

# Complete End-to-End solution for the BIW assembly line

**Service provider:** Geometric Ltd.

**Customer:** One of the top ten global fortune 500 automotive OEMs

**Vertical:** Automotive

## Project profile:

- i. Complete process simulation of the BIW assembly line
- ii. Robotic simulation and tool design for the different BIW assembly lines
- iii. Plant Layout validation and optimization.

## Business objective:

- i. Evaluate if the existing BIW framing line could accommodate a new car variant without interrupting the production
- ii. To provide end-to-end digital manufacturing solution to optimize the customer's BIW assembly line for faster turn around

**Duration of the project:** 50 major projects have been executed for the customer in last 20 years; and each such project lasts for approximately six months

**Team description:** Team of 100 engineers, including processing engineers, simulation engineers, tool designers and system layout engineers

## Tools/Technologies used:

**Processing:** E-BOP, UG

**Robotic Simulation:** Robcad, DELMIA IGRIP

**Tool Design:** CATIA V5, UG-NX

**System Layout:** FactoryCAD

## Results achieved:

- i. Around 70% reduction in lead time from design to production
- ii. By reducing the cycle time, the output was increased
- iii. Easy review, modification, and optimization
- iv. Robot downloads for quicker teaching of robots in plant

## Innovations:

- i. As a part of the project, a **high density work cell** was set-up using 16 robots to weld around 500 spots, which reduced the cycle time of the entire assembly line
- ii. Developed customized macros within IGRIP to enhance productivity