

AGV-BASED INSTRUMENTAL PANEL ASSEMBLY LINE

Customer:

JAGUAR LAND ROVER SLOVAKIA S.R.O.

Industry: Car manufacturing plant

Place of implementation:

Jaguar Land Rover Slovakia s.r.o., Nitra, Slovakia

Jaguar Land Rover Slovakia in Nitra is a state-of-the-art car manufacturing plant built between 2016 and 2018. The plant currently manufactures two luxurious models: Land Rover Discovery and Land Rover Defender.

“Partnering with Asseco CEIT allowed us to design and build an instrumental panel assembly line based on AGVs that is significantly more flexible and efficient as opposed to the traditional solutions. It also allowed us to connect it directly to the final assembly line in one seamless process.”

David Brindley, Material Planning & Logistics,
JLR Slovakia



Background

An assembly line is one of the main and more interesting Automated Guided Vehicle applications. The AGV becomes the assembly line itself. The idea is to use AGVs instead of typical physical structures such as floor chain, moving mat, conveyors, overhead cranes, etc. All of them are lines that require important civil works for installation.

The AGVs carry the initial unfinished component to be produced or assembled along the production lines, while operators modify, add, and transform it step-by-step and add value to the product as it transforms from the basic initial product into the finished one.

Customer requirements

The customer required an instrumental panel assembly line that is flexible, scalable, and one that can be integrated with other logistical flows, such as delivery to assembly line. The line also had to be easily relocated if needed and have a very high ergonomic and safety standard.

Solution

The only possible solution that could meet all the requirements of the customer was to make the whole line AGV-based.

Flexibility: AGV-based line can create as many deviations, external stations, quality checks stations, product customisation stations as possible.

Scalability: Additional capacity can be increased very easily with AGV-based line as it only requires adding more stations and extra AGVs. No need for any civil work or constructions.

Integration to logistical flow: AGV line is connected through a buffer directly to the final assembly line. After assembling the instrumental panel, it is transferred to the buffer. Panels are then fed to the final assembly line in sequence to be installed in vehicles.

Ergonomics and safety: There are special tables on top of the AGVs equipped with rotation tool that allows operators to easily change the position of the instrumental panel and make assembly process much more efficient.

Outcome

The AGV-based instrumental panel assembly line allowed the assembly process to be significantly more efficient, flexible, and scalable as opposed to the line that would be based on the traditional physical structures.

Project in numbers:

more than

27

AGVs

55

wheeled tables
with fixtures

500 m

total track distance

11

work stations

1

buffer with direct connection
to main assembly line



Benefits:

- maximum flexibility
- scalability
- integration to logistical flow
- improved ergonomics and safety