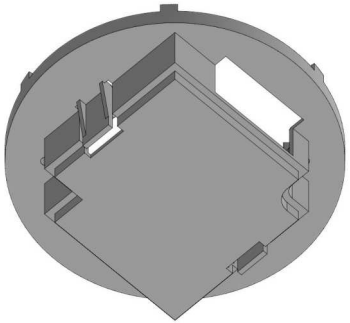

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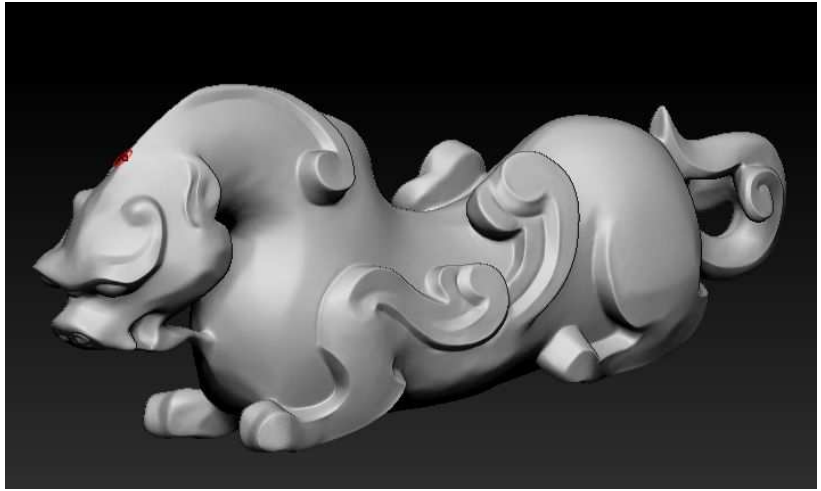

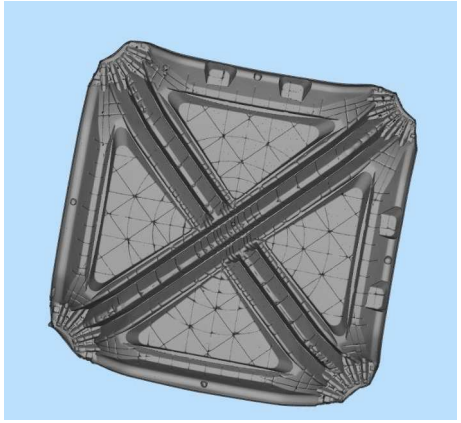

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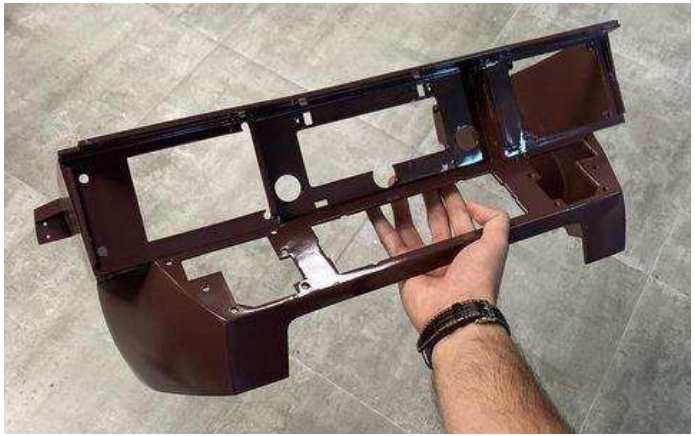

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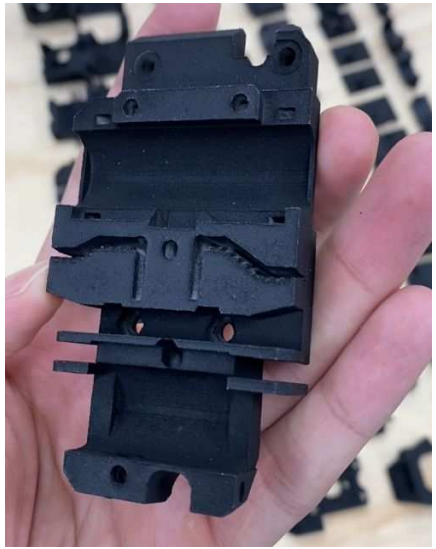

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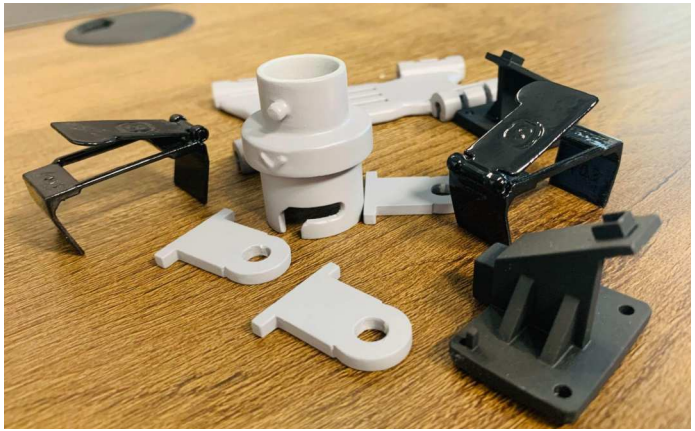

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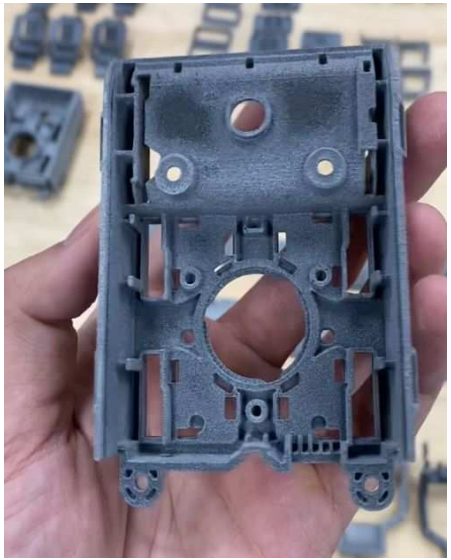

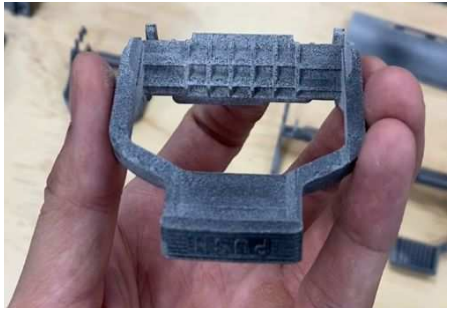

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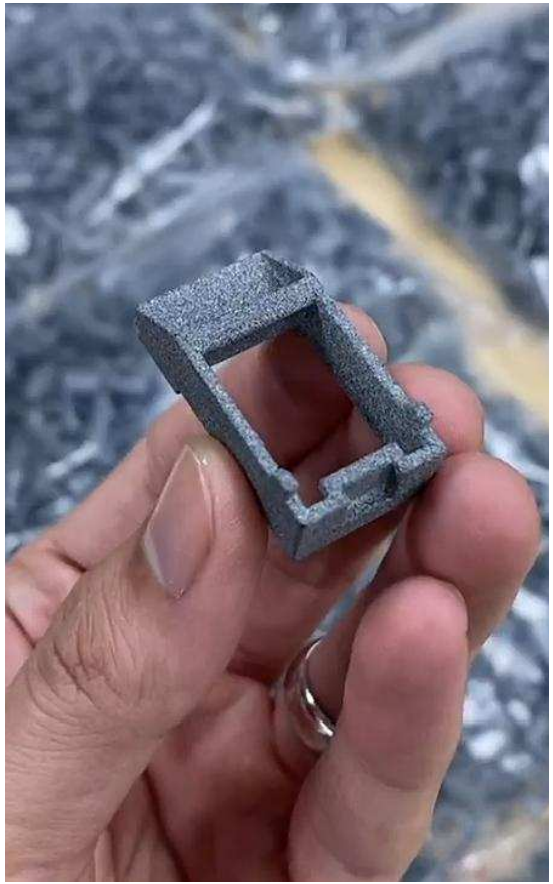

Thank you!

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