

Reverse Engineering in Robotic Arm

Scope: Scan and modification of Existing product

Application: Production

A robotic arm is a device that function as a human arm using mechanical joints and links. It can be programmed to perform various tasks, such as welding, assembly, painting, or handling objects. Robotic arms are widely used in industries that require speed, accuracy, and consistency. The number and type of joints determine the degrees of freedom and the range of motion of the robotic arm.



SoW:

- Need to scan data from the original product.
- Develop the 3D model of the entire product.
- The base support and arms need to modify.
- Create detail Manufacturing drawing for the modified design.

Original Product :

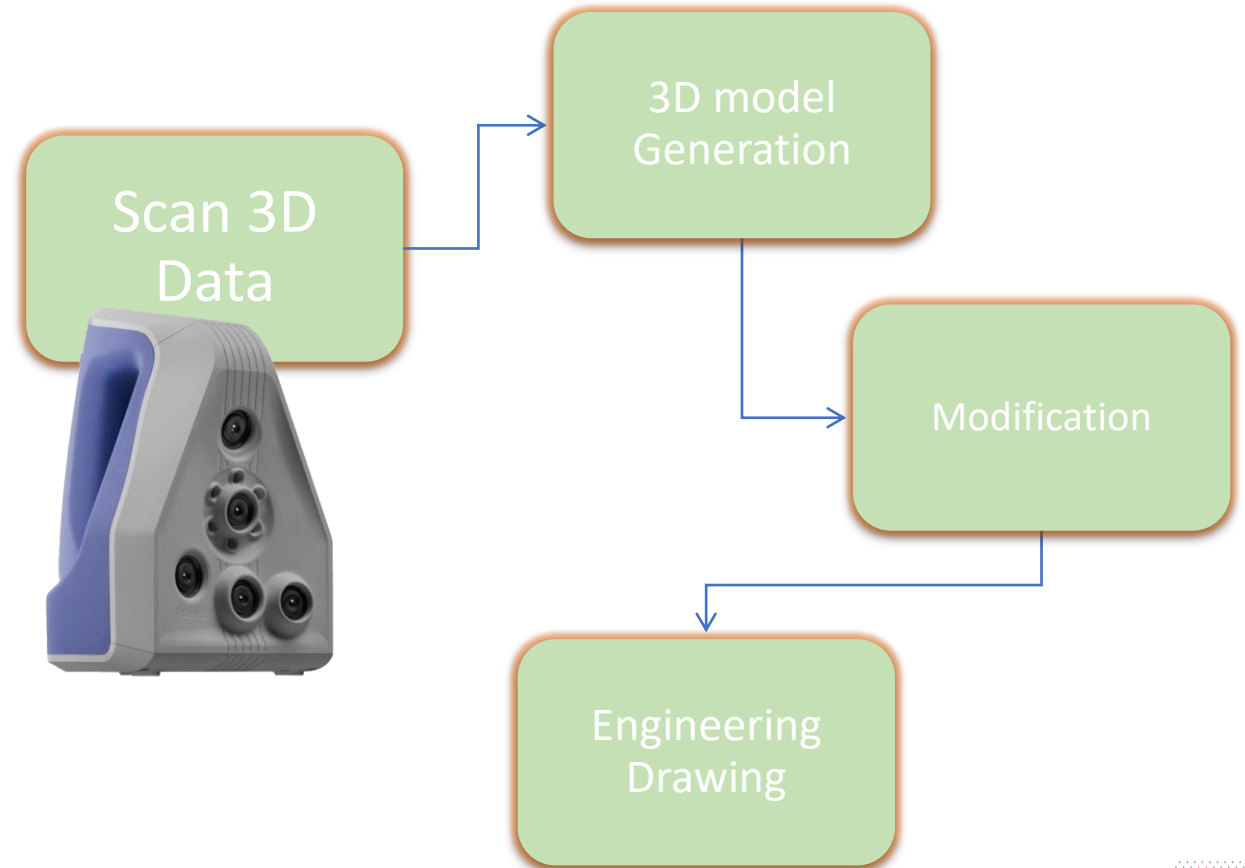


Challenge:

- Scan data and develop mesh from the original product.
- Find Perfect Scanner to scan data.
- Generate 3D model from Scanned data for individual parts.
- Modify the changes based on the clients requirements.



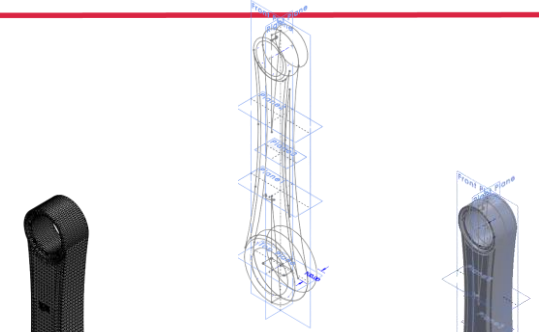
Work Outline:



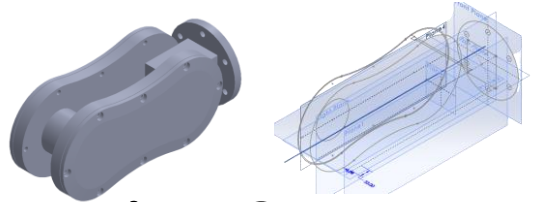
MCAD – Scan Data to 3D



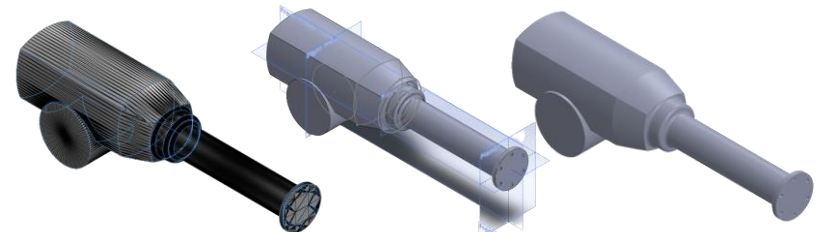
Base:



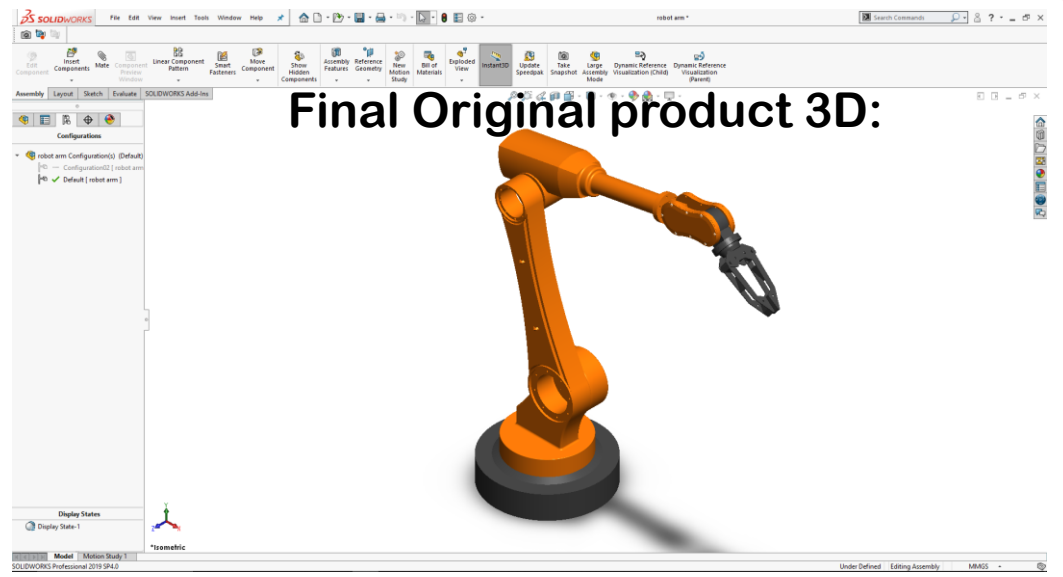
Arm1:



Arm2:



Arm2:



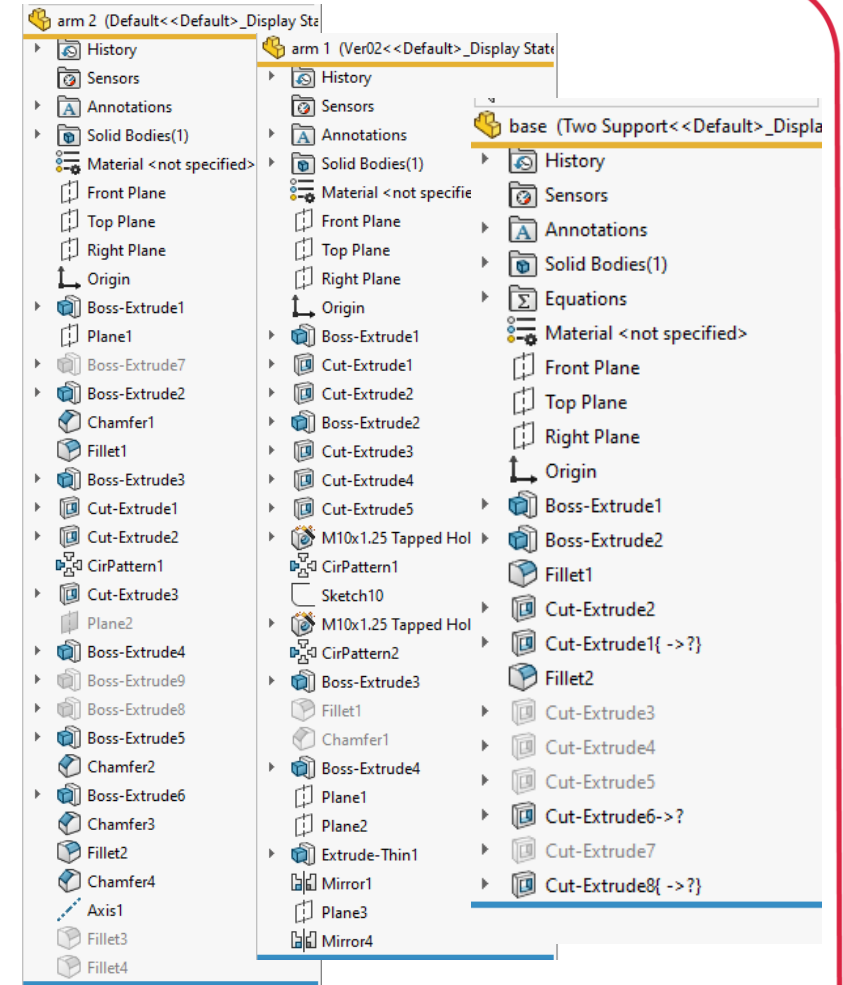
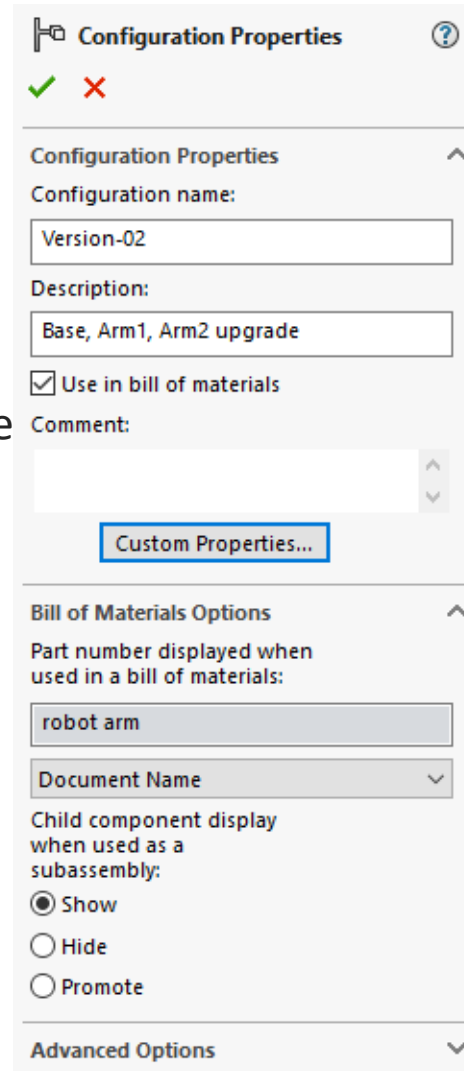
MCAD – 3D Modification

Modification:

- The base support need to change from single side to double side.
- Arm1 & Arm2 have some design change from base structure.

For that, the design changes were done by adding following changes to the original design of every part.

- Create variables
- Create Configuration
- Suppress and Unsuppressed the feature for reduce the time of work



Result

Original Product:



3D Scanned Model:



Modified final Product:



A Heartfelt Customer's Voice

As we missed the original 3D design data of our Industrial 6-axis robotic arm, we approach them to develop the model from scanned 3D data by reverse engineering, with some additional changes to the original product. The 3D model they created was the exact match for the product. They done the model on time along with modifications and manufacturing drawings. As an additional feature they suggest the another Electric Servo Motor that matchs the existing performance with low cost.



Conclusion

- In this project, we need design from the existing product makes it more interesting. We overcome the problem with the help of deep research & knowledge in CAD and reverse engineering.
- We create the exact 3D as the reference for them and modify the product as ideal for applications requiring long reach, 6 axis and efficient product.
- We proudly present a meticulously crafted 3D that has garnered the resounding approval of our esteemed clients, marking a significant milestone in our journey.

