Metal Surface Defect Inspection

Client

Our client operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies.. Founded in 1876, our client looks back on more than 140 years of success. It employs more than 52,000 people globally – a passionate and highly diverse team, united by a strong company culture, a common purpose to create sustainable value, and shared values. As a recognized leader in sustainability, it holds top positions in many international indices and rankings.

Problem Faced

- The inspection of surface defects that could be present on bearing cages and also to classify them as processed and unprocessed based on the presence and absence of chamfer.
- This resulted in the deteriorated quality of the manufactured products because of human involvement. To get rid of the time consumption and achieve better accuracy, automation is something our client was looking for.
- The proposed system was to be installed in a quality assessment room integrated with a rotary bench setup. The diameter of bearing cages varied over a wide range. Achieving a depth of 80mm with a single camera, lens and fix working distance was another challenge.

Solution

- Details of the beading type were entered manually by the operator.
- Corresponding solution would start inspecting the dimensional variation in diameter & real time data profile was displayed on the screen.(6,8 and 9 mm)
- Any variation in dimensions over the threshold tolerance value would generate the buzzer.
- Operators would have to replace the defective line & reset the buzzer manually.
- Beading measurement – 6,8 and 9 - Since this required very high accuracy, doing it with normal cameras usually resulted in untrue results and thus a line scan camera was introduced.
- Beading is passed on the conveyor continuously. And using Sherlock, the value of several lines are put together to get an average and the result is given as a single value.

Images

Part Image	Part Image
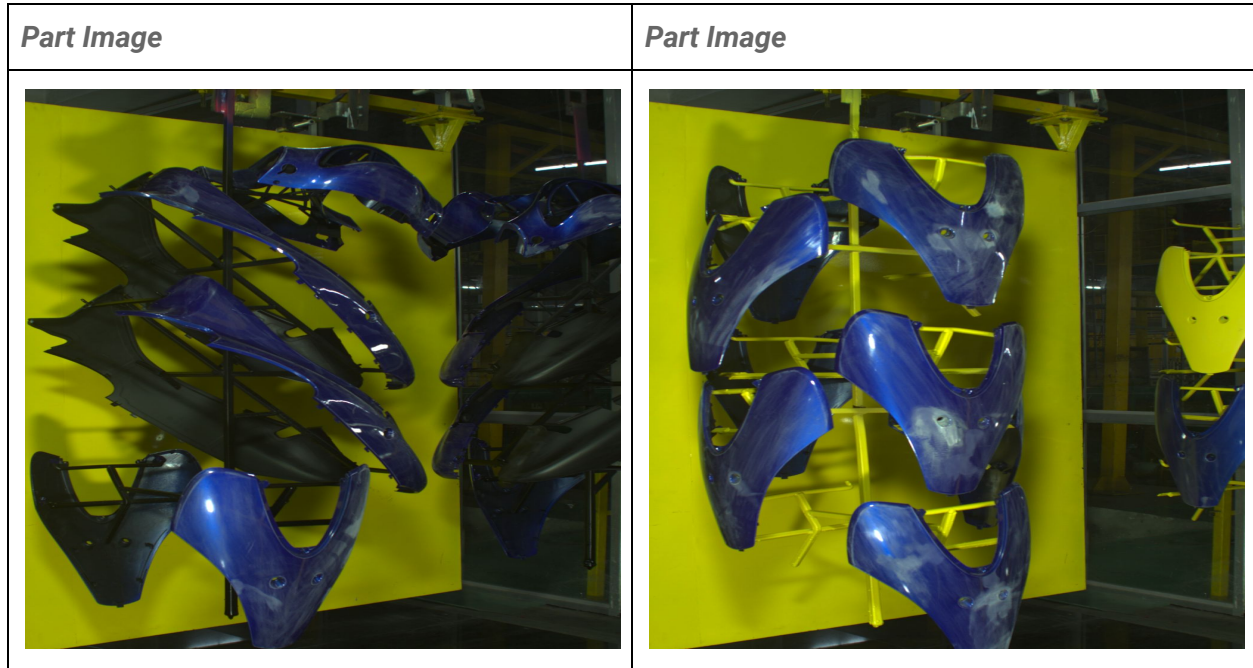
Results

The proposed solution will work for all the variants