



PAL

Corporate Presentation

Patil Automation Ltd.

www.patilautomation.com

Patil Automation Limited (PAL) expertise in complete Turnkey Automations lines of

Automotive (2 Wheelers)

Chassis Welding (MIG, TIG)
Handling (Gantry System)
Vehicle Assembly Lines



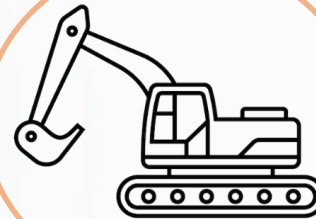
Automotive (Bus, Truck & Cargo)

Suspension Parts (MIG)
BIW Weld Lines (SPOT Weld)
Handling , Robotic Pick and Place,
Powertrain Assembly Lines



Automotive (4 Wheelers)

Suspension Parts (MIG)
BIW Weld Lines (SPOT Weld)
Handling , Robotic Pick and Place,
Powertrain Assembly Lines

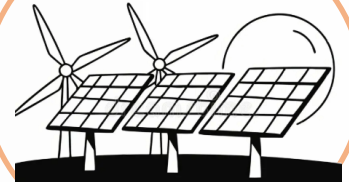


Construction & Mining Equipment's

MIG Welding (Driver Cabin, Arm)
Vehicle Assembly Line conveyors

Defense Sector & Railway

MIG Welding, Assembly &
Testing equipment's



Food, Pharma Renewable Energy Sector

Solar Panel Assembly Line
Water heater line
Assembly & Testing

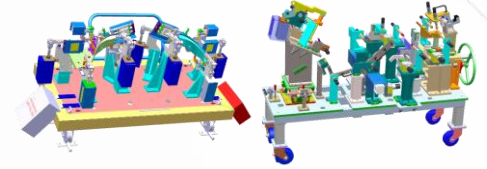
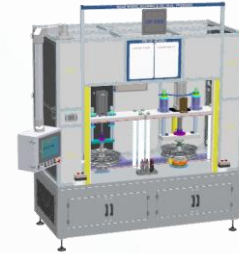
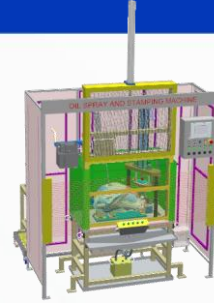
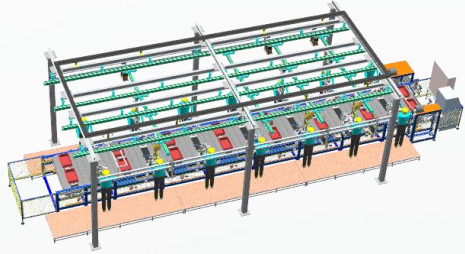


Manufacturing Plant : (Pune –INDIA)

Corporate Office : (Pune –INDIA)



Products :



Assembly Lines
Conveyors
Robotic Inspection
Vision Poka-Yoke
Pick & Place
Gantry systems
Auto Assembly Stations

Line Automation

Complete turnkey welding
And handling solutions
Synchronized welding
applications
SPOT/MIG/TIG welding
robot cells
Turnkey projects

Robotic Lines

Linear welding SPM
Circular welding SPM
Double End Drive
Weld Lathe
Weld Seamer
Spud Welder
Butt welding press SPM

Welding SPM's

Pneumatic/Hyd press
Revising cum Inspection Jig
Camera Vision Inspection
Leak Testing SPM
LASER marking SPM
Twisting SPM
Stuffing and Sizing Press

Special Purpose M/c

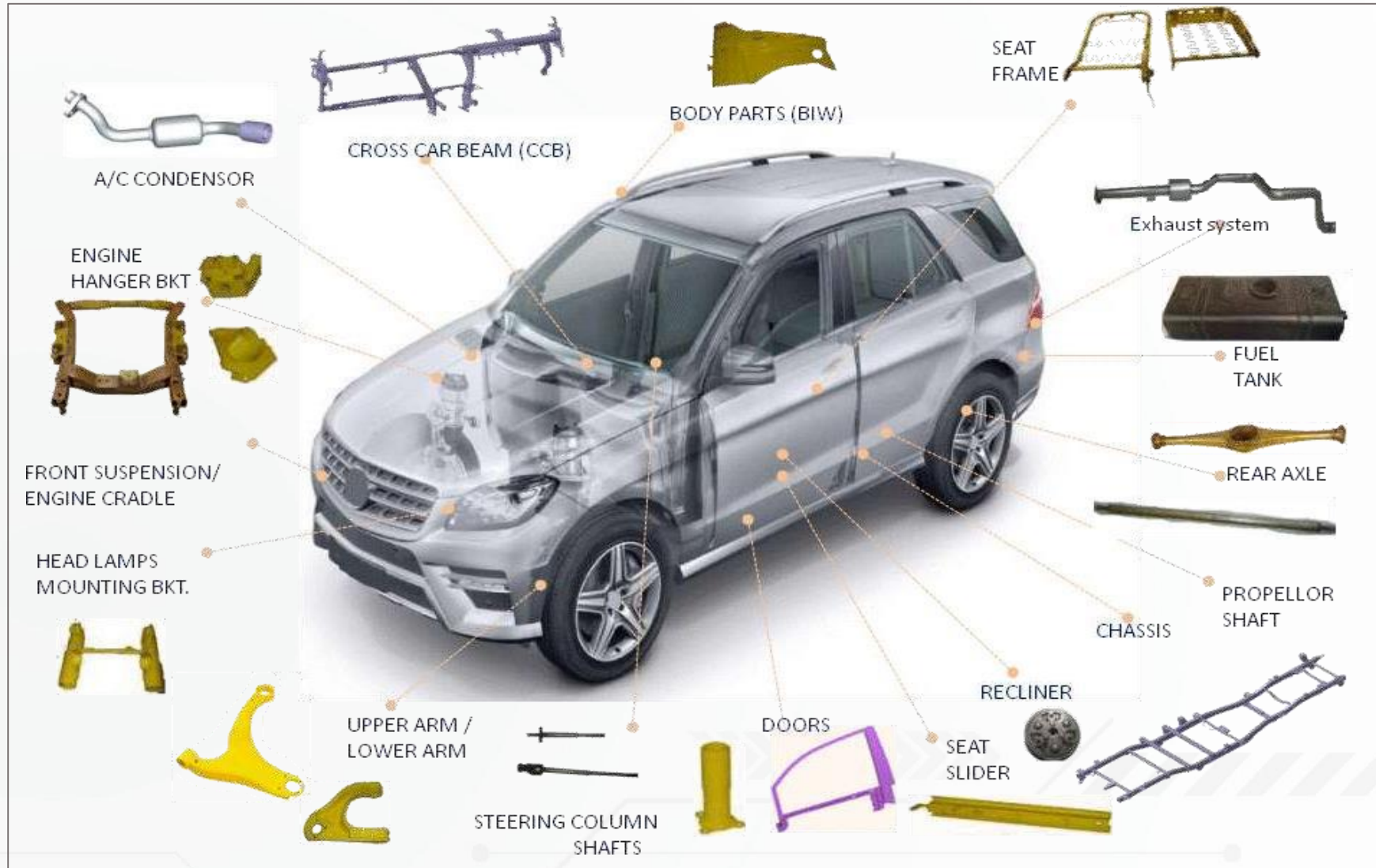
Manual MIG, TIG, SPOT
Welding fixtures
Inspection Jigs
Revising Jigs
Complete Turnkey solution
For manual welding line

Jigs & Fixtures



- **Team of 750+ Qualified People (Details as below)**
- **150+ Engineers, exclusive for in-house Mechanical / Control Design and Simulation**
- **Dedicate Project Management Team Business units**

Specialization 4 Wheeler domain :

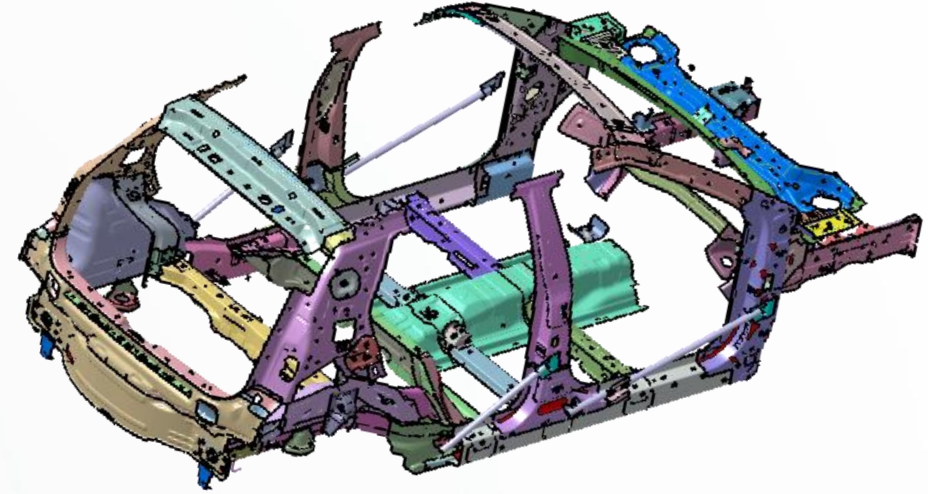


SPOT Welding Line for BIW Parts (Mahindra & Mahindra)



S201 Components :

- MBR ASSY-FRT SIDE INR-LH & RH
- RAIL ASSY ROOF RR
- MEMBER ASSY-DASH LWR FRT
- PANEL ASSY COWL LWR
- WHEEL HOUSE LH & RH
- RR SUSP SPRG MTG 1 LH & RH
- BEAM ASSY FRT LH & RH
- PANEL ASSY FRT TUNNEL
- MBR FRT SEAT MTG LH & RH
- CROSS MBR INTERM FLR
- A PILLER LH & RH
- B PILLER LH & RH
- PANEL COWL SIDE LH & RH
- RR SIDE SILL RR INR LH & RH
- INTRUSION BEAM LH & RH FRT & REAR



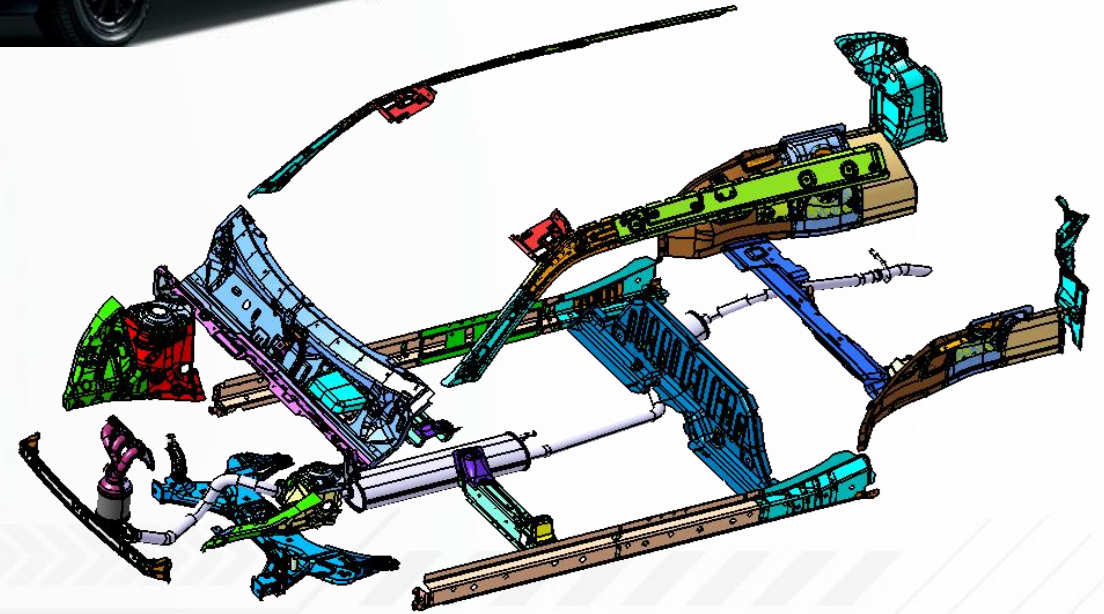
Y1K Components :

- FRONT PANEL INNER
- PNL COMP COWL UPR
- PNL FENDER APRON
- MANIFOLD COMP EXHAUST
- HOT END
- MBR FRONT BUMPER UPR
- FRONT SUSPENSION
- CROSS MEMBER
- CENTRAL EXHAUST SYSTEM
- PNL COMP SIDE SILL
- WHEEL HOUSE INNER
- LAMP HOUSE COMP
- COWL RR FLR SEAT MTG



Project summery :

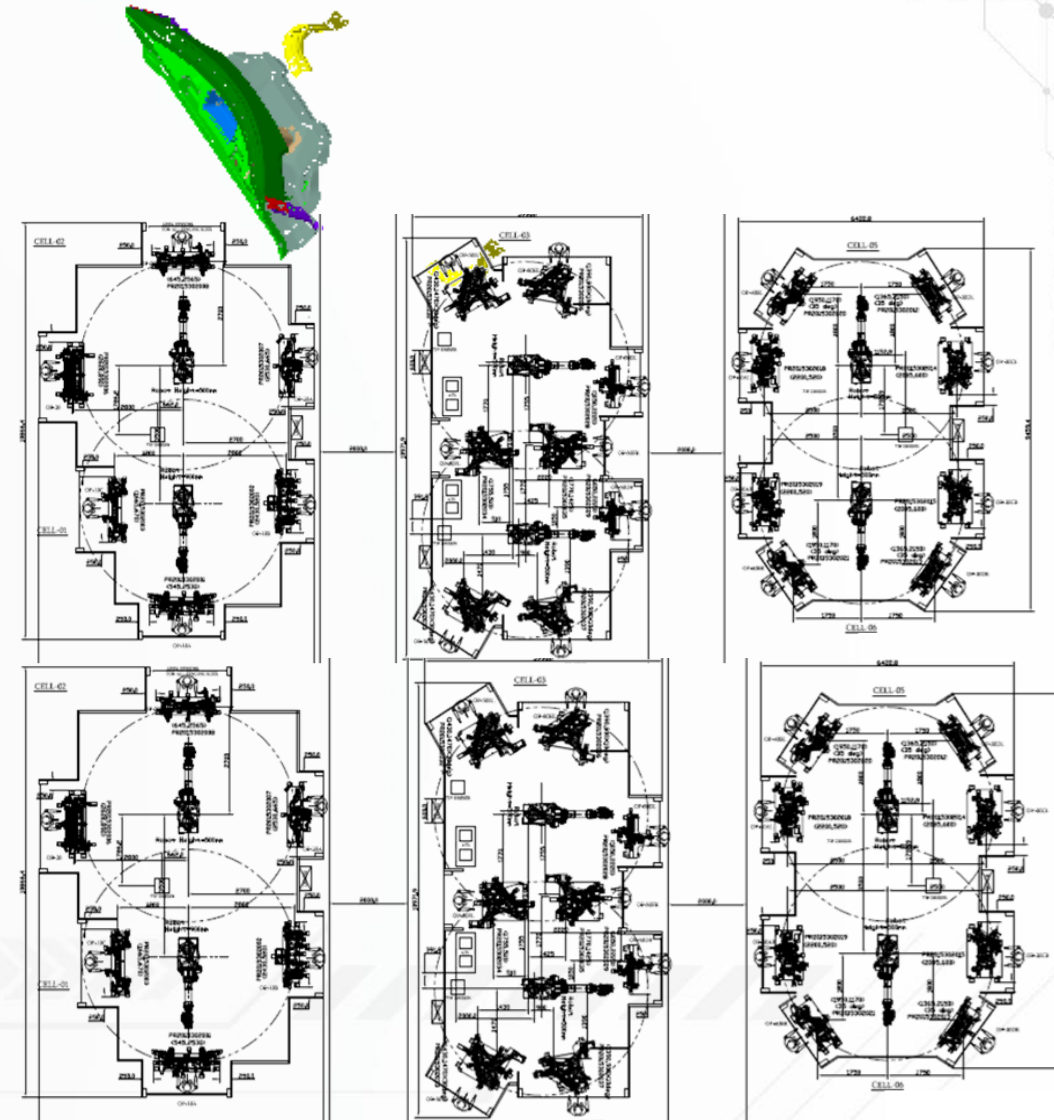
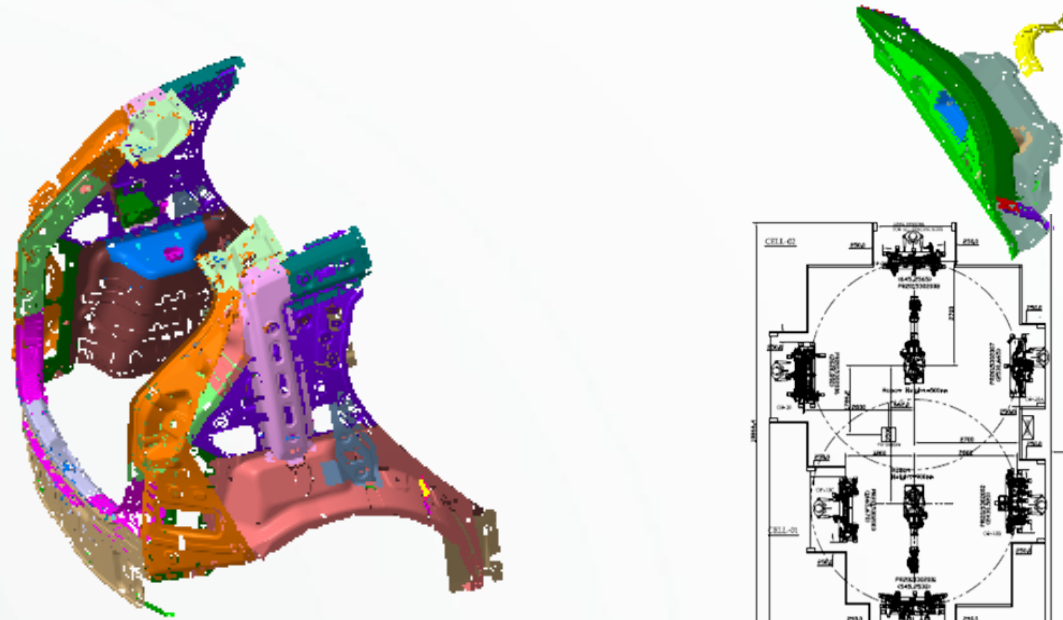
- Spot Welding Fixtures: 32 Nos.
- Checking Fixture: 12 Nos.
- Stud welding fixture: 2 Nos.
- Gripper: 2 Nos.
- EOL: 3 Nos.
- Robot Qty. : 19 Nos.



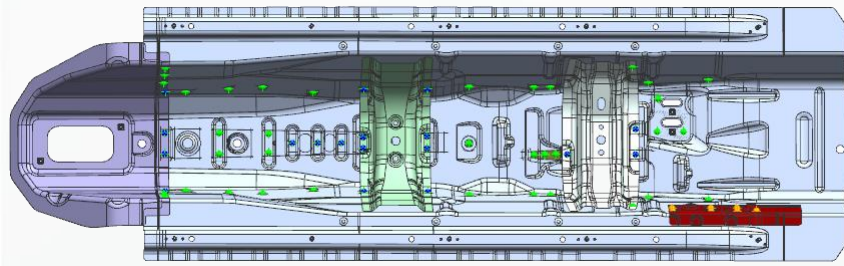
SPOT Welding Line for BIW Parts (Tata Motors)

X104 Components :

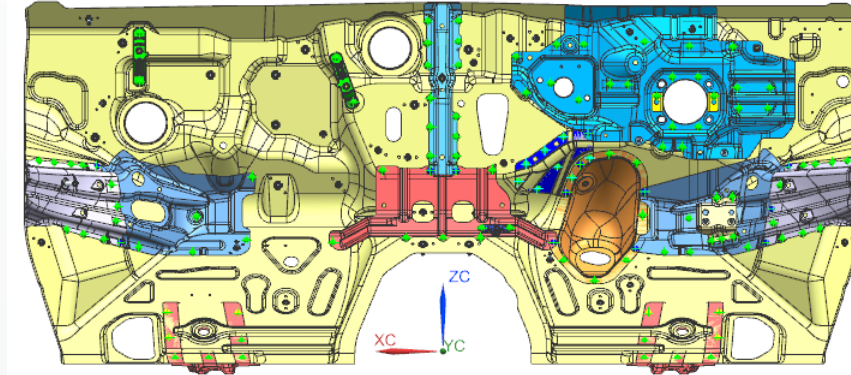
- Assembly bumper mounting
- Body side exit
- REAR QUARTER ASSEMBLY
- Side Extension LH & RH
- Tailgate sill comp
- Water Channel
- Wheel arch rear



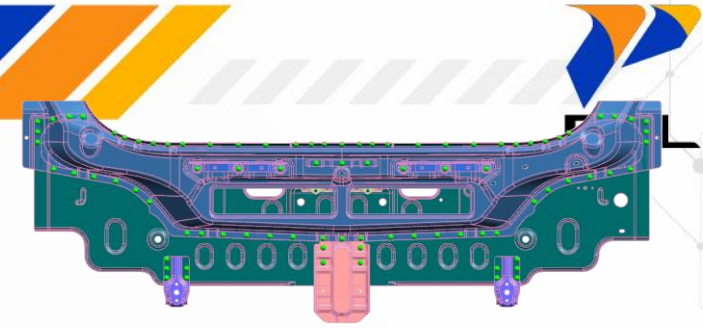
SPOT Welding Line for BIW Parts (SUZUKI)



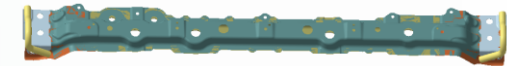
Tunnel component



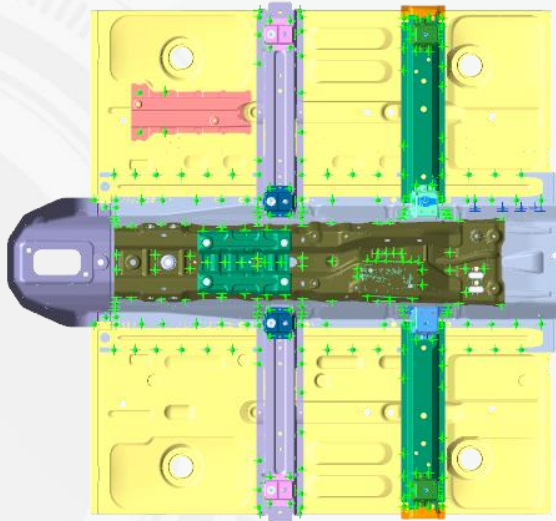
Dash Panel



Back Panel



Radiator Bkt



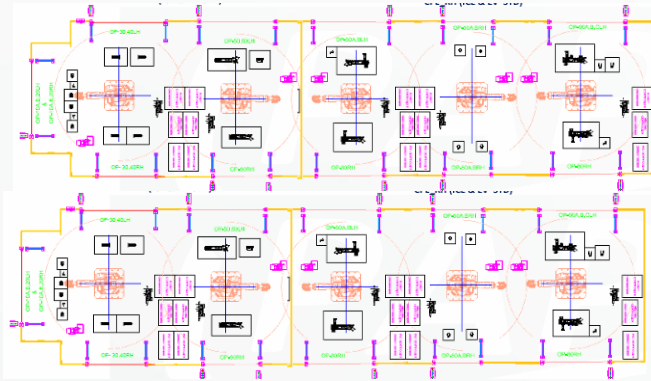
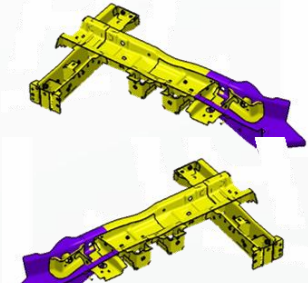
Main floor



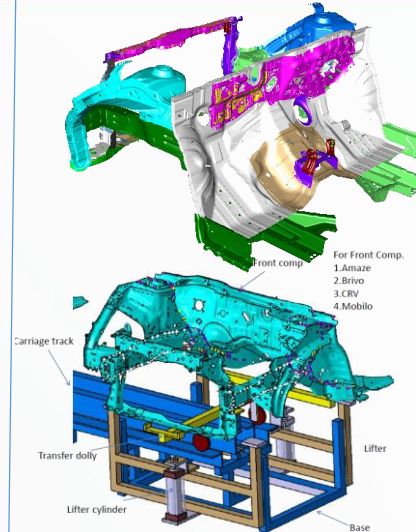
Project summary :

- Nos. of Assemblies : 6 Nos.
- Spot Fixture Qty. : 18 Nos.
- Stud Fixture Qty. : 5 Nos.
- Robot Qty. : 13 Nos.

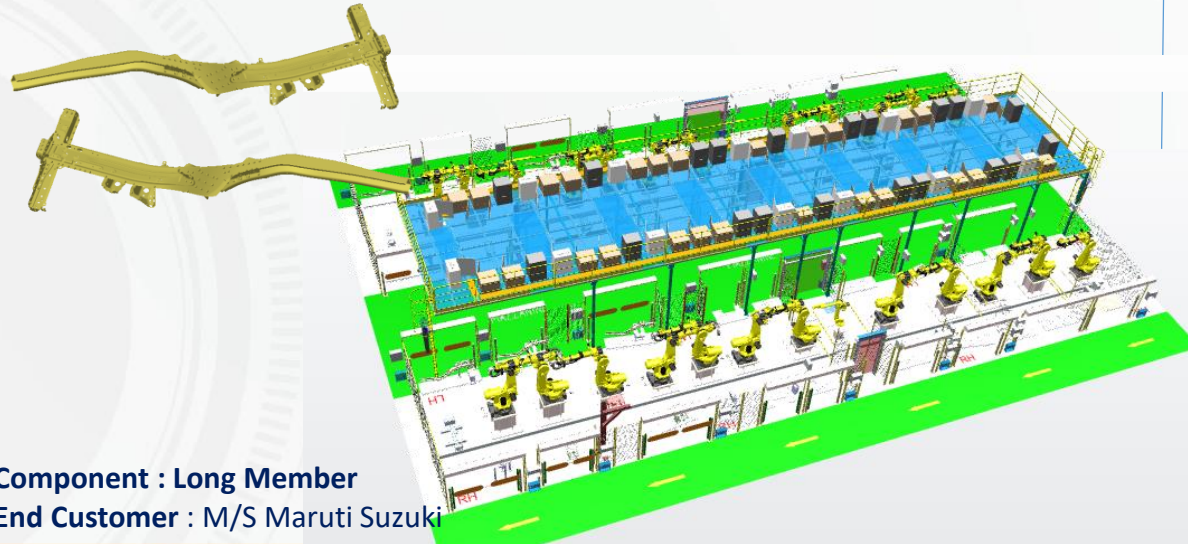
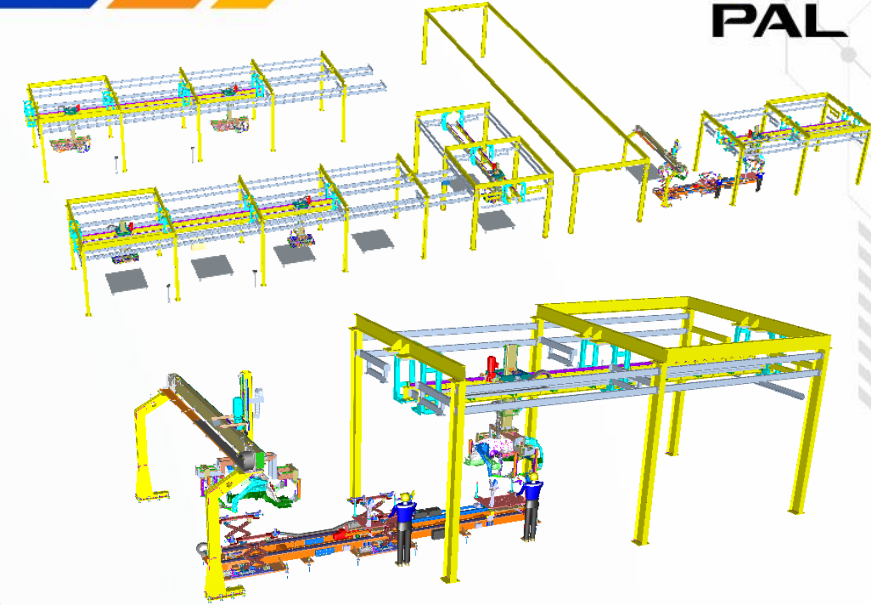
BIW Weld line :



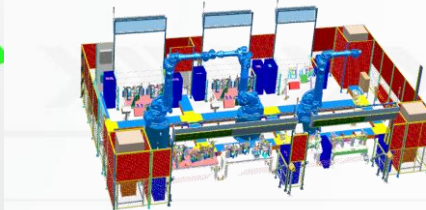
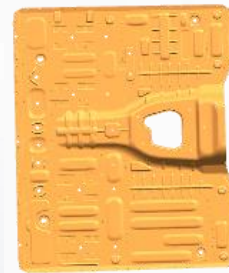
Component : Crash Inner Weld
End Customer : M/S Tata Motor



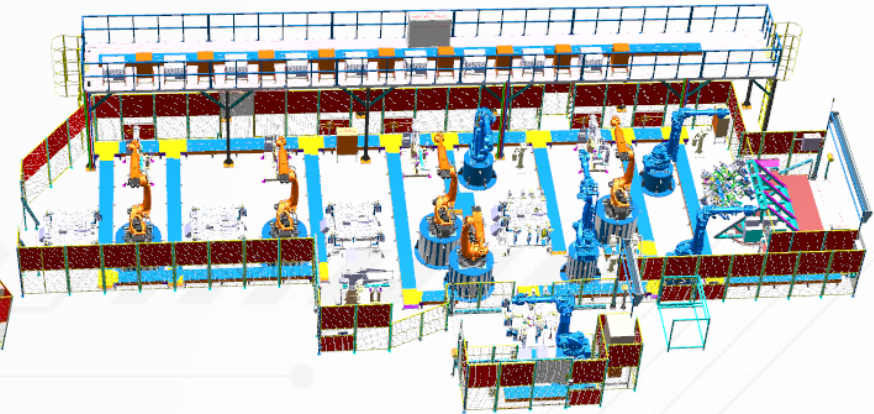
Component : Front Panel
End Customer : M/S Honda Cars



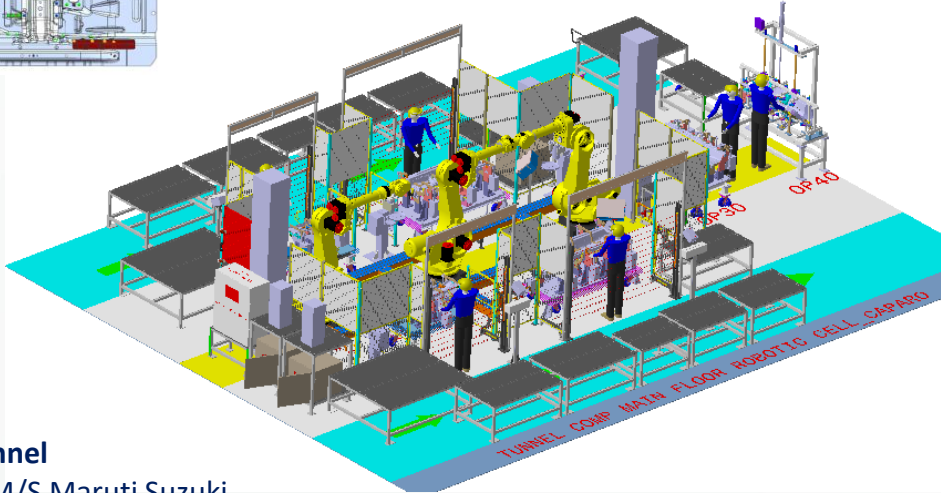
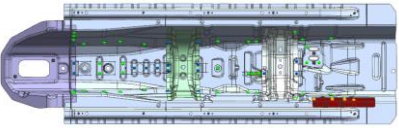
Component : Long Member
End Customer : M/S Maruti Suzuki



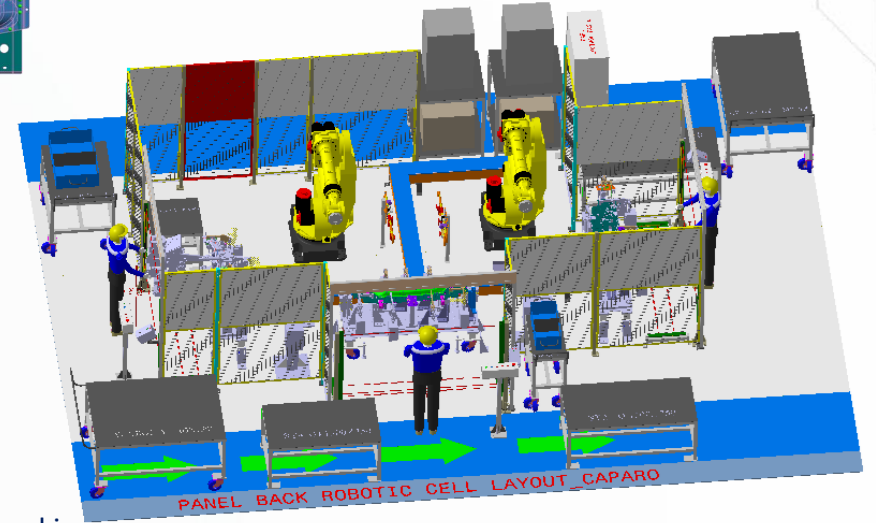
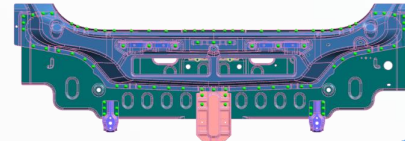
Component : Floor Panel
End Customer : M/S Mahindra & Mahindra



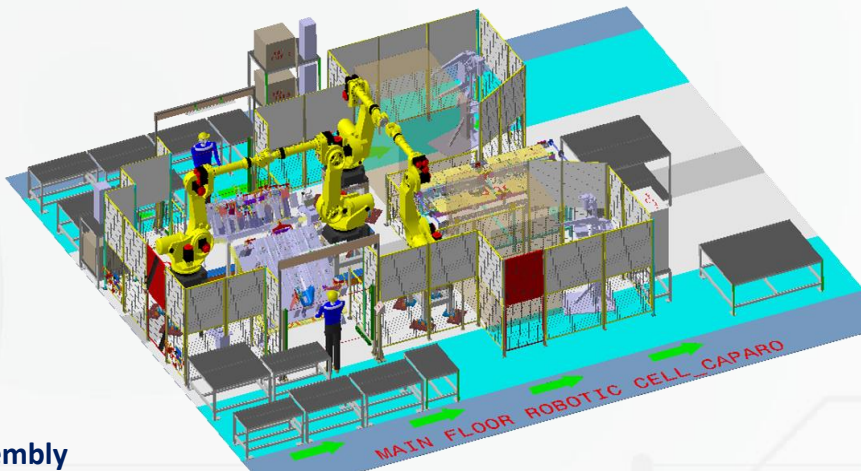
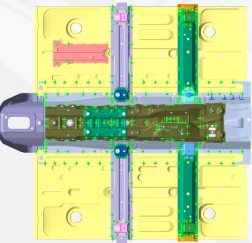
BIW Weld line :



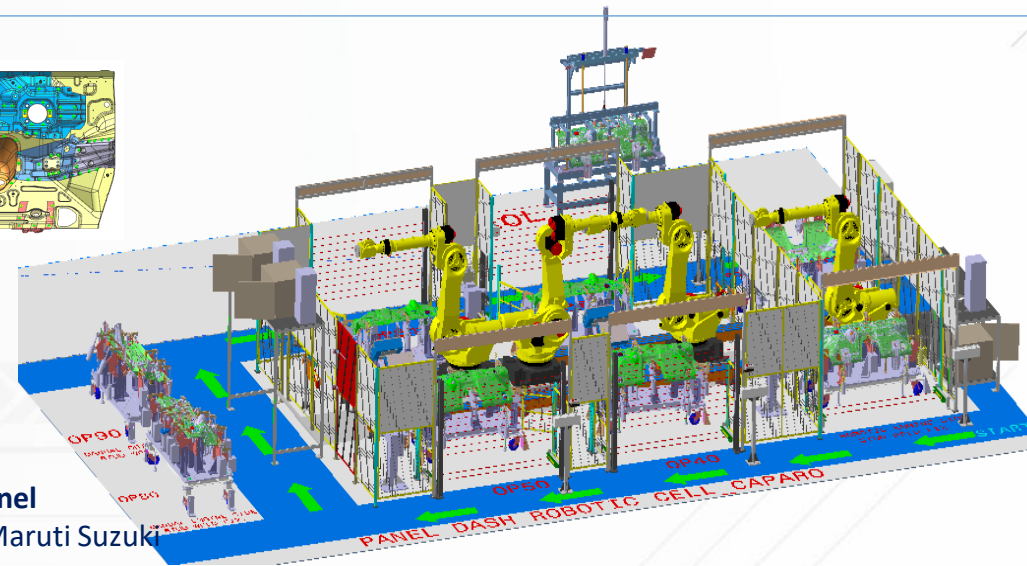
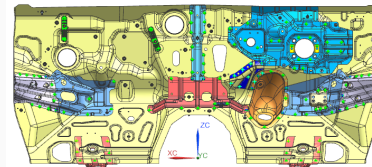
Component : Tunnel
End Customer : M/S Maruti Suzuki



Component : Back Panel
End Customer : M/S Maruti Suzuki



Component : Floor Assembly
End Customer : M/S Maruti Suzuki

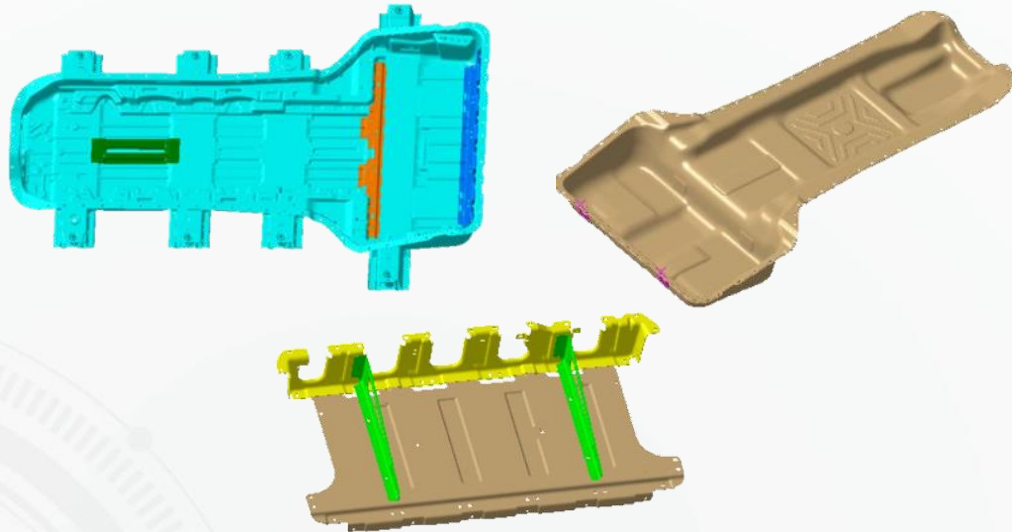


Component : Dash Panel
End Customer : M/S Maruti Suzuki

EV : Battery Tray Welding Line

Component : Battery enclosure

End Customer : M/S Mahindra (Track component)



Simulation video



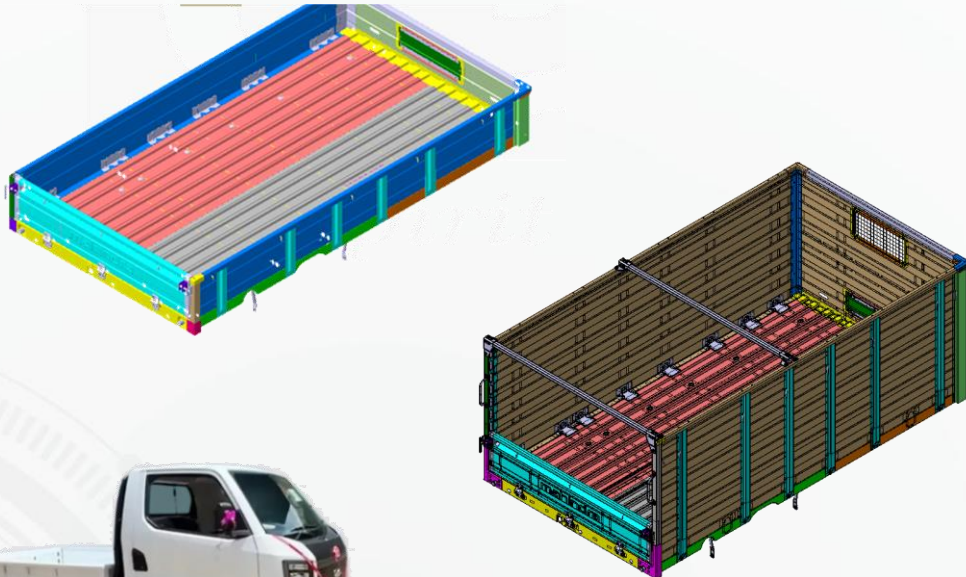
• Key features

- Fully Automation Robotic Welding and Handling Line (Scioro Gantry
- Component weight : 70 Kg
- Oil Spraying done by Robotic
- Welding Line Traceability - IOT

Loadbody Welding Line

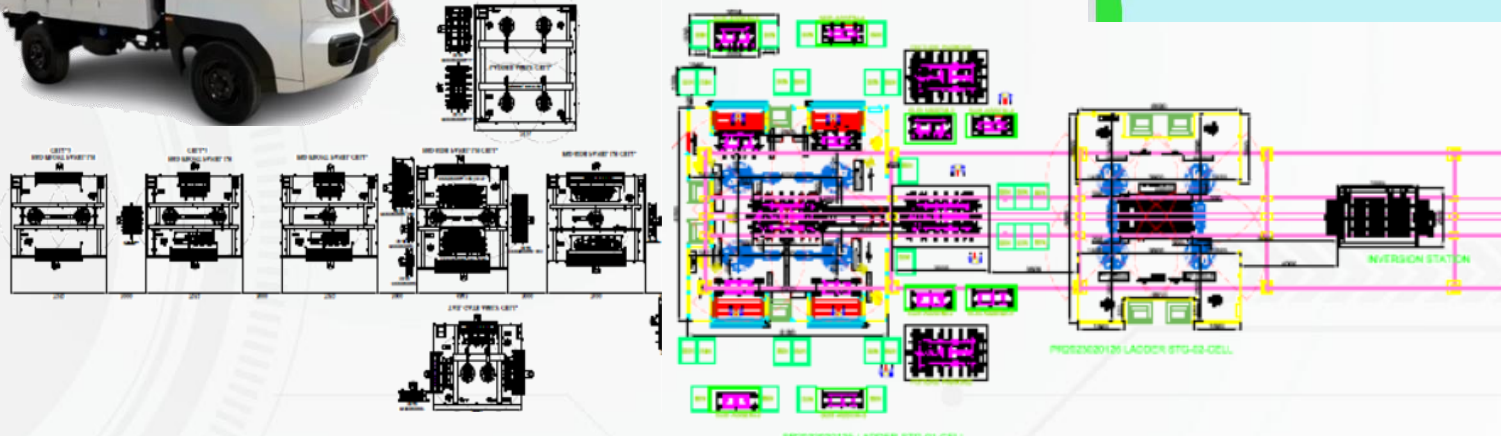
Component : Loadbody : UPP CARGO
End Customer : M/S Mahindra (Mungi, Engg.)

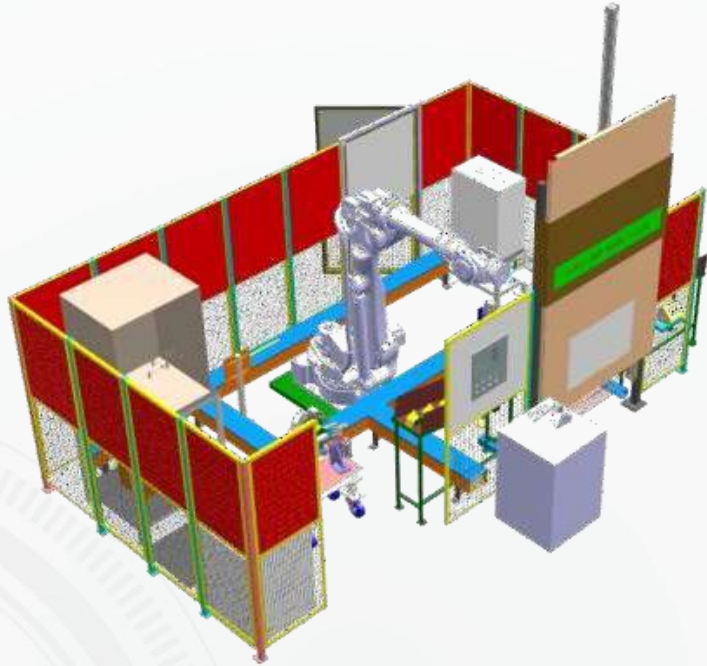
Simulation video



Key features

- Multi – Model Robotic Welding Line
- Robotic Welding and Handling Automation
- Robotic Pick & Drop with 7 axis shuttle
- Inversion JIG
- Welding Line Traceability - IOT

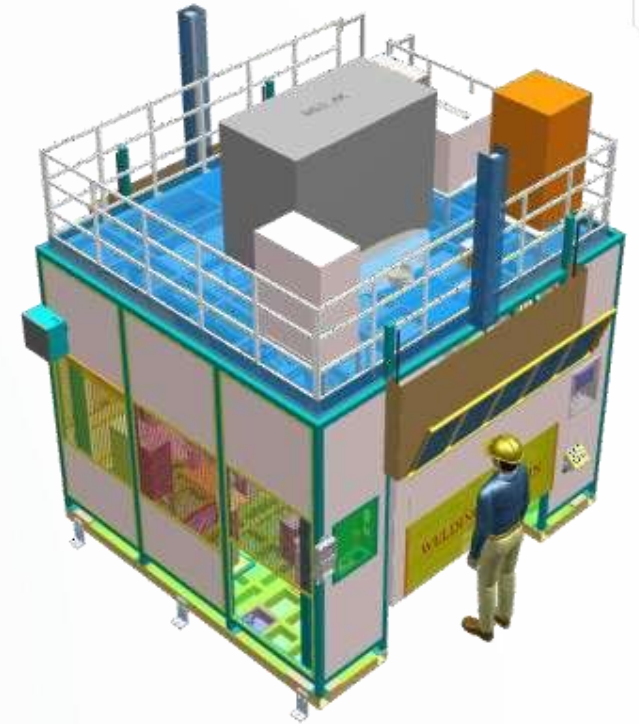




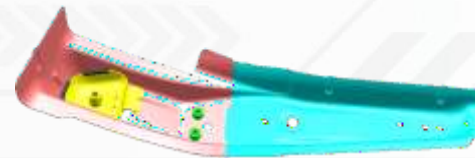
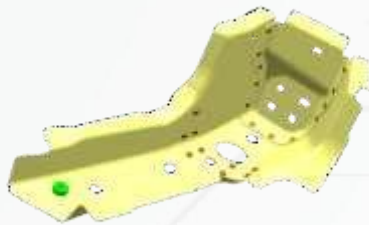
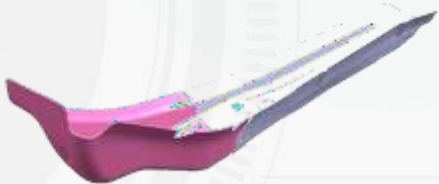
SPOT Welding Cell



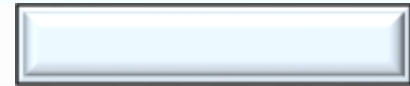
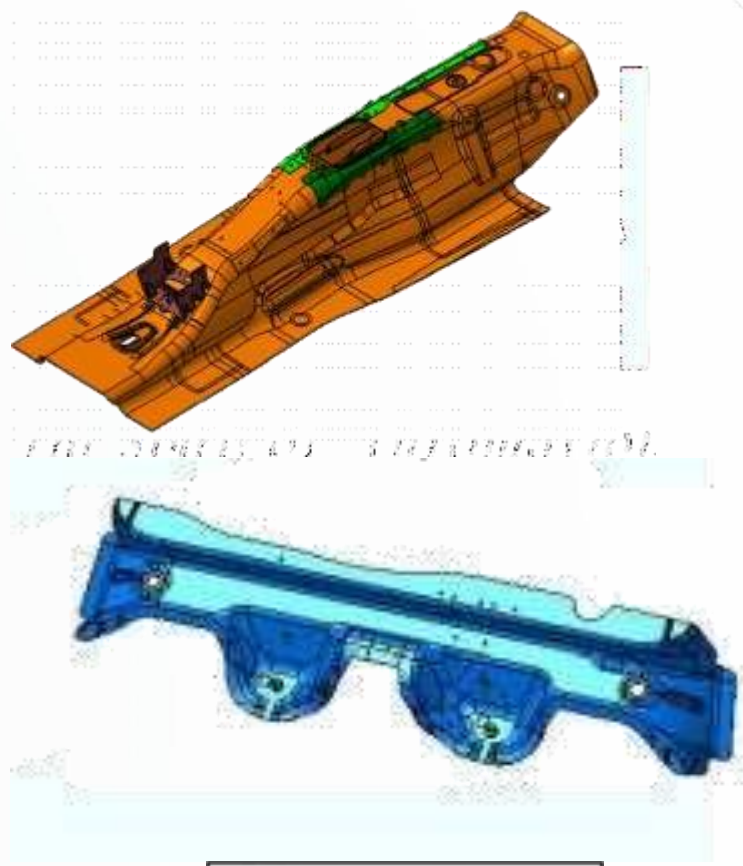
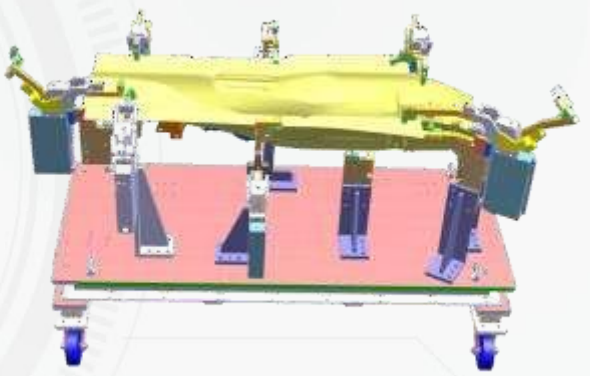
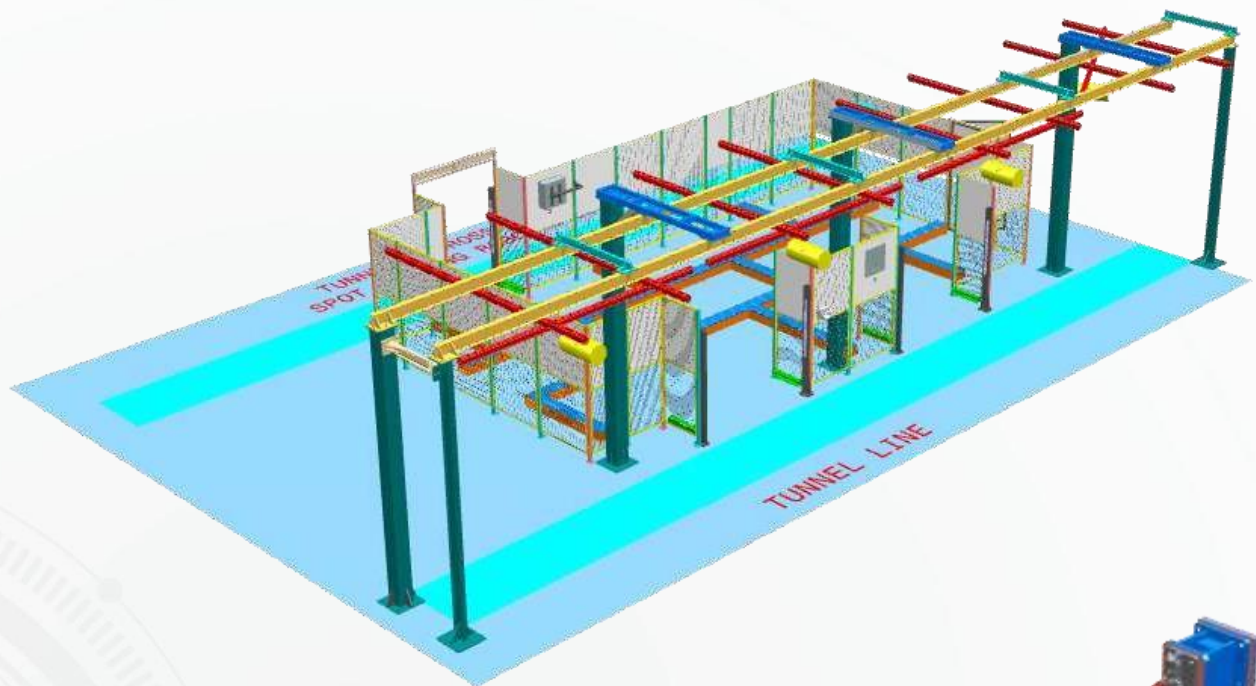
MIG Welding Fixture With Base Structure



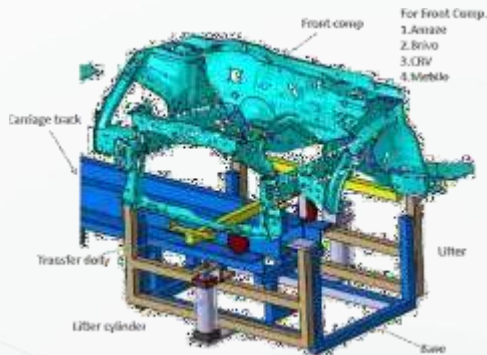
MIG Welding Cell



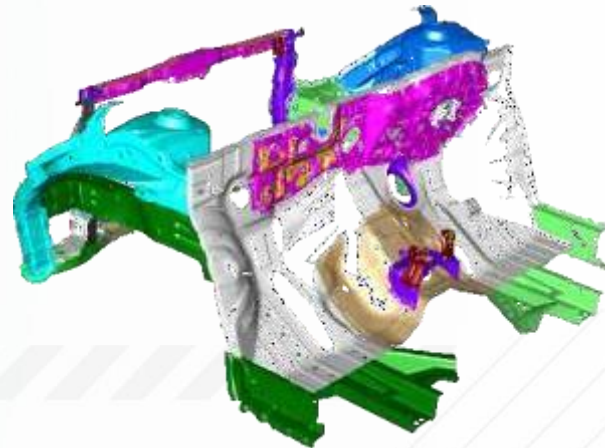
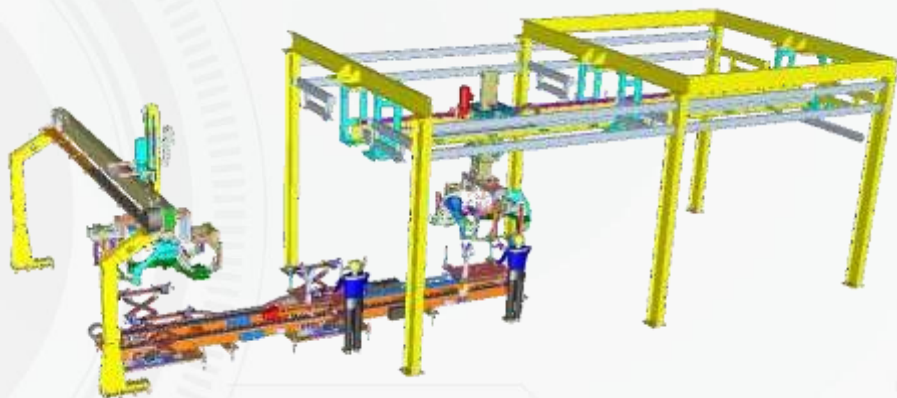
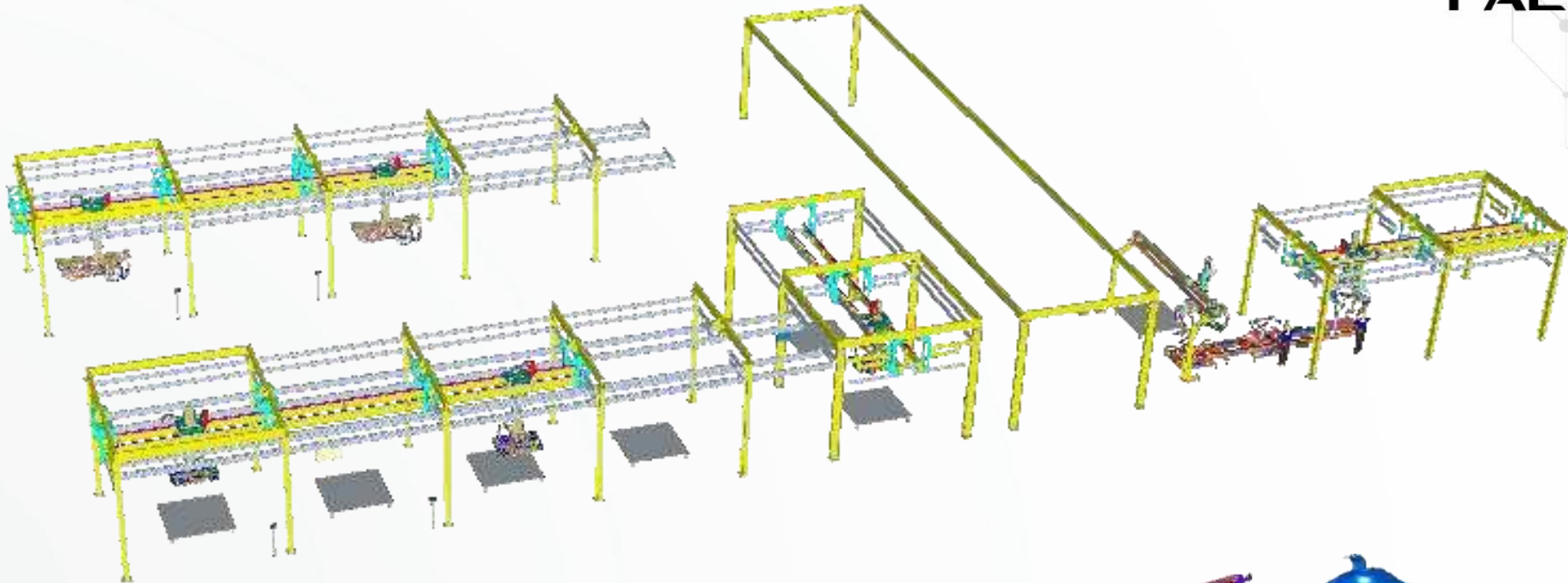
Line Automation for VW India 2.0 & 2.5 Project BIW Autogen



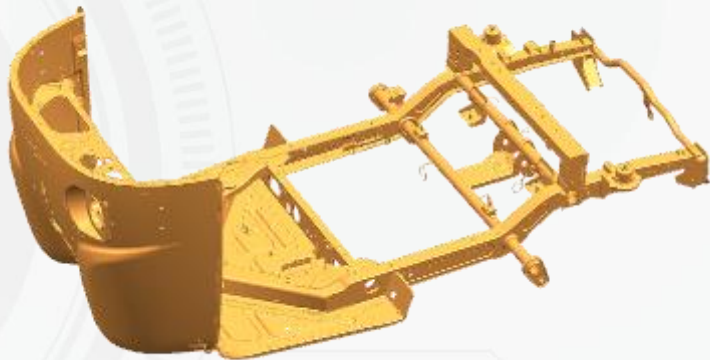
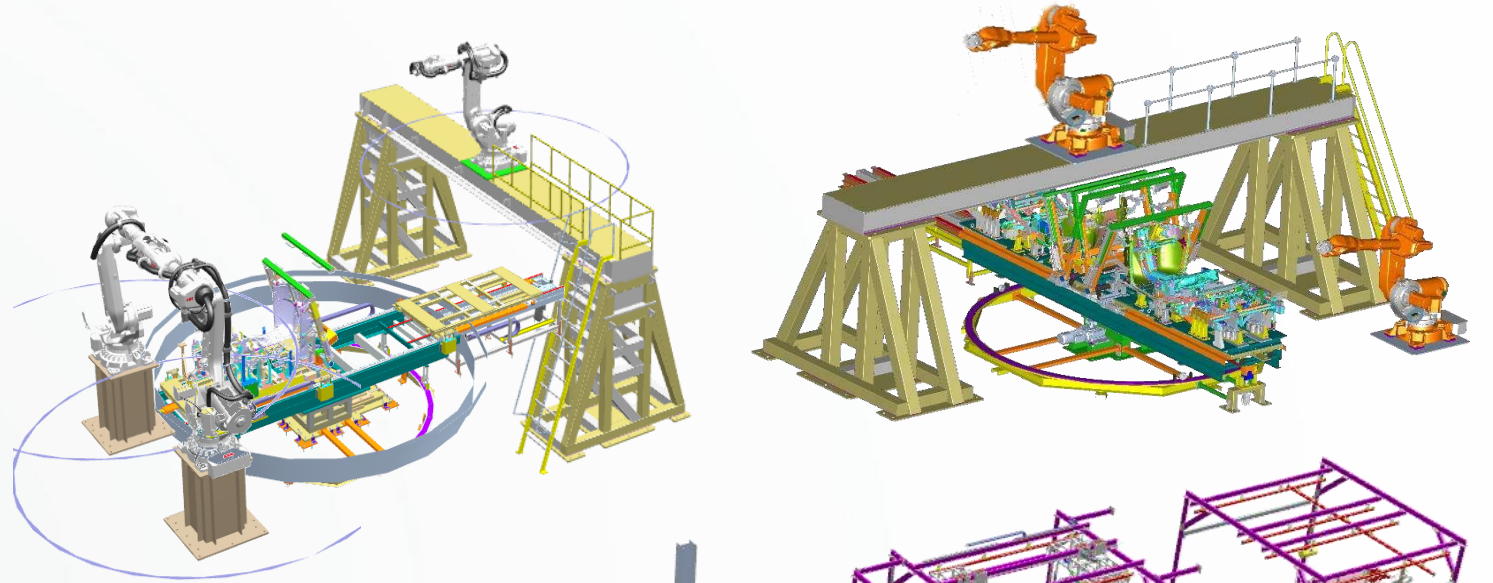
Line Automation : Honda Car : Welding + Handling



- For Front Comp.
- 1. Assize
 - 2. Brivo
 - 3. CIV
 - 4. Merble



3W Chassis Weld line :



CCB Weld Line:



CCB for : MG Motors



CCB for : MSIL (3 Lines)



CCB for : Tata Motors (6 Lines)



CCB for : Tata Motors



CCB for : M&M (4 Lines)



CCB for : M&M (3 Lines)



Front Susp. : MSIL



Front Susp. : MSIL



Front Susp. : MSIL



K Frame : M&M



Front Sups : Nissan



Front Cradle : MSIL



RTB : Renault Nissan



RTB : M&M



Cradle 4x4 : FCA



Cradle : Renault Nissan



Cradle : Renault Nissan



Seat Weld Line :



- Pipe Bending Cell with Auto Handling
- Seat Slider Auto Assembly Line
- Seat recliner Assembly Line
- Robotic MIG / TIG & laser Welding
- SPM's (Welding, Pressing, Torqueing
- Seat Assembly Conveyor
- ODS and SBRS Checking Stations
- Assembly line conveyor (Palletize, Slat and belt conveyors)
- EOL and Auto Testing Stations
- Acoustic chamber (Noise chamber)
- Manual and Auto Inspection Gauges

Major Customer :

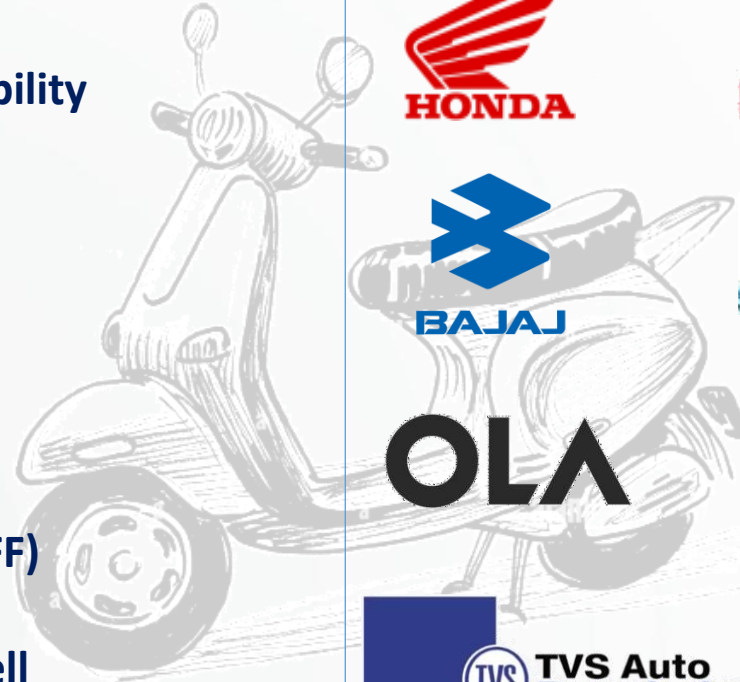


2W (Scooter & Bike) Weld Line :

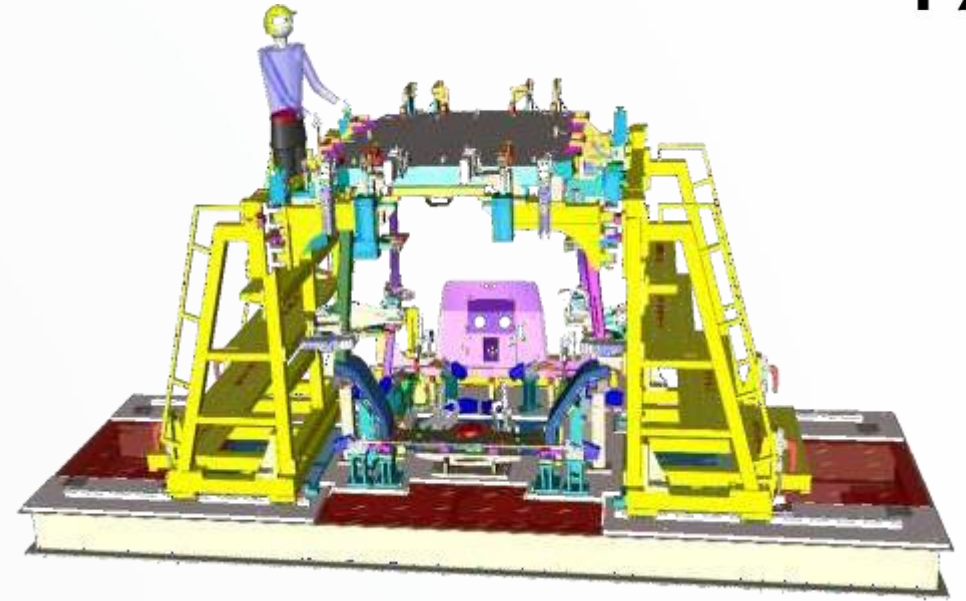


Major Customer :

- Chassis Frame Weld Line
- Vehicle Assembly Line with Traceability
- Swing arm Weld Line
- Muffler Welding Line
- Handle Welding Line
- Fuel Tank Welding Line (OB and MFF)
- Side Stand, Main Stand Welding Cell
- Fender Welding Cell
- Inspection Gauges, Revising Gauges



Heavy Welding Robotic Cell



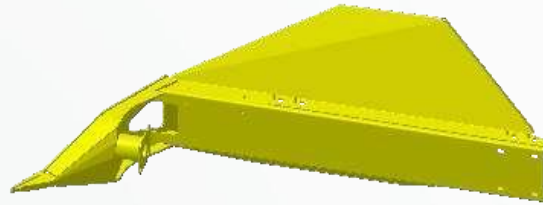
Other Products :



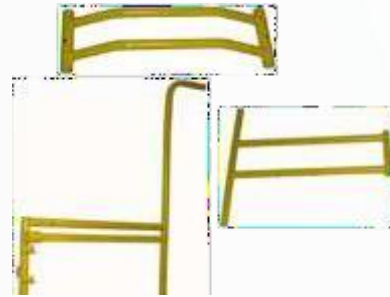
JCB Driver Compartment



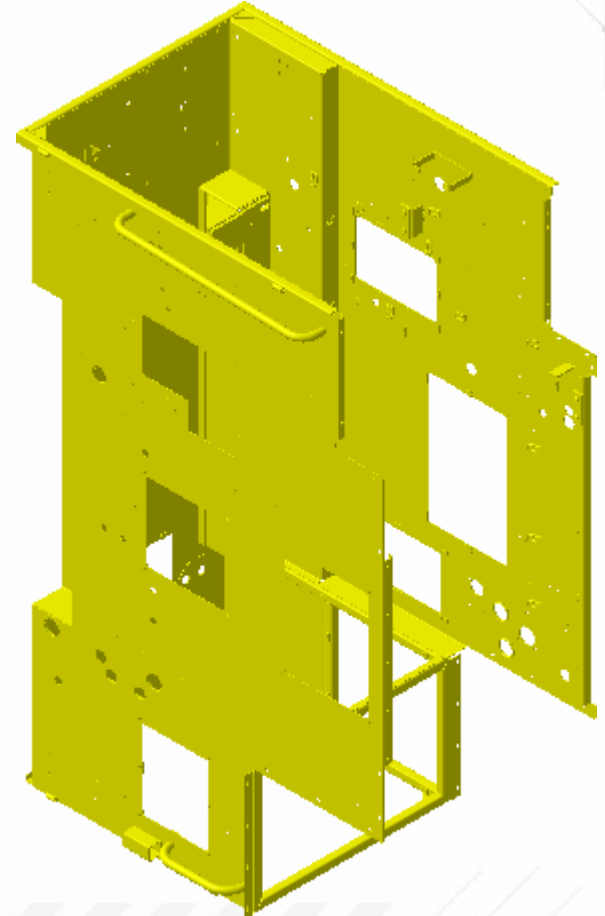
Scaffolding



Crop Divider



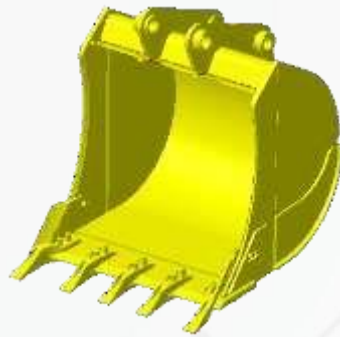
Wheel Chair



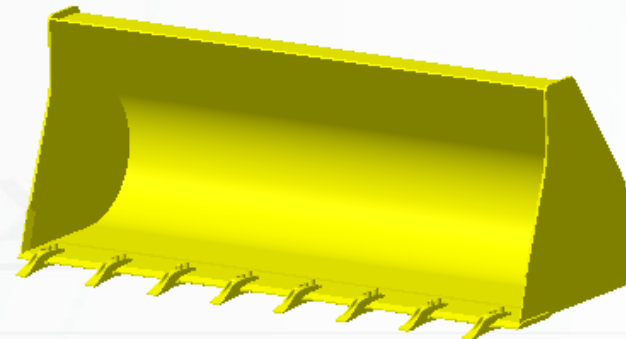
Engine Box Assembly



Refrigerator Compressor



Bucket



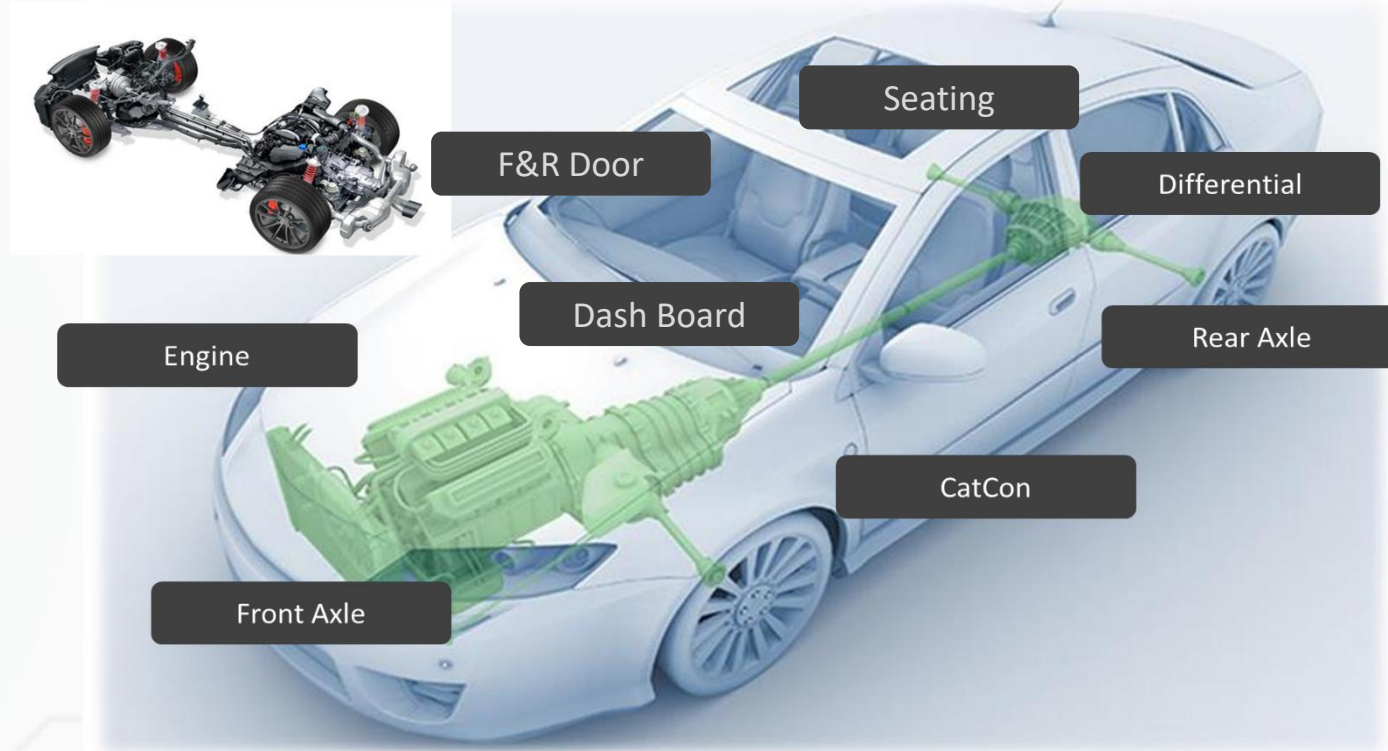
Shovel

POWERTRAIN ASSEMBLY SYSTEMS



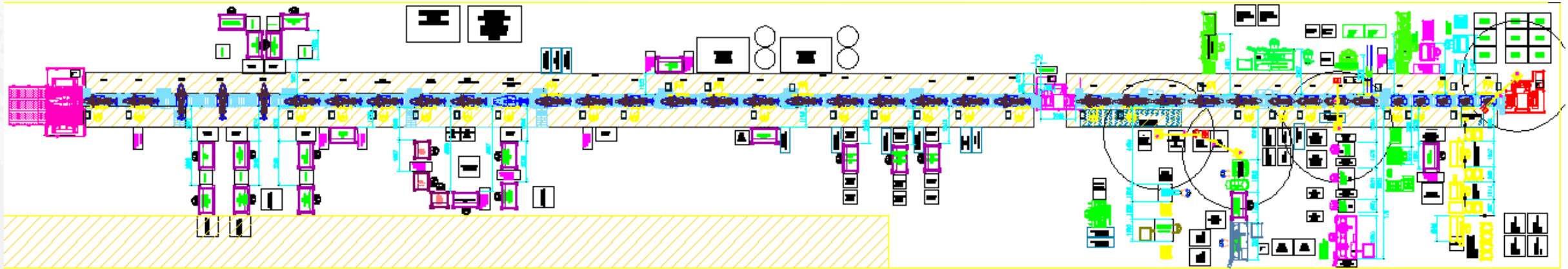
PAPL builds automotive assembly systems and production lines for all aspects of the Automotive system, Every solution is designed to meet specific customer requirements and PAPL strives to deliver the right fit for a particular market – offering a range of manual, semi-automated and fully automated solutions.

Complete Assembly Line



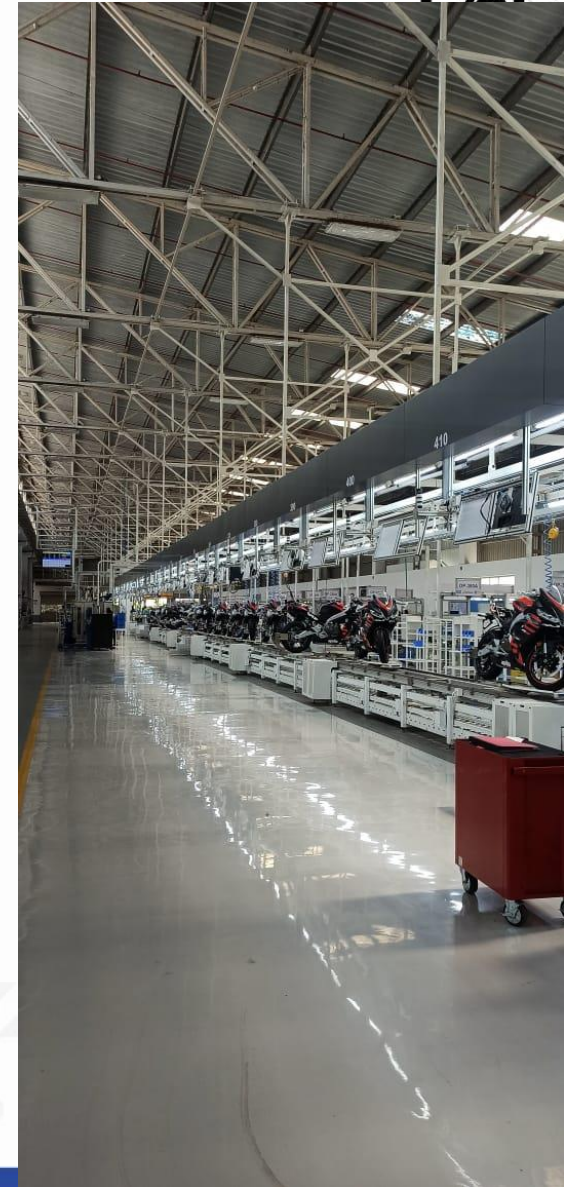
With innovation at the forefront of everything we do, the concepts we develop and projects we deliver on are nothing short of extraordinary. Our products meet the demands of the complex two wheeler assembly process and ensure the flexibility to meet the needs of our individual customers, while attaining a high level of quality and safety.

PAPL has years of experience in Two Wheeler assembly line, from standalone machines to complete assembly lines. As the two wheelers are evolving from IC to EV, so is our technology, while keeping the modularity.

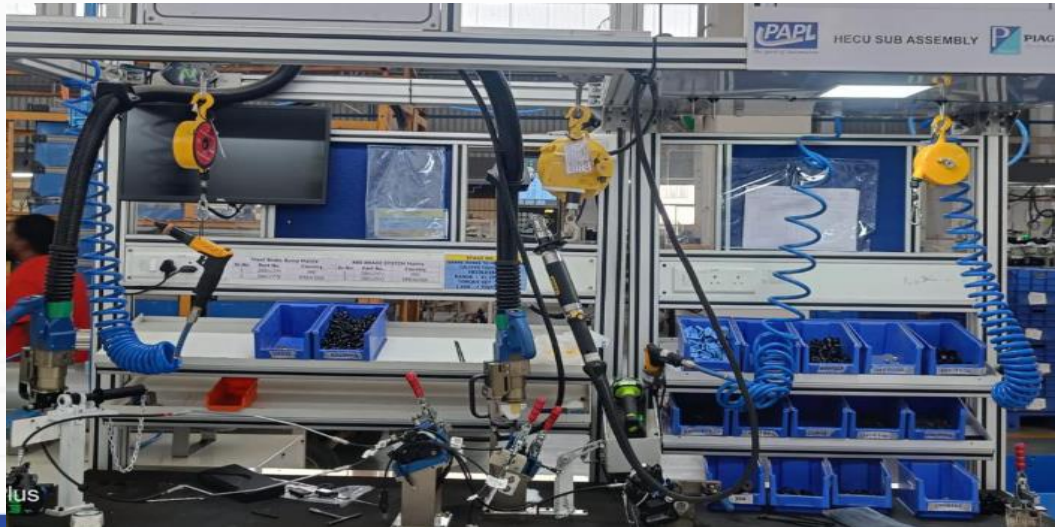
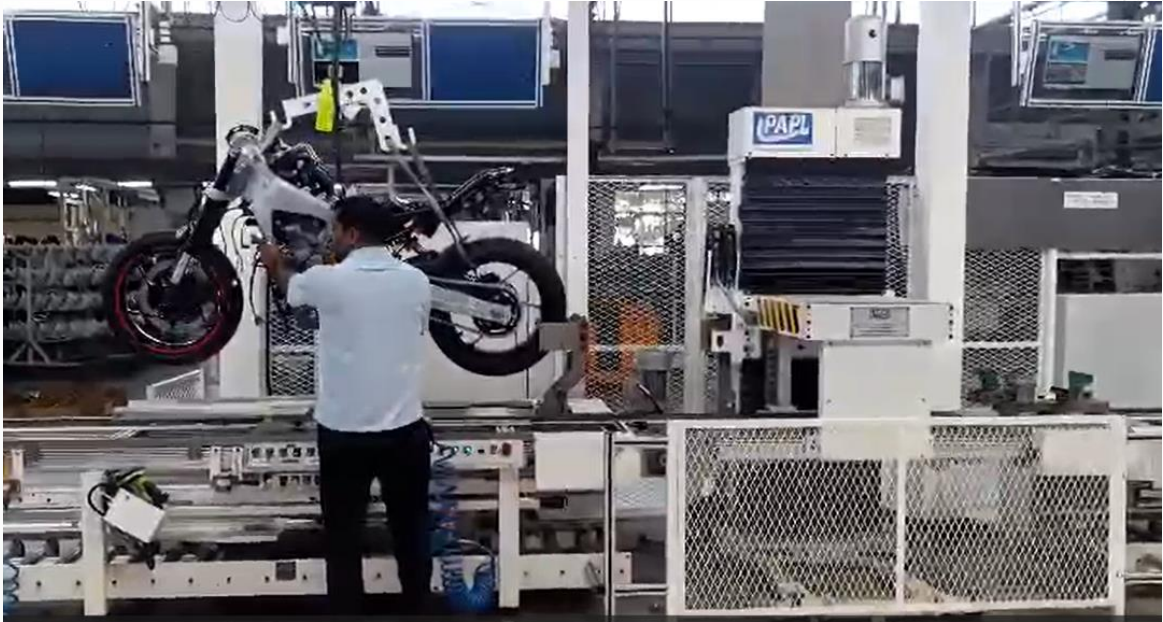


Vehicle Assembly Line, Layout :- 110m x 16m
Piaggio, Pune

PIAGGIO VEHICLE ASSEMBLY LINE



PIAGGIO VEHICLE ASSEMBLY LINE



Shot on OnePlus
2024.02.09 13:56
By Rohit

4W - Door Panel Assembly Line

1. Assembly Stations
2. Auto-Pop Up fixture – 2 Variants
3. End of Line Inspection
4. Traceability & Conformity
5. Scada System – Operator Guidance



HCV Assembly Line

- Pressing & Tightening Station,
Tightening with Auto Screw feeder,
Vision check,
Powered Conveyor,
Operator guidance using SCADA System,
Traceability and Conformity using SCADA System



Sub Assembly Line for Axle Shaft Assembly: -

This is Palletized Sub Assembly Line consisting of online & offline
SERVO PRESS machines,
Greasing Station,
Hydraulic Press Machines
DCNR Station



Cylinder Head & Crankcase DISC / CUP Plug Assembly Line

This is Palletized Sub Assembly Line consisting of online & offline

- SERVO PRESS machines,
- Robot for Positioning
- Hydraulic Press Machines with Load cell
- Traceability



Sealant Dispensing & Oil Spraying Machines: -

Sealant Special Purpose Machine for Oil Sump & BIW Parts

- Servo Sliding arrangement for Sealant Gun
- Multimodal JIGS concept
- Six Axis Robot For Position
- DCNR Station



Vision Inspection Station & Pick to Light System

Auto Inspection Station with Vision camera for Inspection & Measurement

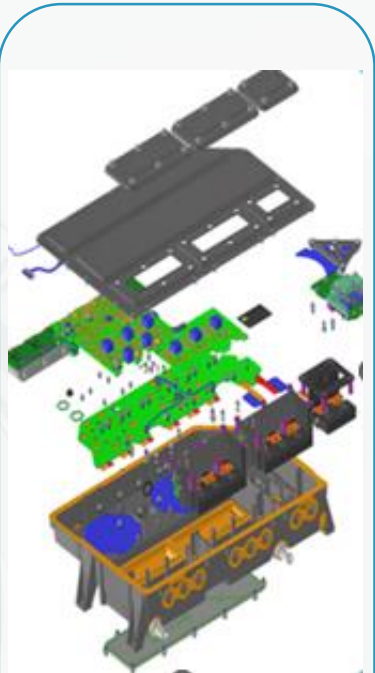
- Auto Inspection for Vision camera
- Pick to light system for error-proof assembly lines
- Auto checking with Traceability (Laser Marking)



PRODUCTS

EV Component Assembly involves assembly of small sized intricate parts which are difficult to assemble and easy to forget. PAPL has Mastered the art of solving this complexity by right use of Automation and Industry 4.0 solutions.

Traction Inverter



Battery Pack



Cylindrical cell



Prismatic cell



Pouch cell

Traction Motor



Hub Motor

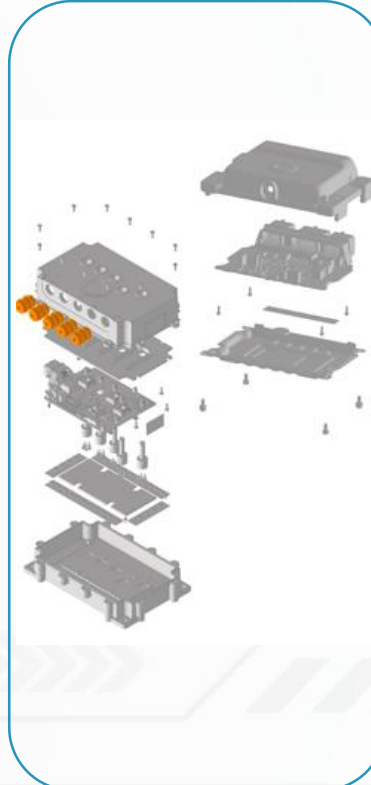


Axial Flux Motor

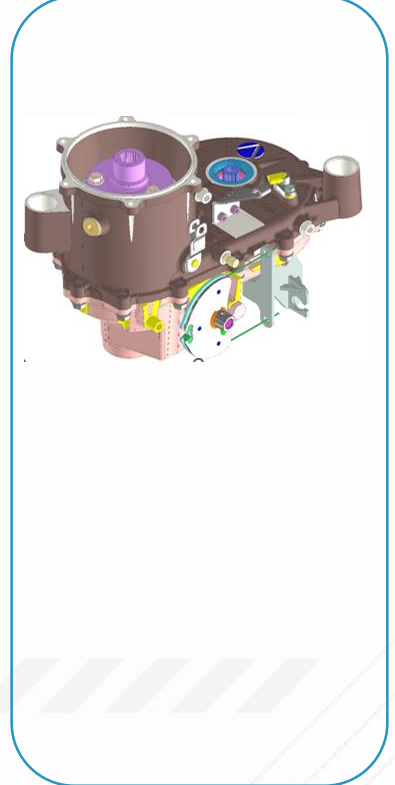


BLDC Motor

MCU/VCU



Gearbox



Strength :

- More than 1600 + Robot integration in a year
- 500+ Welding and assembly SPM in a year
- 600+ Robotic Cell manufacturing in a year
- 85% standardization in design for Robotic cell and Fixturing
- Plant Capacity is 4 Robotic Cell per day i.e. around 1120 Robotic Cell per Year
- Complete Welding line (Having approx. 13 Cell in a line) can be made in 75 days (20 line can be made at a time)
- State of art in-house facility for manufacturing (Approx 80%)

Sr.No.	Description
1	Dedicated Application Engineering team for detail working on RFQ in terms of Process study, Cycle time calculation, Line layout design, Line layout optimization
2	Standard Design Library for BIW Projects MIG Welding Projects & Standard Welding SPM
3	Design Software <ul style="list-style-type: none">- Mechanical Design - Catia Team, Solid edge Team- Electrical Design - E-Plan- 2D (Autocad) & Drawing relase team
4	Robot Simulation Software <ul style="list-style-type: none">- Process Simulator- Delmia- Yaskawa Moto Seam- ABB Robot Studio & All Robot Supporting Software
5	Robot Programming <p>Our Engineer are capable to integrate all Spot Welding and MIG Welding which includes</p> Welding & Handing Robot : Yaskawa, Fanuc, Panasonic, Kuka, ABB, OTC, Kawasaki, Nachi For Spot Welding Gun : Obara, Denyo, Aro, Nash, Welding Machine : Fronious, SKS, Linclon etc.
6	PLC Programming <p>Our Engineer are capable to integrate all PLC System available Mitsubishi, AB, Siemens, Omron, Proface, LG etc.</p> <p>Offline programming during design Phase Standard PLC Programing module</p>

Major Facility :



Sales & Marketing



**Mechanical &
Control Design Team**



**Design Simulation
Team**



**Robot Teaching &
PLC Programming**



**In house Engg. Facility
Quality Control
Project Management & Assembly
Customer Service & Support**



**2D LASER Cutting
Machine**



VMC



**CNC
Bending
machine**



**Plasma
Cutting
Machine**



In house : CMM Inspection facility :

- Flying scot for ensuring quality parts supplies.
- In- house gauging facility.
- In house CMM (Romer/ Faro).



Sr No	Machine .sr no	Size	Range	Remark
1	7325-8349-UC	8 feet	2.5m	ROMER
2	7325-4912-UC	12 feet	3.5m	ROMER
4	7335-6403-UC	8 feet	2.5m	ROMER
3	7325-7777-UC	8 feet	2.5m	ROMER
5	7325-7909-UC	8 feet	2.5m	ROMER
6	7325-4787-UC	8 feet	2.5m	ROMER
7	7325-8124-UC	8 feet	2.5m	ROMER
8	7325-8352-UC	8 feet	2.5m	ROMER
9	U08021243266	8 feet	2.5m	FARO ARM



Business Worldwide



- India
- Colombia
- Mexico
- Thailand
- Bangladesh
- SouthAfrica
- Poland
- Russia
- CZ
- Germany
- France

Service Stations



Our Esteemed Customers



THANK YOU



Patil Automation Ltd.

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