

LTI

Let's Solve



20% Reduction in Rework, Weld Defect Analytics for Automotive OEM



A Larsen & Toubro
Group Company

Client

The client is the North America subsidiary of a global manufacturing conglomerate of world-class automobiles, motorcycles, and power equipment.

Business Need

To predict the probability of a bad weld and prompt corrective action to improve quality and reduce rework/scrap work for a leading Automotive Equipment Manufacturer.

Challenges

- ✓ The welding of one car typically takes ~45 seconds. There were 32 timers (robots) doing the welding for 92 functions/programs (type of welding).
- ✓ These 92 functions are programmed to operate sequentially to complete the task. The data from each device gets captured at an interval of 30 ms. The challenge was to predict whether the weld was good/bad based on the characteristics taken from the IoT devices.

LTI Solution

- ✓ The parameters essential to determine the quality were identified as resistance, current, voltage, phase angle, and temperature.
- ✓ Next, statistical modelling techniques were used to find hidden patterns in the factors that led to the occurrence of bad welds.
- ✓ Confounding algorithms were used to prioritize the factors by importance and severity of impact. Machine learning algorithms were used to predict the use of robots, which could have caused a bad weld, given the order of priority of factors. This approach helped reduce the sampling rate, thus improving the manufacturing process.
- ✓ Persona-based dashboards with streamlined & historic data summary of readings for current and past understanding of data, helped the client understand the situation better.

Business Benefits

20%

reduction in sampling checks for cars in assembly line with proactive governance, reducing the manual inspection and rework time.

20%

reduction in manual labour for inspection of selected car and weld.

33%

improved visibility to action-driven, persona-based dashboards for routine inspection and historical analysis for root cause detection.

LTI (NSE: LTI) is a global technology consulting and digital solutions Company helping more than 435 clients succeed in a converging world. With operations in 31 countries, we go the extra mile for our clients and accelerate their digital transformation with LTI's Mosaic platform enabling their mobile, social, analytics, IoT and cloud journeys. Founded in 1997 as a subsidiary of Larsen & Toubro Limited, our unique heritage gives us unrivalled real-world expertise to solve the most complex challenges of enterprises across all industries. Each day, our team of more than 36,000 LTIites enable our clients to improve the effectiveness of their business and technology operations and deliver value to their customers, employees and shareholders. Find more at <http://www.Lntinfotech.com> or follow us at @LTI_Global

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